December 30, 2015

TO: THE HONORABLE VIRGINIA G. PRESSLER, M.D.
DIRECTOR
DEPARTMENT OF HEALTH

ATTN: SCOTT GLENN, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: FORD N. FUCHIGAMI
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND
ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT
FOR KAUMUALII HIGHWAY, BRIDGE 7E REPLACEMENT,
PROJECT NO. HI STP SR50(2)
KOLOA DISTRICT, ISLAND OF KAUAI
TMKS: [4] 2-7-001:004 (POR.) AND 2-7-002:001 (POR.) KAUMUALII
HIGHWAY RIGHT-OF-WAY

The Department of Transportation has reviewed the Draft Environmental Assessment (EA) for
the subject project, and anticipates a Finding of No Significant Impact determination. Please
publish a notice of availability for the subject project in the January 23, 2016 OEQC
Environmental Notice.

We have enclosed a completed OEQC Publication Form and two hardcopies of the Draft EA.
The enclosed compact disk contains the Publication Form (Word document) and a PDF version
of the Draft EA.

Should you have any questions, please call Christine Yamasaki of our Design Section, Design
Branch, Highways Division at (808) 692-7572 or email at christine.yamasaki@hawaii.gov and
reference letter number HWY-DD 2.0943 as noted above.

Enclosures

c: Nicole Winterton (FHWA-CFLHD), Kathleen Chu (CH2M HILL)
Project Name: Bridge 7E Replacement, Kaumualii Highway, Route 50, Island of Kauai

Publication Form
The Environmental Notice
Office of Environmental Quality Control

Applicable Law:
Hawaii Revised Statutes (HRS) Chapter 343 and Hawaii Administrative Rules Chapter 11-200-2

HRS Chapter 343 Triggers:
Use of State Lands and Funds

Type of Document:
Draft Environmental Assessment (Anticipated Finding of No Significant Impact [AFNSI])

Island:
Kauai

District:
Koloa

TMK:
[4] 2-7-001: 004 (por.); 2-7-002: 001 (por.); Kaumualii Highway Right-of-Way

Permits Required:
Department of the Army Permit (Clean Water Act Section 404), Section 401 Water Quality Certification, Stream Channel Alteration Permit, National Historic Preservation Act Section 106/HRS 6E Consultation, Endangered Species Act Section 7 Consultation, Coastal Zone Management Act Consistency Review, National Pollutant Discharge Elimination System Permit, State of Hawaii Department of Transportation Occupancy and Use of State Highway Right-of-Way Permit, Community Noise Permit/Variance, Grading/Grubbing/Stockpiling Permit

Proposing Agency:
State of Hawaii, Department of Transportation

Address:
869 Punchbowl Street
Honolulu, Hawaii 96813

Contact and Phone:
Christine Yamasaki, 808-692-7572

Consultant:
CH2M HILL (under contract to Federal Highway Administration, Central Federal Lands Highway Division [FHWA-CFLHD])

Address:
1132 Bishop Street, St. 1100
Honolulu, Hawaii 96813

Contact and Phone:
Kathleen Chu, 808-943-1133

Project Summary
The State of Hawaii Department of Transportation proposes improvements to Bridge 7E (crossing an unnamed stream at approximately Milepost 7.0) in the Koloa District on the island of Kauai.

This project would replace the existing two-cell box culvert with a single-cell box culvert that is approximately 26 feet long and 44 feet wide. A temporary two-lane bypass route would be provided on the mouka (mountainward) side of the highway, throughout the construction period. The project includes scour protection and vegetation control measures, supporting walls and slopes, utility relocations, and temporary staging areas. This project would improve mobility for highway users, address existing structural deficiencies, and meet current design standards for roadway width, load capacity, barrier railing and transitions, and approach roadways.

Short-term construction related impacts (noise, dust and erosion) would occur, but the implementation of best management practices would minimize the effects to the environment. Four Federally and State listed wildlife species (Hawaiian petrel, Newell's shearwater, Hawaiian hoary bat, and band-rumped storm petrel) have the potential to occur within the project limits, but restrictions on the timing of construction and minimization of the project footprint would preclude any long-term effects to the species. Critical habitat and listed plant species do not exist within the project limits. Effects on historic architectural resources and archaeological resources would not be expected based on an absence of resources meeting eligibility criteria.
Bridge 7E Replacement Project
Kaumualii Highway
Koloa District, Kauai Island, Hawaii

Project No. HI STP SR50(2)
TMK: [4] 2-7-001: 004 (por.); 2-7-002: 001 (por.)
Kaumualii Highway Right-of-Way

Submitted Pursuant to Hawaii Revised Statutes, Chapter 343

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

January 2016
DRAFT ENVIRONMENTAL ASSESSMENT

Bridge 7E Replacement Project
Kaumualii Highway
Koloa District, Kauai Island, Hawaii

Project No. HI STP SR50(2)
TMK: [4] 2-7-001: 004 (por.); 2-7-002: 001 (por.)
Kaumualii Highway Right-of-Way

Submitted Pursuant to Hawaii Revised Statutes, Chapter 343

Prepared for:
State of Hawaii, Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, HI 96813

Prepared by:
CH2M HILL
1132 Bishop Street, Suite 1100
Honolulu, HI 96813
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acronyms and Abbreviations</strong></td>
<td>viii</td>
</tr>
<tr>
<td><strong>Project Summary</strong></td>
<td>x</td>
</tr>
<tr>
<td><strong>Preface.</strong></td>
<td>xi</td>
</tr>
<tr>
<td><strong>1 Introduction</strong></td>
<td>1-1</td>
</tr>
<tr>
<td>1.1 Proposing Agency and Action</td>
<td>1-1</td>
</tr>
<tr>
<td>1.2 Existing Conditions</td>
<td>1-1</td>
</tr>
<tr>
<td>1.3 Project Purpose and Need</td>
<td>1-1</td>
</tr>
<tr>
<td>1.4 Purpose of the Environmental Assessment</td>
<td>1-2</td>
</tr>
<tr>
<td>1.5 Public Comment on the Environmental Assessment</td>
<td>1-2</td>
</tr>
<tr>
<td>1.6 Permits, Approvals, and Compliance Required or Potentially Required</td>
<td>1-2</td>
</tr>
<tr>
<td>1.6.1 Federal</td>
<td>1-2</td>
</tr>
<tr>
<td>1.6.2 State</td>
<td>1-3</td>
</tr>
<tr>
<td>1.6.3 County</td>
<td>1-3</td>
</tr>
<tr>
<td>1.7 References</td>
<td>1-3</td>
</tr>
<tr>
<td><strong>2 Project Description</strong></td>
<td>2-1</td>
</tr>
<tr>
<td>2.1 Project Location</td>
<td>2-1</td>
</tr>
<tr>
<td>2.1.1 Surrounding Land Uses</td>
<td>2-1</td>
</tr>
<tr>
<td>2.1.2 Other Nearby State and County Projects</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2 Existing Conditions along the Project Corridor</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2.1 Right-of-Way and Surrounding Elevations</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2.2 Bridge Structure and Approaches</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2.3 Utilities</td>
<td>2-2</td>
</tr>
<tr>
<td>2.3 Proposed Project</td>
<td>2-2</td>
</tr>
<tr>
<td>2.3.1 Replacement Structure</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.2 Construction Activities</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.3 Properties Affected by the Project</td>
<td>2-4</td>
</tr>
<tr>
<td>2.4 No Action Alternative</td>
<td>2-4</td>
</tr>
<tr>
<td>2.5 Structure Alternatives Considered and Dismissed</td>
<td>2-5</td>
</tr>
<tr>
<td>2.5.1 Rehabilitation</td>
<td>2-5</td>
</tr>
<tr>
<td>2.5.2 Pipe Structures</td>
<td>2-5</td>
</tr>
<tr>
<td>2.5.3 Concrete-arched Structure</td>
<td>2-5</td>
</tr>
<tr>
<td>2.5.4 Temporary Bypass Alternatives Considered and Dismissed</td>
<td>2-5</td>
</tr>
<tr>
<td>2.6 Statewide Transportation Improvement Program</td>
<td>2-5</td>
</tr>
<tr>
<td>2.7 Preliminary Cost and Schedule</td>
<td>2-6</td>
</tr>
<tr>
<td>2.8 References</td>
<td>2-6</td>
</tr>
<tr>
<td><strong>3 Affected Environment, Impacts, and Mitigation</strong></td>
<td>3-1</td>
</tr>
<tr>
<td>3.1 Topography, Geology, and Soils</td>
<td>3-1</td>
</tr>
<tr>
<td>3.1.1 Existing Conditions</td>
<td>3-1</td>
</tr>
<tr>
<td>3.1.2 Potential Impacts and Mitigation Measures</td>
<td>3-1</td>
</tr>
<tr>
<td>3.2 Climate and Air Quality</td>
<td>3-2</td>
</tr>
<tr>
<td>3.2.1 Existing Conditions</td>
<td>3-2</td>
</tr>
<tr>
<td>3.2.2 Potential Impacts and Mitigation Measures</td>
<td>3-3</td>
</tr>
<tr>
<td>3.3 Hydrology and Water Quality</td>
<td>3-3</td>
</tr>
</tbody>
</table>
3.3.1 Surface Water and Groundwater ................................................................. 3-3
3.3.2 Non-wetland Waters .................................................................................. 3-4
3.3.3 Clean Water Act, Section 303(d) ............................................................... 3-4
3.3.4 Potential Impacts and Mitigation Measures .............................................. 3-4

3.4 Natural Hazards ............................................................................................. 3-5
3.4.1 Potential Impacts and Mitigation Measures .............................................. 3-5

3.5 Noise .............................................................................................................. 3-6
3.5.1 Existing Conditions .................................................................................... 3-6
3.5.2 Potential Impacts and Mitigation Measures .............................................. 3-6

3.6 Hazardous Materials ..................................................................................... 3-6
3.6.1 Existing Conditions .................................................................................... 3-6
3.6.2 Potential Impacts and Mitigation Measures .............................................. 3-7

3.7 Flora .............................................................................................................. 3-8
3.7.1 Existing Conditions .................................................................................... 3-8
3.7.2 Potential Impacts and Mitigation Measures .............................................. 3-8

3.8 Fauna ............................................................................................................ 3-9
3.8.1 Avifauna .................................................................................................... 3-9
3.8.2 Mammalian Species .................................................................................. 3-9
3.8.3 Terrestrial Invertebrates .......................................................................... 3-9
3.8.4 Aquatic Resources .................................................................................... 3-10
3.8.5 Potential Impacts and Mitigation Measures .............................................. 3-10

3.9 Archaeological Resources ........................................................................... 3-11
3.9.1 Existing Conditions .................................................................................... 3-11
3.9.2 Potential Impacts and Mitigation Measures .............................................. 3-12

3.10 Historic Architectural Resources ................................................................. 3-12
3.10.1 Existing Conditions ................................................................................... 3-12
3.10.2 Potential Impact and Proposed Mitigation Measures ............................. 3-12

3.11 Cultural Resources ....................................................................................... 3-13
3.11.1 Existing Conditions .................................................................................. 3-13
3.11.2 Potential Impacts and Mitigation Measures .............................................. 3-13

3.12 Population and Demographic Factors ......................................................... 3-13
3.12.1 Existing Conditions .................................................................................. 3-13
3.12.2 Potential Impacts and Mitigation Measures .............................................. 3-14

3.13 Economic and Fiscal Resources ................................................................ 3-14
3.13.1 Existing Conditions .................................................................................. 3-14
3.13.2 Potential Impacts and Mitigation Measures .............................................. 3-15

3.14 Visual and Aesthetic Resources .................................................................. 3-15
3.14.1 Existing Conditions .................................................................................. 3-15
3.14.2 Potential Impacts and Mitigation Measures .............................................. 3-16

3.15 Roads and Traffic ....................................................................................... 3-17
3.15.1 Existing Conditions .................................................................................. 3-17
3.15.2 Potential Impacts and Mitigation Measures .............................................. 3-17

3.16 Solid Waste Management ........................................................................... 3-17
3.16.1 Existing Conditions .................................................................................. 3-17
3.16.2 Potential Impacts and Mitigation Measures .............................................. 3-18

3.17 Electrical and Telecommunications Systems ............................................. 3-18
3.17.1 Electrical System ..................................................................................... 3-18
3.17.2 Telecommunications Systems ................................................................. 3-18
3.17.3 Highway Lighting and Power ................................................................. 3-18
3.17.4 Potential Impacts and Mitigation Measures .............................................. 3-18
3.18 Secondary and Cumulative Impacts ................................................................. 3-18
3.19 References ..................................................................................................... 3-19

4 Relationships to Public Plans and Policies ......................................................... 4-1
4.1 Federal ............................................................................................................. 4-1
  4.1.1 National Environmental Policy Act of 1970 ................................................. 4-1
  4.1.2 Section 106 of the National Historic Preservation Act of 1966 ............ 4-1
  4.1.3 Section 4(f) of the Department of Transportation Act of 1966 .......... 4-2
  4.1.4 Uniform Relocation Assistance and Real Property Acquisition Act of 1970 .. 4-2
  4.1.5 Endangered Species Act of 1973 ............................................................... 4-2
  4.1.6 Migratory Bird Treaty Act ........................................................................ 4-3
  4.1.7 Fish and Wildlife Coordination Act ......................................................... 4-3
  4.1.8 Clean Water Act of 1972 ........................................................................ 4-3
  4.1.9 Clean Air Act of 1970 ............................................................................ 4-3
  4.1.10 Floodplain Management, Executive Orders 11988 and 12148 ............... 4-4
  4.1.11 Protection of Wetlands, Executive Order 11990 ................................. 4-4
  4.1.12 Invasive Species, Executive Order 13112 ................................................. 4-4
  4.1.13 Coastal Zone Management Act (16 U.S.C. § 1456(C)(1)) ..................... 4-4
  4.1.14 Environmental Justice, Executive Order 12898 ................................. 4-4
  4.1.15 Title VI of the Civil Rights Act of 1964 ................................................... 4-5
4.2 State of Hawaii .................................................................................................. 4-5
  4.2.1 Hawaii State Plan .................................................................................... 4-5
  4.2.2 State Functional Plans ........................................................................... 4-6
  4.2.3 State Land Use Law .............................................................................. 4-6
  4.2.4 Coastal Zone Management Program and Federal Consistency Determination ... 4-6
  4.2.5 Act 50, Cultural Practices .................................................................... 4-8
4.3 County of Kauai ............................................................................................... 4-8
  4.3.1 Kauai General Plan.................................................................................. 4-8
  4.3.2 Zoning .................................................................................................... 4-8
  4.3.3 Special Management Area ...................................................................... 4-9
4.4 Transportation Plans ........................................................................................ 4-9
  4.4.1 Statewide Federal-aid Highways 2035 Transportation Plan ................. 4-9
  4.4.2 Federal-aid Highways 2035 Transportation Plan for the District of Kauai ... 4-9
  4.4.3 Bike Plan Hawaii .................................................................................... 4-9
  4.4.4 Statewide Pedestrian Master Plan ........................................................... 4-10
4.5 References ........................................................................................................ 4-10

5 Findings and Reasons Supporting the Anticipated Determination ................... 5-1
5.1 Significance Criteria ....................................................................................... 5-1
5.2 Conclusion ...................................................................................................... 5-2

6 Anticipated Determination ................................................................................ 6-1

7 Consultation and Coordination ........................................................................ 7-1
7.1 Organizations Consulted During Preparation of the Draft Environmental Assessment .... 7-1
  7.1.1 Federal .................................................................................................... 7-1
  7.1.2 State of Hawaii ...................................................................................... 7-1
  7.1.3 County of Kauai .................................................................................... 7-1
  7.1.4 Utilities .................................................................................................. 7-1
  7.1.5 Organizations ........................................................................................ 7-2
7.2 Early Consultation Comment Letters Received .............................................. 7-2
  7.2.1 State Agencies ....................................................................................... 7-2
### Appendixes

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Determination and Delineation of Wetlands and Other Waters of the U.S. for the Bridge 7E Project, March 2015</td>
</tr>
<tr>
<td>B</td>
<td>Summary of EDR Radius Map Report™ with GeoCheck®, May 13, 2015</td>
</tr>
<tr>
<td>C</td>
<td>Endangered Species Act Section 7 Consultation Documentation</td>
</tr>
<tr>
<td></td>
<td>• Consultation Letters Requesting Species and Critical Habitat List (dated November 21, 2014)</td>
</tr>
<tr>
<td></td>
<td>• Hawaii Bridges Program Summary Map Set (Bridge 7E only)</td>
</tr>
<tr>
<td></td>
<td>• Correspondence from USFWS (dated December 22, 2014)</td>
</tr>
<tr>
<td></td>
<td>• Correspondence from DAR (dated January 9, 2015)</td>
</tr>
<tr>
<td></td>
<td>• Consultation Letter (dated December 8, 2015)</td>
</tr>
<tr>
<td></td>
<td>• Biological Assessment for the Bridge 7E Project, November 2015</td>
</tr>
<tr>
<td>D</td>
<td>National Historic Preservation Act Section 106 and HRS Chapter 6E Consultation Documentation</td>
</tr>
<tr>
<td></td>
<td>• Legal Notice</td>
</tr>
<tr>
<td></td>
<td>• Letter Initiating Consultation (dated August 26, 2015)</td>
</tr>
<tr>
<td></td>
<td>• Area of Potential Effects (USGS Map and Aerial Imagery)</td>
</tr>
<tr>
<td></td>
<td>• Draft Archaeological Inventory Survey Report for the Bridge 7E Replacement Project, Koloa Ahupuaa, Koloa District, Kauai, August 2015</td>
</tr>
<tr>
<td></td>
<td>• Historic Inventory Form</td>
</tr>
<tr>
<td></td>
<td>• Correspondence from Office of Hawaiian Affairs</td>
</tr>
<tr>
<td></td>
<td>• Kauai Historic Preservation Review Commission Meeting Minutes</td>
</tr>
<tr>
<td></td>
<td>• Consultation Letter with Determination of Eligibility and Effects (dated December 8, 2015)</td>
</tr>
<tr>
<td>E</td>
<td>Draft Cultural Impact Assessment for the Bridge 7E Replacement Project, Koloa District, Kauai, December 2015</td>
</tr>
</tbody>
</table>

### Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS-1</td>
<td>Project Summary</td>
</tr>
<tr>
<td>2-1</td>
<td>Project Design Criteria</td>
</tr>
<tr>
<td>2-2</td>
<td>Affected Properties</td>
</tr>
<tr>
<td>3-1</td>
<td>Island of Kauai Air Monitoring Station (Niumalu) Data (2013)</td>
</tr>
<tr>
<td>3-2</td>
<td>Resident Population, Selected Census Tracts, 2000 and 2010</td>
</tr>
<tr>
<td>4-1</td>
<td>Statewide Land Transportation Goals and Objectives</td>
</tr>
</tbody>
</table>

### Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Project Location</td>
</tr>
<tr>
<td>1-2</td>
<td>Tax Map Key 1</td>
</tr>
<tr>
<td>1-3</td>
<td>Tax Map Key 2</td>
</tr>
<tr>
<td>1-4</td>
<td>Project Area Photos</td>
</tr>
<tr>
<td>2-1</td>
<td>Project Limits and Survey Area</td>
</tr>
<tr>
<td>2-2</td>
<td>Typical Sections</td>
</tr>
<tr>
<td>2-3</td>
<td>Bridge Design (Preliminary)</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------</td>
</tr>
<tr>
<td>3-1</td>
<td>Soils</td>
</tr>
<tr>
<td>3-2</td>
<td>Waters of the United States</td>
</tr>
<tr>
<td>3-3</td>
<td>Visual Simulation</td>
</tr>
<tr>
<td>4-1</td>
<td>Zoning</td>
</tr>
</tbody>
</table>
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>degrees Fahrenheit</td>
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<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>AADT</td>
<td>annual average daily traffic</td>
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<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>ACM</td>
<td>asbestos-containing material</td>
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<tr>
<td>amsl</td>
<td>above mean sea level</td>
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<td>APE</td>
<td>Area of Potential Effects</td>
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<td>BMP</td>
<td>best management practice</td>
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<td>Categorical Exclusions</td>
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<td>CER</td>
<td>computerized environmental report</td>
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<td>CFR</td>
<td><em>Code of Federal Regulations</em></td>
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<td>CFLHD</td>
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<tr>
<td>cfs</td>
<td>cubic feet per second</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
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<tr>
<td>CSH</td>
<td>Cultural Surveys Hawaii</td>
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</tr>
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<tr>
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</tr>
<tr>
<td>DLNR</td>
<td>Department of Land and Natural Resources</td>
</tr>
<tr>
<td>EA</td>
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</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FFY</td>
<td>Federal Fiscal Year</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td>FWCA</td>
<td>Fish and Wildlife Coordination Act</td>
</tr>
<tr>
<td>FWPCA</td>
<td>Federal Water Pollution Control Act</td>
</tr>
<tr>
<td>HAR</td>
<td>Hawaii Administrative Rules</td>
</tr>
<tr>
<td>HDOH</td>
<td>State of Hawaii Department of Transportation</td>
</tr>
<tr>
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<td>Hawaii Department of Transportation</td>
</tr>
<tr>
<td>HRS</td>
<td>Hawaii Revised Statutes</td>
</tr>
<tr>
<td>KIUC</td>
<td>Kauai Island Utility Cooperative</td>
</tr>
<tr>
<td>LBP</td>
<td>lead-based paint</td>
</tr>
<tr>
<td><em>makai</em></td>
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</tr>
<tr>
<td>ACRONYMS AND ABBREVIATIONS</td>
<td>BRIDGE 7E, KAUMUALII HIGHWAY, KAUAI</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>MAP-21</td>
<td>Moving Ahead for Progress in the 21st Century Act</td>
</tr>
<tr>
<td><em>mauka</em></td>
<td>mountainward</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
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Project Summary

Table PS-1 contains a description of the project and applicable land-use designations.

TABLE PS-1

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Preface

The proposed project involves replacing Bridge 7E along Kaumualii Highway (State Route 50) approximately 800 feet west of Maluhia Road at approximately Milepost 7.0, which is located in the Koloa District on the island of Kauai. As the proposed project would involve the use of State funds and State lands (comprising the Kaumualii Highway right-of-way, under the jurisdiction of the State of Hawaii Department of Transportation), compliance with Hawaii Revised Statutes (HRS) Chapter 343 is required. This Draft Environmental Assessment (EA) has been prepared pursuant to HRS Chapter 343 (as amended), and Hawaii Administrative Rules Title 11, Chapter 200.

The project would also use Federal funding provided by the U.S. Department of Transportation Federal Highway Administration (FHWA). Use of Federal funds subjects the project to environmental documentation requirements set forth under the National Environmental Policy Act (NEPA) of 1969, (42 U.S. Code Section 4321), the Council of Environmental Quality Regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and 23 CFR Parts 625, 640, 712, 771, and 790, Environmental Impact and Related Procedures. To comply with NEPA, the FHWA is preparing environmental documentation for its records, which will be consistent with the findings of this EA.
1.1 Proposing Agency and Action

The State of Hawaii Department of Transportation (HDOT), in partnership with the Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD), proposes improvements to Bridge 7E on the island of Kauai. This Draft Environmental Assessment (EA) has been prepared in compliance with Chapter 343 of the Hawaii Revised Statutes (HRS). This project would replace the existing two-cell box culvert with a single-cell box culvert. The new structure would be wider than the existing structure, accommodating two 12-foot-wide travel lanes, two 8-foot-wide shoulders, and two 2-foot-wide concrete barrier railings that meet crash test requirements. This project would improve mobility for highway users and address existing structural deficiencies by doing the following: strengthening the foundation; designing the approaches, deck, and railings to meet current standards; and improving vegetation control and long-term maintainability.

1.2 Existing Conditions

The project is located along Kaumualii Highway (Route 50) at approximately Milepost (MP) 7.0 (see Figures 1-1). The structure and highway are under the jurisdiction of HDOT. Bridge 7E crosses an unnamed, intermittent stream that appears to flow into Mauka Reservoir, located approximately 0.33 mile downstream. Figures 1-2 and 1-3 show affected tax map keys.

Bridge 7E, built in 1933, is a reinforced-concrete two-cell box culvert with wing wall abutments. The existing culvert is approximately 22 feet long and approximately 32 feet wide. The structure’s driving surface is asphaltic concrete pavement. Figure 1-4 shows photos of the existing bridge.

Kaumualii Highway is classified as a Rural Minor Arterial with a posted speed of 50 miles per hour (mph) at the project location. It is a two-lane undivided highway with 12-foot-wide travel lanes and up to 3-foot-wide shoulders on either side. In 2012, HDOT reported an annual average daily traffic (AADT) of 13,900 vehicles on Kaumualii Highway within the project vicinity. Traffic volumes are projected to be 14,280 vehicles in the 2016 construction year and 16,170 vehicles in 2036 (the project’s design year). Although it is not on the National Highway System, the project is eligible for federal funding.

1.3 Project Purpose and Need

The purpose of the project is to improve Bridge 7E and its approaches to maintain the Kaumualii Highway as a safe and functional component of the regional transportation system for highway users and to alleviate maintenance issues in the channel caused by the deteriorated culvert.

The project is needed because the existing structure does not meet the current (2014) American Association of State Highway Transportation Officials (AASHTO) and HDOT structural and design standards for load capacity, railings and transitions, and approach roadways. In addition, the deteriorated structure requires frequent maintenance resulting in increased costs for HDOT.

As an integral component of the highway, Bridge 7E is essential for resident, visitor, freight, and military traffic mobility. Kaumualii Highway provides the only regional access for Kauai’s south shore and west side communities between Lihue and both Koloa and Waimea Districts, a route that is vital for economic development, emergency response and safety, and general welfare. The highway is essential for connecting other modes of transportation, including Lihue Airport and the harbors located at Nawiliwili and Port Allen.

The U.S. Department of Transportation requires that bridges are inspected every 2 years. The National Bridge Inventory Standards (NBIS) inspection produces a “sufficiency rating,” which is a single number that can vary from a high score of 100 to a low score of 0, with scores higher than 50 indicating that a bridge
meets current engineering design standards. Ratings do not imply that the bridge is unsafe to operate, only indicate whether improvements are needed. Based on the 2012 bridge inspection report, Bridge 7E has a sufficiency rating of 56.3 and is considered both structurally deficient and functionally obsolete.

Specifically, the existing structure has the following deficiencies:

- The inventory load rating (daily carrying capacity) is 16.3 tons, which is below the minimum standard of 36 tons.
- The top slab does not meet current live load requirements.
- The approach roadway width is 30 feet, consisting of two 12-foot-wide lanes and two up to 3-foot-wide shoulders, not matching the current design standards of 8-foot-wide shoulders.
- The guardrail is deteriorating and does not meet standards for barrier crashworthiness of a TL-3 rail; that is, able to withstand the impact of a car or light truck traveling 62 mph (AASHTO, 2009).

Poor flow conditions and the resulting sedimentation under the structure have also led to increased maintenance costs. A 2014 field survey found that the culvert bottom slopes in the upstream direction, contributing to standing water and the accumulation of sediment and debris in the culvert. Poor flow conditions have promoted undesirable plant growth within the culvert and increased maintenance requirements for HDOT. In addition, on the downstream side of the culvert, a sloping concrete apron hangs above the lower channel bottom, creating conditions for scour.

1.4 Purpose of the Environmental Assessment

This Draft Environmental Assessment (EA) discloses the environmental and cultural impacts that may result from the project’s implementation, and commits to specific mitigation measures. The Draft EA has been prepared to satisfy the requirements of HRS Chapter 343 and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, Environmental Impact Statement (EIS) Rules, and other environmental compliance requirements.

The proposed project triggered the rules and regulations for environmental review because the project would use State lands and State funds.

1.5 Public Comment on the Environmental Assessment

The Hawaii Office of Environmental Quality Control (OEQC) notifies the public when a Draft EA is available for review in its bimonthly bulletin, the OEQC Environmental Notice. Official announcement by the OEQC will initiate a 30-day review and comment period.

Request for Comments

Interested members of the public are invited to submit written comments on the Draft EA to:

Name: Michael Will, Project Manager, FHWA-CFLHD
Address: 12300 West Dakota Ave., Suite 380
Lakewood, CO 80228
Email Address: Michael.will@dot.gov

1.6 Permits, Approvals, and Compliance Required or Potentially Required

The following requirements must be met to implement the proposed project:

1.6.1 Federal

- Department of the Army Permit (Section 404 of the Clean Water Act [CWA]), U.S. Army Corps of Engineers (USACE)
• Section 106 Consultation (National Historic Preservation Act [NHPA]), Hawaii Department of Land and Natural Resources (DLNR) State Historic Preservation Officer (SHPO)
• Section 7 Consultation (Endangered Species Act [ESA]), U.S. Fish and Wildlife Service (USFWS); National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)

1.6.2 State
• Clean Water Act Section 401 Water Quality Certification, State of Hawaii Department of Health (HDOH)
• National Pollutant Discharge Elimination System (NPDES) Permit, HDOH
• Stream Channel Alteration Discharge Permit, DLNR Commission on Water Resource Management
• Coastal Zone Management Act Federal Consistency Review, Office of Planning, Hawaii Department of Business, Economic Development, and Tourism
• Historic Preservation Review (HRS Chapter 6E), DLNR State Historic Preservation Officer (SHPO)
• Americans with Disabilities Act Review (HRS §103-50), HDOH, Disability and Communication Access Board (DCAB)
• Occupancy and Use of State Highway Right-of-Way Permit, HDOT
• Community Noise Permit/Variance, HDOH

1.6.3 County
• Historic Preservation Review (NHPA Section 106 and HRS Chapter 6E), Kauai Historic Preservation Review Commission, Kauai Planning Department
• Compliance with floodplain management requirements, Kauai Department of Public Works
• Grading, grubbing, and stockpiling permits, Kauai Department of Public Works

1.7 References


FIGURE 1-1
Project Location
7E Bridge Project
Hawaii Bridges Program -
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Base Map: USGS Topographic Map, Kapaa (1996) Quadrangle
Data Sources: CSH, 2015

LEGEND

Study Area
Note: TMKs: [4] 2-7-001;004 por., [4] 2-7-002;001 por., and [4] 2-7-001 Kaumuali‘i Highway Right-of-Way

FIGURE 1-2
Tax Map Key 1
7E Bridge Project
Hawaii Bridges Program – Central Federal Lands Highway Division and Hawaii Department of Transportation
FIGURE 1-3
Tax Map Key 2
7E Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

LEGEND

Study Area

Approximate scale in miles

Base Map: Tax Map Key [4] 2-7-02
Data Source: CSH, 2015

Note: TMKs: [4] 2-7-001;004 por., [4] 2-7-002;001 por., and [4] 2-7-001 Kaumualii Highway Right-of-Way
FIGURE 1-4
Project Area Photos
7E Bridge Project
Hawaii Bridges Program -
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Photo 1. Bridge 7E on Kaumualii Highway (approximately 800 feet west of Maluhia Road), looking west

Photo 2. Mauka side of Bridge 7E, looking west

Photo 3. East cell of two-box concrete culvert with vertical walls and low stream flow, looking makai

Photo 4. Dense vegetation on the mauka side of Bridge 7E, primarily guinea grass (Urochloa maxima)
2.1 Project Location

The project area for Bridge 7E is located on Kaumualii Highway (Route 50), approximately 800 feet west of Maluhia Road at approximately MP 7.0 in Koloa District, on the island of Kauai (see Figure 2-1). Kaumualii Highway is a rural minor arterial that serves as the primary route between Lihue and both Koloa and Waimea Districts. Bridge 7E is under the jurisdiction of HDOT. Project site photos are provided as Figure 1-4.

The proposed project would require work at Bridge 7E and include a temporary bypass route, approach roadways, a potential staging area, and potential utility relocations. The project limits, or area of permanent and temporary direct impacts, are expected to be approximately 1,500 feet long along Kaumualii Highway and extend approximately 50 feet beyond the width of the existing right-of-way. Where the unnamed stream crosses beneath Bridge 7E, the project limits extend 200 feet along the drainage mauka (mountainward) and makai (oceanward) of Kaumualii Highway and include a 50-foot wide area outside the drainage.

There would be no improvements or changes to the existing travel lanes or shoulders beyond the project limits.

2.1.1 Surrounding Land Uses

The area surrounding the proposed project is largely undeveloped and is covered by dense vegetation, including grasses, shrubs, and trees. An unnamed, intermittent stream flows beneath Bridge 7E and appears to drain into the Mauka Reservoir farther south. In the past, the area surrounding the highway was used for sugar cane cultivation but in recent years some areas have been planted with eucalyptus and albizia trees for renewable energy projects. The County of Kauai designates land use adjacent to the project as Agriculture (County of Kauai, 2000) and large agricultural parcels are located north and south of Bridge 7E.

2.1.2 Other Nearby State and County Projects

There are no State or County transportation projects in the vicinity of Bridge 7E.

2.2 Existing Conditions along the Project Corridor

2.2.1 Right-of-Way and Surrounding Elevations

The highway right-of-way is approximately 60 feet wide (30 feet on either side of the centerline). The structure and roadway are located on relatively flat ground, but the general environs are characterized by rolling terrain. The existing ground profile is relatively flat with a slope of approximately 1.5 percent from west to east. Bridge 7E is at an elevation of 641 feet above mean sea level (amsl).

2.2.2 Bridge Structure and Approaches

Bridge 7E was constructed in 1933 as a two-cell box culvert. At road level, the culvert is approximately 22 feet long and 32 feet wide, with a paved asphalt driving surface (see Figure 2-2). The existing two-cell box culvert is composed of reinforced-concrete; each cell measures approximately 10 feet wide by 9 feet high. Each of the cell walls is supported by a row of 16-inch-square concrete piles. Wing walls extend from both ends of the exterior cell walls. There is no riprap or scour protection currently in place.

The channel upstream and downstream of the culvert is vegetated. During the 2014 field investigations, up to 18 inches of sediment deposition was observed within the eastern (Lihue-side) cell of the culvert. A low-flow channel with standing water was observed in the western (Waimea-side) cell. The field survey further found that the culvert bottom slopes in the upstream direction, contributing to standing water and the
accumulation of sediment and debris in the culvert. On the downstream side of the culvert, a sloping concrete apron hangs above the lower channel bottom.

There are fill slopes on both sides of the structure. A W-beam guardrail lines both sides of the roadway shoulder, with posts embedded in the ground. At the structure, short metal guardrail posts are anchored to the top of the concrete headwall. On the mauka side of the structure, the guardrail runs approximately 100 feet to the west and 180 feet to the east. On the makai side of the structure, the guardrail runs approximately 145 feet to the west and 100 feet to the east.

2.2.3 Utilities

Although existing overhead utility lines are located within the project limits on the makai side of Kaumualii Highway, only one existing utility pole is located within the project limits. In addition to overhead utility lines, there are underground fiber optic lines on the mauka side of the roadway. Providers with utilities in the project limits include the following:

- Kauai Island Utility Cooperative (KIUC) – Electric/Power
  - Overhead 12-kilovolt lines, makai side, parallel to roadway
- Sandwich Isles Communications, Inc. (SIC) – Fiber Optic
  - Underground fiber optic ducts, mauka side, parallel to roadway
- Hawaiian Telcom – Telephone
  - Overhead collocated with electric lines, makai side, parallel to roadway
- Oceanic Time Warner Cable – Cable
  - Location confirmation pending response from agency
  - Assuming overhead collocated with electric lines, makai side, parallel to roadway

2.3 Proposed Project

The proposed project is to replace Bridge 7E (that is, a two-cell box culvert) with a single-cell box culvert to address structural and functional deficiencies described in Section 1.3, Project Purpose and Need. During construction, traffic would use a two-way bypass route and temporary stream crossing mauka of the highway. Upon project completion, there would be no changes in highway operations. Figure 2-3 presents preliminary engineering designs.

HDOT and AASHTO standards and regulations govern the final design criteria and construction methods and procedures for the proposed project. The final design would meet or exceed both HDOT and AASHTO criteria (see Table 2-1). A design exception would be triggered only if AASHTO minimum criteria are not met.

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<tr>
<th>Design Criteria</th>
<th>Existing Conditions</th>
<th>Standards</th>
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</table>
| Design Speed               | Posted speed = 50 mph| Rural 50 mph (minimum) | Urban 45 mph (minimum) | Design speed = 50 mph  
|                            |                     | State     |                           | Posted speed = 50 mph |
| Travel Way Width (feet)    | 12                  | 11        | 11                         | 12                       |
| Shoulder Width (feet)      | 3                   | 8         | 10                         | 8                        |
| Structure Width (feet)     | 32                  | N/A       | N/A                        | 44 (includes barrier rail) |

Note:
N/A = not applicable
HDOT’s *Design Criteria for Bridges and Structures* (2014) would be followed for structure design.

The project would use HDOT’s *Design Criteria for Highway Drainage*, dated October 1, 2010, to govern the hydraulic evaluation, analysis, and design. The project would consider incorporating low impact development concepts such as directing stormwater drainage into grass swales adjacent to the bridge and highway.

The approach travel lanes and shoulders would be designed to AASHTO and HDOT guidelines (*A Policy on Geometric Design for Highways and Streets* [AASHTO, 2011] and *Hawaii Statewide Uniform Design Manual for Streets and Highways* [HDOT, 1980], and all subsequent amendments).

### 2.3.1 Replacement Structure

Preliminary design anticipates a single-box culvert would replace the existing culvert on the current highway alignment. The new culvert would be designed to current standards for roadway width, load capacity, crash-tested barrier railing and transitions, and approach roadways. The proposed typical section of the new culvert would be 44 feet wide and consist of two 12-foot-wide travel lanes, two 8-foot-wide shoulders on each side, and two 2-foot-wide crash-tested barrier rails. Upon project completion, there would be no changes in highway operations (that is, the posted speed limit of 50 mph would remain).

Minor adjustments to the roadway profile and alignment may be needed to accommodate the transitions and the new wider structure within the existing 60-foot right-of-way. The roadway approaches on each side would need to transition from the 2-foot-wide shoulders along the highway to the full 8-foot-wide shoulders on the new structure. The structure and roadway approaches are on generally flat terrain, but some fill and a widened embankment are anticipated on the approaches.

Preliminary geotechnical analyses indicate that soils at the structure change to relatively soft and moderately compressible conditions at depths below 9 feet; therefore, deep foundations would likely be used to support the replacement structure. These may be either driven piles or drilled shafts. The culvert’s depth would be similar to the existing structure so the hydraulic capacity of the stream would remain unchanged. The structure would be reinforced concrete and either precast or cast in place.

The current culvert is sized to accommodate irrigation flows; natural storm events are smaller than those flows. The proposed culvert is sized to match the existing culvert capacity, in accordance with HDOT *Design Criteria for Highway Drainage* (HDOT, 2010). To address the accumulation of sedimentation and debris, the bottom of the new structure would have a concrete lining and be sloped to facilitate downstream flows. Grouted rubble paving aprons are anticipated to be constructed at the inlet and outlet of the drainage area for scour protection and vegetation control.

Utility relocations (temporary or permanent) may be required for this project and would be confirmed during final design. Activities may include relocation of a utility pole and associated overhead electrical lines or fiber optic lines on the *mauka* side of the highway. There is currently no highway lighting within the project limits, and none proposed by this project.

### 2.3.2 Construction Activities

A temporary bypass road is proposed to maintain traffic during construction. The temporary bypass would be adjacent to and *mauka* of the highway to minimize utility impacts. It would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed. Temporary traffic control measures would be in place as needed throughout construction. Water flowing through the culvert would be routed through a pipe during removal of the existing culvert and construction of the new culvert and the associated wing walls.

The temporary bypass road would also need to cross the stream channel; therefore, a temporary stream crossing structure would be provided *mauka* of the existing structure. This temporary stream crossing would
be sized to accommodate the 5-year flood flow. The pipe would be covered with fill material to create a driving surface.

Personnel and equipment would be staged within the project limits, potentially in a grassy area along the eastern approach to the structure, mauka of the highway. This potential staging area is approximately 20 feet wide and 350 feet long. Standard construction equipment would be used, such as track-mounted dozers, loaders, excavators, cranes, compactors, dump trucks, and pickup trucks. Demolition debris would require disposal at an approved landfill offsite.

Night work is generally not anticipated. However, for traffic control reasons, some phases of construction—for example, tying the temporary bypass road into the highway or bringing the new structure on line—may be performed at night when traffic volumes are lower. No night work would be scheduled during periods that would have an adverse effect on biological resources.

2.3.3 Properties Affected by the Project

The proposed project would require permanent easements on private properties located outside the existing 60-foot right-of-way.

Two privately owned parcels are located adjacent to the project limits, one mauka and one makai (see Table 2-2). Cut/fill slopes would extend beyond the existing right-of-way, requiring a slope easement, and a maintenance easement would be needed for maintenance personnel to be able to access the area. Construction parcels would be needed for the temporary bypass road, construction zone, and staging areas. HDOT would execute a construction parcel agreement to use the adjacent lands during construction. All affected properties are undeveloped; no dwellings or structures would be affected.

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Note:  
TMK = Tax Map Key

2.4 No Action Alternative

The No Action Alternative retains the existing structure with no changes. The two-cell box culvert would not be repaired to meet current design standards for roadway width and load capacity. Deficiencies in railings on the structure, transitions, and approach roadways would not change.

Under the No Action Alternative, environmental impacts resulting from structure rehabilitation or replacement activities would be averted and structure rehabilitation or replacement costs would not be incurred by HDOT. However, the existing structure would continue to deteriorate, requiring regular inspection and increased maintenance (and maintenance costs) to maximize its useful lifespan. Eventually, the structure may no longer provide a safe support for highway traffic and could face load restrictions or closure.
2.5 Structure Alternatives Considered and Dismissed

2.5.1 Rehabilitation
The existing structure is classified as functionally obsolete with substandard load-carrying capacity and railings and approach guardrails that do not meet current crash-tested requirements. The top slab does not meet current live load requirements and would need to be strengthened. Rehabilitation by increasing top-slab thickness for additional reinforcement would reduce hydraulic capacity of the existing culvert and may overstress existing piles. In addition, the width (that is, in the stream flow direction) of the existing structure would need to be extended, requiring new pile foundations. Given the extensive changes and cost required to modernize the 1933 structure, the rehabilitation alternative was not considered feasible.

2.5.2 Pipe Structures
Replacing the existing culvert with pipe structures that meet the required capacity were also considered. However, metal pipe culverts were excluded because of their corrosion potential. Concrete pipe culverts were also excluded because environmental disturbances and impacts that can occur in transitioning the channel to the quantity of pipes required to meet the conveyance capacity would be greater than the impacts expected from the proposed project.

2.5.3 Concrete-arched Structure
This option is for a precast concrete-arched structure with an invert slab added. A new arched culvert would be designed using arches with open areas that match or exceed the conveyance capacity of the existing two-cell box culvert. The proposed concrete-arched culvert could be either two 12-foot spans with an 8-foot rise or a single 20-foot span with a 10-foot rise. Because the concrete arch is not a rectangular section, a section wider than the proposed project design would need to be used to achieve the same flow area. Backfill would be placed above the concrete arch and topped by the pavement section. To provide adequate cover over the concrete arch and keep the roadway at the same elevation, a unit 28 feet wide by 7 feet high would be required to provide the appropriate open area to meet HDOT stormwater conveyance criteria. This alternative was dismissed as a less efficient design, whereby the structure would have a larger footprint than required to meet purpose and need and to address hydraulic conditions.

2.5.4 Temporary Bypass Alternatives Considered and Dismissed

2.5.4.1 Single-lane Bypass Road with Signal
This bypass alternative involves a single-lane temporary bypass road and stream crossing, located adjacent to the highway with a traffic signal to allow alternating traffic. Based on a preliminary traffic analysis, a single-lane temporary bypass road with signal could be a viable option for an AADT of approximately 8,000 vehicles per day. However, Bridge 7E is located on a portion of the highway where the AADT is projected to be 14,280 vehicles in 2016, when construction is assumed to begin. Therefore, this option was not considered feasible.

2.5.4.2 Phased Construction
Phased construction with a single-lane temporary bypass road would involve cutting the slab of the structure and continuing to provide one travel lane on the existing structure while a portion is demolished and reconstructed. A second travel lane would be provided by a temporary bypass road. Phased construction was dismissed because it would increase the construction duration and cost of the project.

2.6 Statewide Transportation Improvement Program
The Hawaii Statewide Transportation Improvement Program (STIP) provides a multiyear listing of State and County transportation projects and identifies projects slated for Federal funding. It is a multimodal transportation improvement program that is developed using existing transportation plans and policies, as well as current highway, transit, and transportation programming processes. The STIP delineates the funding
categories and the federal and local share required for each project. Listing on the STIP does not necessarily mean projects would be planned, designed, or constructed within the fiscal period because unforeseen occurrences, such as project readiness or project priorities, could delay them.

The current STIP, which covers the period from Federal Fiscal Year (FFY) 2015 to FFY 2018 (and FFY 2019 to FFY 2020 for information purposes only), was published by HDOT on October 27, 2014. The Kaumualii Highway (Route 50) Bridge 7E Replacement Project is listed on the STIP as a System Preservation project.

2.7 Preliminary Cost and Schedule

In 2015, the estimated construction cost for the proposed project is $2.30 million. The estimate includes survey and staking, relocation of utilities, a temporary bypass road with low-water crossing, the new single-cell box culvert, and associated roadway elements.

Construction is anticipated to begin in late 2016 or early 2017 and last for approximately 11 months.

2.8 References


FIGURE 2-1
Project Limits
7E Bridge Project
Hawaii Bridges Program – Central Federal Lands Highway Division and Hawaii Department of Transportation

Notes:
1. High-Res Imagery Source: Google Earth 12/16/2013
2. Low-Res Imagery Source: Digital Globe 08/26/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.
FIGURE 2-2
Typical Sections
7E Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation
FIGURE 2-3
Bridge Design (Preliminary)
7E Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation
This chapter describes the affected environment, impacts, and mitigation for relevant resource areas. Resources that are not present (or otherwise don’t apply) are not discussed. Specifically, there is no discussion relative to parks and recreation as there are no applicable resources in the project area. The proposed project would not generate any demand for water or wastewater disposal, so these resources are not evaluated. Public safety is discussed in Section 3.15, Roads and Traffic.

3.1 Topography, Geology, and Soils

3.1.1 Existing Conditions

Elevations surrounding the proposed project range from approximately 635 to 645 feet amsl. The slope gradient is from east to west, with marked depressions in topography attributed to stream flow from the intermittent stream. The project site is in the southern foothills of Mount Waialeale.

The island of Kauai is composed of a single basalt shield volcano built by the extrusion of lava of the Waimea Canyon Volcanic Series, more than 2 million years ago. After this main shield-building phase, there was renewed volcanic activity known as the Koloa Volcanic Series, characterized as thick flows of dense basalt extruded from groups of vents aligned in northern-southern trends in various locales. Along streams, drainage ways, and low-lying areas, erosion of the upper Koloa and Waimea Canyon Volcanic Series has deposited alluvial sediments. These sediments are unconsolidated to moderately consolidated, and are non-calcareous soil deposits.

The Natural Resources Conservation Service identifies the following two soil types in the project limits (Foote et al., 1972) (see Figure 3-1):

- **Halii gravelly silty clay, 3 to 8 percent slopes (HfB).** This series consists of well-drained soils on uplands on the islands of Kauai and Oahu, and developed in material weathered from basic igneous rock. They are gently sloping to extremely steep. Elevations range from 200 to 800 feet. These soils are classified in hydrologic soil group C, which are soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine or fine texture.

- **Kapaa silty clay, 3 to 8 percent slopes (KkB).** This series consist of well-drained and moderately well-drained soils on uplands on the island of Kauai. Soils developed in material weathered from basic igneous rock, probably mixed with volcanic ash and ejecta. They are gently sloping to steep. Elevations range from 300 to 1,000 feet. These soils are classified in hydrologic soil group B, which are soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture.

Four geotechnical borings were drilled for the replacement structure and the proposed bypass route. Soils near the surface of the culvert site and extending to depths of 17 to 18 feet consist of brown and mottled brown clayey silt. Underlying the clayey silt is a layer of cemented silt with cobbles and boulders and further below is a stratum with sand and weathered rock fragments. Highly to slightly weathered basalt was encountered at depths ranging from 48 to 67 feet. The basalt was hard and extended down to the maximum depths drilled. The findings of the geotechnical investigations led to a recommendation for deep foundations for the replacement culvert.

3.1.2 Potential Impacts and Mitigation Measures

The proposed project is not constrained by geological and topographic site conditions, nor would it affect any unique geological formations. Construction materials include clean gravel and well-graded granular
structural fill as backfill for excavations. To address the presence of soft subgrade soils found in geotechnical investigations and the potential for settlement, deep foundations would be installed. Roadway sections would be designed to standard HDOT specifications that consist of asphalt and base course over sub-base course material.

Construction of the structure and roadway approaches would involve land disturbance that could result in soil erosion. However, the erosion potential is relatively low given the small area of disturbance (approximately 2 acres) and clayey soils with moderate erodability. To minimize the potential for construction-related erosion impacts, best management practices (BMPs) would be developed as part of the project's engineering and design in accordance with the Kauai County Code for grading, grubbing, and stockpiling (Kauai County Code, Chapter 22, Article 7). See Section 3.2, Climate and Air Quality, and Section 3.3, Hydrology and Water Quality, for a list of applicable BMPs.

3.2 Climate and Air Quality

3.2.1 Existing Conditions

Climate in the area of the proposed project is moderated by elevation and prevailing northwest tradewinds. The average maximum daily temperature is approximately 80 degrees Fahrenheit (°F), with an average minimum of 67°F. Mean annual rainfall at the project location is approximately 84.5 inches. Rainfall is typically highest in November and December and lowest in June (Giambelluca et al., 2013).

Kauai, like the rest of the state, is in attainment of Federal and State air quality standards. HDOH operates a network of air quality monitoring stations at locations around the state. The only monitoring station on Kauai is located approximately 7 miles east-southeast of the project site in the Niumalu subdivision, near Lihue. As reported in the Annual Summary of Air Quality Data for 2013 (HDOH, 2014a), the pollutants monitored at the Niumalu station are particulate matter less than 2.5 microns (PM$_{2.5}$), nitrogen dioxide (NO$_2$), and sulfur dioxide (SO$_2$). Carbon monoxide (CO) monitoring was shut down by HDOH as of April 25, 2013. The readings at this location show that criteria pollutant levels were below state and federal ambient air quality standards (see Table 3-1).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Annual Mean</th>
<th>Federal Air Quality Standard (Primary)</th>
<th>State Air Quality Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{2.5}$ (24-hour)</td>
<td>3.9 µg/m$^3$</td>
<td>35 µg/m$^3$</td>
<td>None</td>
</tr>
<tr>
<td>NO$_2$ (Annual)</td>
<td>0.002 ppm</td>
<td>53 ppb</td>
<td>0.04 ppm</td>
</tr>
<tr>
<td>SO$_2$ (1-hour)</td>
<td>0.001 ppm</td>
<td>75 ppb</td>
<td>None</td>
</tr>
<tr>
<td>SO$_2$ (3-hour)</td>
<td>0.001 ppm</td>
<td>0.50 ppm$^a$</td>
<td>0.50 ppm</td>
</tr>
<tr>
<td>SO$_2$ (24-hour)</td>
<td>0.001 ppm</td>
<td>None</td>
<td>0.14 ppm</td>
</tr>
<tr>
<td>CO (1-hour)</td>
<td>0.5 ppm$^b$</td>
<td>35 ppm</td>
<td>9 ppm</td>
</tr>
</tbody>
</table>

Notes:

- Federal secondary standard.
- Station (CO) shut down April 25, 2013; incomplete year.

Source: HDOH, 2014a

µg/m$^3$ = micrograms per cubic meter
ppb = parts per billion
ppm = parts per million

1 Exceedances of SO$_2$ and PM$_{2.5}$ have been reported on Hawaii Island, but these are associated with the volcano, which is considered a natural, uncontrollable event. Therefore, the State is requesting exclusion of these exceedances from attainment/nonattainment determination (HDOH, 2014c).
3.2.2 Potential Impacts and Mitigation Measures

Short-term, Construction-related Emissions

Short-term impacts on air quality may result from project construction. BMPs would be employed to minimize emissions. As further discussed below, impacts could be associated with the following two types of pollutants: (1) fugitive dust from vehicular movement and soil disturbance, and (2) exhaust emissions from onsite construction equipment. Overall air quality impacts are expected to be insignificant because the construction period is of limited duration and impacts would be minimized with the implementation of BMPs for dust control and exhaust emissions.

Fugitive Dust. Construction activities would incorporate fugitive dust emission control measures in compliance with provisions of HAR Chapter 11-60.1, “Air Pollution Control,” Section 11-60.1-33 on Fugitive Dust and Kauai County Code, Chapter 22, Article 7. Measures that are expected to be used to control airborne emissions include the following:

• Use water, disturbance area limitations, and re-vegetation to minimize dust emissions.
• Stabilize all disturbed areas with erosion control measures.
• Cover open-bodied trucks whenever hauling material that can be blown away.
• Revegetate disturbed area as soon as practical after construction.
• Stabilize construction entrances to avoid offsite tracking of sediment.

Exhaust Emissions. Emissions from engine exhausts of onsite mobile and stationary construction equipment could also affect air quality. Emission impacts would be minimized by requiring the Contractor to use vehicles that are properly maintained. Nitrogen oxide emissions from diesel engines can be relatively high compared to emissions from gasoline-powered equipment; however, the standard for nitrogen oxide is set on an annual basis and is unlikely to be violated by emissions from short-term use of construction equipment. CO emissions from diesel engines are low and are expected to be negligible compared to vehicular emissions generated on the highway.

Long-term Impacts on Air Quality

This project would not result in any changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that can cause an increase in emissions. As such, this project would generate no changes in air quality impacts for CAA criteria pollutants and would not be linked with any special mobile source air toxics (MSAT) concerns.

3.3 Hydrology and Water Quality

3.3.1 Surface Water and Groundwater

The U.S. Geological Survey (USGS) and the DLNR Division of Aquatic Resources identify an intermittent stream bisecting the survey area. The National Hydrography Dataset shows the unnamed stream as a small, non-permanent tributary flowing into Mauka Reservoir that connects to a series of stream, ditches, and reservoirs (that is, Puu O Hewa Reservoir, Waita Reservoir, and Pia Mill Reservoir) before flowing into Waikomo Stream. Waikomo Stream, within the Waikomo Watershed, is approximately 21.6 miles long and flows south, terminating in Hanakaape Bay in Poipu (Parham et al., 2008). The State of Hawaii names the feature under Bridge 7E as the Weoweopilau tributary, part of Huleia Stream. Huleia Stream is within the Huleia Watershed and flows east to Nawiliwili Bay in Lihue. However, based on aerial imagery, the stream under Bridge 7E appears to flow south as a minor tributary within the Waikomo Watershed; the analysis therefore proceeds using the National Hydrographic Dataset.

Biologists with SWCA Environmental Consultants (SWCA) conducted a delineation of Waters of the U.S. on September 29, 2014 (see Appendix A). The biologists used methods for determining the presence of wetlands as prescribed by the 1987 Manual (USACE, 1987) and the 2012 Hawaii and Pacific Island Regional
Supplement (USACE, 2012). Based on these documents, jurisdictional wetlands were delineated using the following three criteria:

- **Hydric soils**—soils that are permanently or seasonally saturated by water
- **Hydrophytic vegetation**—plants adapted to life in water or waterlogged conditions
- **Wetland hydrology**—areas that are periodically inundated or have soils saturated to the surface at some time during the growing season

Groundwater was encountered in the borings at depths ranging from 9.9 to 14.8 feet. The depth to groundwater can be expected to vary with water level in the stream and seasonal rainfall.

### 3.3.2 Non-wetland Waters

A single non-tidal, non-wetland water was delineated in the survey area (see Figure 3-2). During the survey, a steady trickling flow of water was observed under the culvert, moving south.

The boundaries of potential non-wetland Waters of the U.S. were delineated by recording the location of the ordinary high water mark (OHWM). SWCA documented the OHWM at various points along the stream, primarily using clear impressions along the banks with distinct topographic indicators (such as vertical cut banks as high as 15 feet in some areas).

Downstream of the survey area, the stream appears to flow into Mauka Reservoir (roughly 0.33 mile) from Bridge 7E. SWCA did not conduct a field-based assessment of the connection. However, connectivity of the stream to Mauka Reservoir is shown on information from the National Hydrography Dataset and was also reported by Glenn Higashi, a biologist with the DLNR Division of Aquatic Resources (Higashi, 2015).

### 3.3.3 Clean Water Act, Section 303(d)

The Federal CWA requires states to collect and review surface water quality data and related information, and to prepare and submit to the U.S. Environmental Protection Agency (USEPA) biennial lists of waterbodies that are impaired (that is, not meeting state water quality standards). The current list is included in the 2014 State of Hawaii Water Quality Monitoring and Assessment Report (HDOH, 2014b). The unnamed stream beneath Bridge 7E is part of the Waikomo Stream system, which is impaired because standards for total nitrogen (that is, the sum of the concentrations of nitrate, nitrite, and nitrogen) and turbidity are not met.

For all impaired waters, HDOH is required to develop the Total Maximum Daily Load (TMDL), which is the maximum amount of a pollutant (from point and nonpoint sources) that a waterbody can receive and still meet water quality standards, and to establish an allocation of that amount to the pollutant’s sources. Because there is a large demand for TMDL calculations, the HDOH has assigned a priority of low, medium, or high to each of the impaired waters listed based on the severity of pollution and how the water is used. Waikomo Stream has been assigned a low priority and limits have not been established.

### 3.3.4 Potential Impacts and Mitigation Measures

#### Short-term Construction Impacts

The project would involve demolition, excavation, grading, and construction in the stream and on the streambanks. Erosion would be reduced by implementing BMPs in place during construction. Because new disturbances would exceed 1 acre, an NPDES permit (Notice of Intent [NOI] Form C) would be obtained under CWA Section 402. An approved erosion control plan would be held onsite. BMPs to protect water quality include the following (*Kauai County Code*, Chapter 22, Article 7):

- Handle onsite drainage to minimize sedimentation or other pollution discharge to streams.
- Stabilize all disturbed areas with erosion control measures.
- Use check dams to slow runoff water velocities.
- Revegetate disturbed area as soon as practical after construction.
• Stabilize construction entrances to avoid offsite tracking of sediment.

Temporary impacts would occur at the location of the temporary bypass road as it would cross the stream using a vented low-water crossing. Temporary pipes or culverts that would be placed in the bottom of the stream channel and be sized to accommodate the 5-year flood flow. The pipe would be covered with fill material to create a driving surface. The total duration of the temporary fill is anticipated to last approximately 11 months. Approximately 127.4 cubic yards of material will be placed over an area of 107.5 square feet.

Federal (Sections 401 and 404) and State (Stream Channel Alteration) permits would be needed for discharges or fill in regulated waters. The permits would be needed for routing creek flows to isolate the construction area as needed and constructing the temporary bypass road crossing. Collecting and disposing groundwater would be conducted in accordance with applicable permit requirements.

**Long-term Impacts on Waters of the U.S. and Water Quality**

One of the project’s objectives is to reduce the maintenance burden of clearing vegetation under and adjacent to the structure, where conditions at Bridge 7E are conducive to rapid growth of plant life (see Section 1.3). To address this objective effectively, the bottom of the concrete culvert would be designed to slope downstream, thereby reducing sediment accumulation within the structure. Discharges of fill material in Waters of the U.S. require a CWA Section 404 permit from the USACE and a Section 401 Water Quality Certification by HDOH, Clean Water Branch. Placement of small areas of riprap will be required for protection of the culvert and streambanks. Approximately 53.7 cubic yards of material will be placed over 34.5 square feet of area. These impacts would be included as part of the request for Federal and State authorization for discharge in regulated waters, as discussed above.

Under existing conditions, the roadway is generally crowned and runoff sheet-flows off the pavement and over a grassy buffer to the stream. In some stretches of the highway, runoff sheet-flows off the pavement and into roadside ditches that convey runoff to the stream. The structure replacement project would not change the drainage pattern of stormwater flows. The project would increase the amount of impervious area by approximately 2,241 square feet (0.1 acre), which includes a wider structure surface than the existing structure and connections to the highway. Because the proposed project is surrounded by undeveloped land, the slight increase in impervious surface area would not have a significant adverse effect on stormwater runoff entering the stream.

### 3.4 Natural Hazards

#### 3.4.1 Flooding

Bridge 7E is not located within a floodplain mapped by the Federal Emergency Management Agency (FEMA). Therefore, the design of the replacement structure is not required to comply with the National Flood Insurance Program’s regulations and requirements. Analysis performed for the project found that hydraulics (the capacity to accommodate floodwaters) does not play a key role in sizing the replacement structure. The new structure is sized to match the opening of the existing structure and would maintain the same or greater conveyance capacity as the existing structure.

Because of the project’s inland location, analysis of coastal events (such as storm surges, storm waves, tsunamis, or hurricanes) is not required.

#### 3.4.2 Potential Impacts and Mitigation Measures

The existing culvert capacity was selected as the design parameter. The replacement culvert would match the conveyance capacity that currently exists; therefore, the new structure would not adversely affect flood conditions in the stream.
3.5 Noise

3.5.1 Existing Conditions

Given the absence of urban development in the surrounding the project, traffic on Kaumualii Highway is the primary noise generator. A noise analysis was not performed because the project does not meet Federal or State criteria for when a noise analysis is needed; specifically, the proposed project would not increase highway capacity and there are no nearby noise receptors.

3.5.2 Potential Impacts and Mitigation Measures

Construction-related Noise

Construction noise impacts are unavoidable, but would be temporary. Noise levels produced during construction would be a function of the methods employed during each stage of construction. Equipment likely to be used include drill rig, crane, excavator, backhoe, front-end loader, grader, forklift, semi-trucks, dump trucks, concrete trucks, compactors, paving equipment, and compressors. Roadway Construction Noise Model User’s Guide (FHWA, 2006) indicates that the loudest equipment generally emits noise in the range of 80 to 90 decibels (dBA) at a distance of 50 feet, which exceeds permissible levels.

Per HAR §11-46-3, the project area is located in the Class A Zoning District (open space), where maximum permissible sound levels are 55 dBA during the daytime (7 am to 10 pm) and 45 dBA during the nighttime (10 pm to 7 am). Construction noise is expected to exceed the State’s “maximum permissible” property line noise levels, and a Community Noise Permit would be obtained from HDOH under HAR Chapter 11-46, Community Noise Control. For HDOH to issue a noise permit, the application would describe construction activities for the project. Specific permit restrictions required for construction projects includes the following:

- No permit shall allow construction activities creating excessive noise before 7 am and after 6 pm of the same day.
- No permit shall allow construction activities that emit noise in excess of 95 dBA except between 9 am and 5:30 pm of the same day.
- No permit shall allow construction activities that exceed the allowable noise levels on Sundays and on certain holidays. Pile driving and other activities exceeding 95 dBA would be prohibited on Saturdays.

The HDOH noise permit generally does not limit the noise level generated at the construction site, but rather the times at which high-volume construction can take place. However, before issuing the permit, HDOH may require noise mitigations to be incorporated into construction plans, for example, maintenance and proper muffling of construction equipment and onsite vehicles that exhaust gas or air. HDOH may also require the Contractor to conduct noise monitoring. In addition to the noise permit, a noise variance may be requested from HDOH for specific occasions when work hours need to be extended into the evenings and/or on weekends to implement the overall construction schedule.

Long-term Noise Impacts

Replacing Bridge 7E would not change highway capacity, traffic counts or operational conditions (that is, the posted speed limit). Therefore, noise levels after the project is completed are expected to be unchanged.

3.6 Hazardous Materials

3.6.1 Existing Conditions

A regulatory database computerized environmental report (CER) was acquired in the form of an EDR Radius Map Report with GeoCheck®. The CER is a download from select Federal and State standard source environmental databases that identifies sites within a search radius of up to 1 mile. CER data lists were reviewed to determine whether any sites could present a hazard during construction. The CER (included in
Appendix B) did not identify any sites within the 1-mile radius that are suspected to represent a material negative environmental impact.

In addition, the CER identified three orphan sites (sites without adequate location information to identify on a map). Two of the sites are related to a highway resurfacing project, and the third is for a highway improvement project. All three listings were identified in the Facility Index System database. None of the three orphan site listings identified a release of hazardous or petroleum products.

There is potential for the existing culvert to contain asbestos-containing material (ACM) and lead based paint (LBP). Potential ACM on structures include abutment forms, waterproof membranes between the deck and the paving, geotextiles, asbestos cement pipes and conduits, textured surfaces, and asbestos concrete. LBP may be present in paint chips or waste generated during removal of paint from bulk material, including stripping paint grindings from asphalt pavement.

3.6.2 Potential Impacts and Mitigation Measures

Project construction would require the removal, demolition, and rehabilitation of the existing bridge structure. Construction-related activities would also require using hazardous materials, including lubricants of various weights and viscosities, hydraulic fluid for transit and construction equipment, cleaning products, and materials used for corrosion protection such as paint or other coatings on exposed steel.

Based on the results of the CER, no hazardous materials are anticipated to be encountered within the project site.

A hazardous materials spill plan would be developed that describes spill prevention measures regarding the location of refueling and storage facilities and the handling of hazardous materials. The hazardous materials spill plan would describe actions to be taken in case of a spill. The contents and requirements of the hazardous materials spill plan include the following:

- The project manager and heavy equipment operators would perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations would be postponed or halted should a leak be detected, and they would not proceed until the leak is repaired and the equipment is cleaned.

- Absorbent material manufactured for containment and cleanup of small hazardous materials spills would be kept at the project site.

- In the event of a large hazardous materials spill or if unanticipated hazardous materials are encountered within the project site, the HDOH Hazard Evaluation and Emergency Response Office and the HDOT Hazard Evaluation and Environmental Response Office would be contacted immediately.

- Hazardous waste generated as a result of removal, demolition, and rehabilitation activities would be managed to the highest and best end use, and in a manner to ensure the protection of human health (workers, visitors to the site, and the general public) and the environment in accordance with applicable laws, rules, and regulations.

- A hazardous waste determination for all anticipated waste would be prepared to determine whether the waste is classified as hazardous waste, universal waste, excluded waste, wastewater, or solid waste. Before removal, demolition and rehabilitation activities related to ACM or LBP commence, all applicable permits will be obtained from, and notifications be provided to, the Federal, State, and local permitting and regulatory agencies with jurisdiction over this work. These permits and notifications will be documented in the project files.

A survey would be performed to determine whether ACM, LBP, or both are present. If asbestos is present or suspected, an Asbestos Abatement Plan would be prepared to establish the appropriate protocols for abatement. If LBP is identified, work practices (in accordance with applicable State and Federal regulations)
would be implemented before LBP removal to contain debris, control airborne dust, and properly dispose of materials with LBP.

### 3.7 Flora

#### 3.7.1 Existing Conditions

SWCA biologists conducted field reconnaissance surveys of the project limits on September 17 and 29, 2014. Representative portions of the area were driven or walked, to describe vegetation types and wetlands or streams, as well as known or suspected threatened, endangered, or candidate plant species. No Federally or State-listed threatened, endangered, or candidate plant species were recorded in the survey area. No Native Hawaiian plants were seen during the survey. The vegetation in the survey is composed of five main vegetation types as follows:

- **Guinea Grass Grassland**: Guinea grass (*Urochloa maxima*) forms dense mats, reaching 7 feet tall in some areas adjacent to the highway. Very few other weedy species occur in this vegetation type. Small koa haole (*Leucaena leucocephala*) trees, albizia (*Falcataria moluccana*) seedlings, and maile pilau (*Paederia foetida*) vine are uncommon.

- **Albizia Forest**: A large portion of the survey area comprises monotypic albizia stands that maintain a canopy over 50 percent or greater. The understory is largely dominated by Guinea grass.

- **Eucalyptus Forest**: Portions of the survey area are forested with rainbow eucalyptus trees (*Eucalyptus deglupta*). The understory is largely dominated by Guinea grass.

- **Riparian**: The riparian vegetation type occurs in the non-perennial streambed. Common species in this area include Job’s-tears (*Coix lachrymal-jobi*), Guinea grass, octopus tree (*Schefflera actinophylla*), Koster’s curse (*Clidemia hirta*), and ginger (*Alpinia sp.*).

- **Ruderal Vegetation**: This vegetation type occurs in and along the highway right-of-way. It is dominated by a mix of non-native herbaceous plants including: Guinea grass, swollen fingergrass (*Chloris barbata*), Spanish needle (*Bidens pilosa*), maile hohono (*Ageratum conyzoides*), graceful spurge (*Euphorbia hypericifolia*), pualele (*Emilia fosbergii*), kili’o’opu (*Kyllinga nemoralis*), elephant grass (*Cenchrus purpureus*), and Hilo grass (*Paspalum conjugatum*). These weedy areas are likely mowed occasionally.

#### 3.7.2 Potential Impacts and Mitigation Measures

Construction of the proposed project would require trimming and/or removal of vegetation within the temporary and permanent work areas. The following BMPs related to floristic resources would be implemented (*Kauai County Code*, Chapter 22, Article 7):

- Natural vegetation, especially grass, would be retained where possible.
- Construction traffic would be routed to avoid existing or newly planted vegetation.
- Natural vegetation would be protected with fencing, tree armoring, and retaining walls or tree wells, as appropriate.
- Removed vegetation would not be deposited along the banks of any watercourse.
- All removed vegetation would be disposed of away from the site within 3 months of being removed.
- All construction equipment would be washed before construction to prevent introduction of invasive species seeds from earthmoving or hauling.

The vegetation types and species identified during the survey are not unique. No threatened or endangered plants were found. In addition, no designated plant critical habitat occurs nearby. Based on the lack of

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2 The plant names used in this assessment follow Wagner et al. (2012), Wagner and Herbst (2013), and Wagner et al. (1999).
sensitive botanical resources and implementation of BMPs, the proposed project is not expected to have a significant adverse impact on botanical resources.

3.8 Fauna

SWCA biologists investigated the presence of known or suspected threatened, endangered, or candidate wildlife species during the September 2014 field surveys.

3.8.1 Avifauna

The bird species observed in and near the project limits are species typically found in disturbed lowland areas. In all, four bird species were documented: Cattle egret (*Bubulcus ibis*), house finch (*Haemorhous mexicanus*), Hwamei (*Garrulax canorus*), and Japanese white-eye (*Zosterops japonicas*). All four species were introduced to the Hawaiian Islands. The cattle egret and house finch are non-native birds protected under the Migratory Bird Treaty Act (MBTA). The native migrant Pacific golden-plover (*Pluvialis fulva*) could also exist in the survey area.

Seabirds, particularly the endangered Hawaiian petrel (*Pterodroma sandwicensis*), threatened Newell’s shearwater (*Puffinus auricularis newelli*), and endangered band-rumped storm-petrel (*Oceanodroma castro*), may fly over the project at night while travelling to and from their upland nesting sites to the ocean. These species nest inland in the mountainous interior of Kauai. No suitable nesting sites for these species are present in the project limits.

Suitable foraging and nesting sites for the four endangered waterbird species—Hawaiian gallinule or ‘alae’ula (*Gallinula galeata sandvicensis*), Hawaiian coot or ‘alae’ke’oke’o (*Fulica alai*), Hawaiian stilt or ae’o (*Himantopus mexicanus knudseni*), and Hawaiian duck or koloa maoli (*Anas wyvilliana*)—are not present in the project limits. Because of the lack of shrub cover and abundance of tall grass, suitable nesting habitat for the endangered Hawaiian goose or nene (*Branta sandvicensis*) is also not present.

3.8.2 Mammalian Species

**Hawaiian Hoary Bat**

The endangered Hawaiian hoary bat or ‘ope’ape’a (*Casiurus cinereus semotus*) is the only native terrestrial mammal species that is still present within the Hawaiian Islands. A survey specifically for Hawaiian hoary bats was not conducted, but suitable habitat for roosting and foraging was noted during the biological survey. The species typically roosts in dense canopy foliage or in the subcanopy when canopy is sparse, with open access for launching into flight. The bats have been observed roosting in eucalyptus and albizia trees and potentially roost in these tree species within the vicinity of Bridge 7E (see the Biological Assessment provided in Appendix C). In terms of feeding behavior, the bats forage in open, wooded, and habitats with a wide range of vegetation types. The animals are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands, and up to 300 feet offshore. The stream corridor in the project limits is considered suitable bat foraging habitat.

**Other Terrestrial Mammals**

Dogs (*Canis familiaris*) and cats (*Felis catus*) were not observed during the biological survey, but are likely to enter the project limits. Other mammals that can be expected onsite include mice (*Mus musculus*) and rats (*Rattus spp.*).

3.8.3 Terrestrial Invertebrates

Four species of terrestrial invertebrates were noted during the biological survey. Two are non-native snails: the giant African snail (*Achatina fulica*) and the miniature awlsnail (*Subulina octona*). Also observed were the

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3 The band-rumped storm petrel is State listed as endangered, and is a candidate for Federal listing as endangered.
large orange sulphur butterfly (*Phoebis agarithe*) and the native indigenous globe skimmer (*Pantala flavescens*).

### 3.8.4 Aquatic Resources

Due to low water volume and poor visibility, an in-stream (i.e., mask and snorkel) survey was not possible. Observations for aquatic species were attempted, but none were made. Although not specific to the project site, previous surveys in the mid-reaches of the larger Waikomo watershed report the presence of a single native fish (o’opu nakea [*Awaous guamensis*]) and multiple introduced species, including Asian clam, (*Corbicula fluminea*), Tahitian prawn (*Macrobrachium lar*), sunfish (*Lepomis* sp.), bass (*Micropterus* sp.), guppy (*Poecilia reticulata*), tilapia (*Tilapia* sp.), and swordtail (*Xiphophorus helleri*) (Parham et al., 2008).

### 3.8.5 Potential Impacts and Mitigation Measures

#### Hawaiian Hoary Bats

Bats may roost in eucalyptus and albizia trees present in the project limits, or they may forage throughout the area. Direct impacts to bats would occur only if a juvenile bat too small to fly but too large to be carried by a parent were present in a tree that is trimmed or cut down. The possibility of adversely affecting Hawaiian hoary bats as a result of the proposed project is small; however, the following measures would be taken to avoid impacts:

- Any fences that are erected as part of the project would have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the survey area were observed with barbed wire; however, if fences are present within the project limits, the top strand of barbed wire would be removed or replaced with barbless wire.
- No trees taller than 15 feet are anticipated to be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying and may be roosting in the trees. If a 15 feet or taller tree would be trimmed or cut during this period, a qualified biologist would ensure no bats were present in the tree before disturbance occurs.

#### Seabirds

Threats to the endangered Hawaiian petrel, threatened Newell’s shearwater, and endangered band-rumped storm-petrel include the attraction of adults and newly fledged juveniles to bright lights while transiting between their nest sites and the ocean at night. Juvenile birds are particularly vulnerable to light attraction and are sometimes grounded when they become disoriented at night by lights. Grounded birds are vulnerable to mammalian predators or to being struck by vehicles. The following mitigation measures would be implemented to avoid and minimize light attraction of these seabirds to the project site:

- Construction activity would be restricted to daylight hours as much as practicable during the seabird peak fallout period (September 15 to December 15), to avoid the use of nighttime lighting that could attract seabirds.
- All outdoor lights would be shielded to prevent upward radiation.
- Outside lights that are not needed for security and safety would be turned off from dusk through dawn during the peak fallout period (September 15 to December 15).

#### Hawaiian Waterbirds and Nene

If an endangered Hawaiian waterbird or nene is found in the project limits during construction activities, then all contractor activities within 100 feet of the bird would cease and the bird would not be approached. Work may continue after the bird leaves the area of its own accord.

#### Aquatic Resources

The following mitigation measures would be implemented to reduce potential impacts to aquatic resources in the area:

- Disturbed streambanks would be revegetated or stabilized as soon as possible to reduce erosion.
- All project-related materials and equipment placed in the water would be free of pollutants.
- Fueling of land-based vehicles and equipment would take place at least 50 feet from the water, preferably over an impervious surface.
Appropriate materials to contain and clean potential spills would be stored at the worksite and be readily available.

Appropriate silt retention devices would be used to minimize streambank sediments from entering the stream.

**Migratory Bird Treaty Act.** SWCA observed two bird species Federally protected under the MBTA during the biological survey, along with an additional species that may exist in the project area: the migratory Pacific golden-plover and sanderling, the endangered Hawaiian gallinule, and the introduced cattle egret. Construction may temporarily displace some of these bird species, but long-term impacts are not expected. These birds (likely limited to a few individuals) are expected to find suitable foraging habitat in nearby areas. The temporary displacement of these individuals at the project site is not expected to affect their survival or the overall species’ populations.

### 3.9 Archaeological Resources

#### 3.9.1 Existing Conditions

The town of Koloa is the urbanized area closest to the proposed project (approximately 2.5 miles south of the project area). The *makai* portion of Koloa is relatively dry with approximately 30 inches of rain. However, historically, perennially flowing streams have provided a resource for the development of an expansive agriculture system *mauka* of the town, in the general vicinity of the project. Accounts of the early history of Koloa describe *mauka* lands as a seemingly continuous, well-maintained, agricultural complex of taro, yams, sweet potato, and sugar cane irrigated by an extensive auwai system (water channels for irrigation) siphoned off Waikomo and Poeleele streams.

Koloa became the site of the first organized sugar plantation in Hawaii. Most of the infrastructure supporting historic agriculture lies *makai* of the Bridge 7E project, but the upper elevations of Koloa were important collection areas for irrigation.

Cultural Surveys Hawaii (CSH) archaeologists conducted archaeological field work in September 2014 and subsurface testing in June 2015 within the Area of Potential Effect (APE) (Appendix D includes the Draft Archaeological Inventory Survey Report, which presents information about the field surveys). The following two cultural resources were identified:

- SIHP #50-30-10-2285 (CSH 1): Bridge 7E
- SIHP #30-10-2286 (CSH 3): Historic earthen ditch

**Bridge 7E (SIHP #50-30-10-2285)** is discussed in Section 3.11, Historic Architecture Resources.

The historic earthen ditch (SIHP #30-10-2286) extends north to south, and is perpendicular to Kaumualii Highway through the culverts of Bridge 7E. Water flows within the ditch and into Mauka Reservoir. The width and depth of the ditch are variable. On the southern side of Bridge 7E, the ditch has a width of approximately 9.8 feet with a depth of approximately 7.9 feet. On the northern side of the culvert, the ditch is wider and measures approximately 15.1 feet, with a shallower depth of approximately 5.9 feet. This feature is interpreted as an historic (plantation) earthen ditch for water control.

**Significance Assessment.** SIHP #30-10-2286, a historic earthen ditch, was evaluated for significance under HAR §13-275-6 Criterion “D” (have yielded or is likely to yield information important for research on prehistory or history). However, the earthen ditch lacks integrity of design, materials, workmanship, feeling, and association, and is therefore not eligible for listing in the National or Hawaii Register of Historic Places pursuant to 36 Code of Federal Regulations (CFR) 60.4 and HAR §13-198-8.

Subsurface investigations were conducted by CSH from June 14 to 15, 2015. The testing program involved six shovel test probes, each measuring approximately 50 centimeters long by 50 centimeters wide. Excavation sites were distributed throughout the project limits along the shoulder of the highway. The sampling strategy was detailed in map and text to the SHPO in advance of the fieldwork.
Traditional Hawaiian cultural material was not observed during subsurface testing. Historic cultural material observed and collected consisted of a single porcelain fragment. No cultural resources were identified during the subsurface testing program. Additional detail is provided in the Draft Archaeological Inventory Survey Report contained in Appendix D.

3.9.2 Potential Impacts and Mitigation Measures
The proposed project would have “no historic properties affected” in accordance with Federal regulations (36 CFR 800.5) and “no effect” in accordance with HAR §13-13-275-7. These findings are based on the lack of significant cultural resources within the project limits and APE, and absence of resources meeting the eligibility criteria for the National or Hawaii registers (36 CFR 60.4 and HAR §13-198-8, respectively).

No further archaeological fieldwork is proposed for this project. If cultural resources or human remains were inadvertently discovered during construction, the contractor would comply with State law and administrative rules for handling them.

3.10 Historic Architectural Resources
3.10.1 Existing Conditions
Bridge 7E is a concrete, two-cell box culvert that carries two lanes of Kaumualii Highway at MP 7. The structure was part of the circa 1933 National Recovery Highway project (NRH) No. 12-B, which would become Route 50 along an approximately 5-mile section beginning near the junction of Maluhia (Tree Tunnel) Road and extending west to Kalaheo. Before this project, the existing road followed a twisting route with frequent abrupt turns along the contour of the land and was unpaved in places. The 1933 project built a straighter road that was cut and filled through the terrain to provide a gentler grade. Much of the older road was destroyed when NRH 12-B cut through it. Other sections that extended farther from the path of the 1933 project were abandoned.

William R. Bartels, a bridge engineer for the Hawaii Territorial Highway Department, was the designer of the structure. During his tenure (1932 to 1958), he was a prolific designer, responsible for large and sophisticated bridge construction projects in Hawaii, including many tee-beam and rigid-frame concrete bridges. The structure was built by Hawaiian Contracting Co. Ltd and construction was supervised by Robert Belt, the Resident Engineer on Kauai for the Territorial Highway Department.

Significance Assessment. Bridge 7E is included in the November 2013 Hawaii State Historic Bridge Inventory and Evaluation by MKE Associates, LLC, and Fung Associates, Inc. (MKE Associates and Fung Associates, 2013). This inventory describes Bridge 7E as not eligible, with no distinctive features that depart from standard design. The structure is included in the 1989 Kauai Bridge Inventory. The 1989 inventory states that the structure is also known as Hoinakaunalehua Bridge. However, this name is assigned to a 1950 culvert that is located on Kaumualii Highway about 2 miles east of Bridge 7E. It is more likely that the alternate name in the 1989 bridge inventory is in error, confusing the two structures. The 1989 evaluation for Bridge 7E found that it is not eligible for listing on the National or Hawaii registers because of a lack of distinguishing engineering or artistic characteristics.

Bridge 7E was reevaluated by Mason Architects in 2014; a copy of the Historic Inventory Form is contained in Appendix D. The culvert does not appear to contribute to the development of Kaumualii Highway. It was not a particularly distinctive example of a box culvert or considered a significant achievement by its designer. HDOT and FHWA have determined that Bridge 7E is not eligible for listing on either the National nor the Hawaii Register of Historic Places.

3.10.2 Potential Impact and Proposed Mitigation Measures
The proposed project would dismantle the existing two-cell box culvert and replace it with a new single-cell box culvert with a deck that is wider than the existing culvert. Because the existing structure has been determined to be ineligible for listing on the National or Hawaii Register of Historic Places, the replacement project would not adversely impact a historic structure and no mitigation is required.
3.11 Cultural Resources

3.11.1 Existing Conditions
Consistent with the requirements of HRS Chapter 343, Cultural Surveys Hawaii conducted a Cultural Impact Assessment (CIA) to evaluate the potential effect of the proposed project on cultural beliefs, practices, and resources. The assessment included archival research of relevant background history, ka’ao (legends), traditional mo’olelo (stories), wahi pana (storied places), ‘ōlelo no’eau (proverbs), oli (chants), mele (songs), traditional subsistence and gathering methods, and ritual and ceremonial practices. Ethnographic interviews were also conducted with persons knowledgeable about cultural resources, practices, and beliefs relevant to the study area. Specifically, CSH conducted three interviews for the project: Reginald Gage, Rupert Rowe, and Billy Haohelaulii. The preliminary findings of the CIA are summarized below; a copy of the Draft CIA is provided in Appendix E.

Although much of the seaward portion of Koloa is a relatively dry area with approximately 30 inches of rain per year, the perennially flowing streams provided a resource for the development of a rather expansive agricultural system. Accounts of the early history of Koloa (Farley, 1907; Jarves, 1844; Judd, 1935; Townsend, 1839) describe in the lands mauka of Koloa Town as a seemingly continuous, well-maintained, agricultural complex of taro, yams, sweet potato, and sugar cane irrigated by an extensive auwai system siphoned off Waikomo and Poeleele streams. This system had a significant influence on later commercial endeavors in Koloa.

Koloa is the site of the first organized sugar plantation in Hawaii. Ladd and Company leased about 1,000 acres for the sole purpose of growing sugar cane (Palama and Stauder, 1973). The commercialization of sugar cane in Koloa had widespread social effects that changed the traditional view of the aina as a responsibility of the ali‘i.

Koloa Town and Koloa Landing, at the mouth of Waikomo Stream, became prominent commercial centers during the mid- to late 1800s, exporting a variety of products such as sweet potatoes, sugar, and molasses. Whalers also stopped for provisions of squash, salt, salt beef, pigs, and cattle (Palama and Stauder, 1973). This heightened activity dramatically altered the social structure and landscape of Koloa.

While clearly most of the infrastructure supporting historic agriculture lies well makai of the present study area, during the later historic period, the upper elevations of Koloa became important collection areas for irrigation water. It is possible that historic ditches, flumes, pipelines, and other features related to the collection of irrigation water exist within or are in the immediate vicinity of the study area.

3.11.2 Potential Impacts and Mitigation Measures
Based on the preliminary results of the CIA, cultural resources and practices are not expected to be affected by the proposed project. Cultural practices near the proposed project (should any occur) would be temporarily restricted during the construction period for safety reasons. All permitted activities would resume once the improvements have been completed. If cultural resources or human remains were inadvertently discovered during construction, the contractor would comply with State law and administrative rules for handling them.

3.12 Population and Demographic Factors

3.12.1 Existing Conditions
The proposed project is not located in a residential neighborhood. The closest residences are located approximately 1.5 miles to the west in Omao.

There are four census tracts in the southern and western areas of Kauai:

- Census Tract 406, Koloa-Poipu
- Census Tract 407, Kalaheo-Eleele
• Census Tract 408, Hanapepe
• Census Tract 409, Waimea-Kekaha

Approximately 35 percent of the island’s population resides within the four census tracts (see Table 3-2). For this region, the U.S. Census counted a combined population of 23,418 in 2010. Compared to 2000, the region experienced a net increase of 2,010 persons or 9.4 percent. The three census tracts west of Bridge 7E—407, 408, and 409—experienced the highest growth rates within the region.

<table>
<thead>
<tr>
<th>Table 3-2</th>
<th>Resident Population, Selected Census Tracts, 2000 and 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
<td>Koloa-Poipu</td>
</tr>
<tr>
<td>407</td>
<td>Kalaheo-Eleele</td>
</tr>
<tr>
<td>408</td>
<td>Hanapepe</td>
</tr>
<tr>
<td>409</td>
<td>Waimea-Kekaha</td>
</tr>
<tr>
<td>Region</td>
<td>South/West Kauai</td>
</tr>
<tr>
<td>County</td>
<td>Kauai</td>
</tr>
</tbody>
</table>

Source: U.S. Department of Commerce Census Bureau, 2010

3.12.2 Potential Impacts and Mitigation Measures
The proposed project would replace an existing two-cell box culvert with no change in traffic volume using the structure. Therefore, the project is not expected to affect the residential population or demographic characteristics. However, given that approximately 35 percent of the island’s residents live to the west of Bridge 7E or immediately south of it, maintaining a reliable transportation infrastructure would meet the mobility needs of a significant proportion of Kauai’s population.

Environmental Justice. The project involves replacement of an existing structure that is not located in a residential area. Therefore, the project would not have a disproportionately high or adverse impact on minority or low-income populations.

3.13 Economic and Fiscal Resources
3.13.1 Existing Conditions
The Kauai economy has transformed over time from a plantation economy to a modern economy with a mix of tourism, diversified agriculture, construction, retail, and professional businesses. As reported in the 2013 edition of County Business Patterns, Kauai had a total of 1,986 business establishments with 25,186 paid employees and an annual payroll of more than $880 million.

The largest industries in terms of jobs are trade (retail and wholesale) and services. In 2013, hotels and food services accounted for 8,372 jobs, retail trade had 3,992, and healthcare and social assistance had 3,038. The Poipu resort area, located south of the proposed project, is a major employment center that draws workers from much of the island.

The national economic recession of the late 2000s had a ripple effect on tourism and the island’s primary economic engine. However, economic conditions have since improved and the unemployment rate in August 2015 was 3.8 percent (Ycharts, 2015), compared to a 3.5 percent unemployment rate statewide (State of Hawaii Department of Labor and Industrial Relations, 2015) and 6.1 percent nationwide (U.S. Bureau of Labor Statistics, 2015).
3.13.2 Potential Impacts and Mitigation Measures

Economic Impacts

The proposed project is anticipated to have several types of economic impacts. One type is construction-related employment and income. With a preliminary estimated cost of $2.21 million, the project is expected to support a number of construction workers for the duration of the project. Unless the economy expands significantly and existing firms are working at full capacity, this project is more likely to help sustain existing employment and income levels than to create new jobs. However, because project funds are coming from (Federal) sources outside the region, wages paid to workers on this project (direct income), payments to suppliers (indirect income), and their subsequent expenditures (induced income) would have positive cumulative impact as monies circulate through the local economy.

Fiscal Impacts

Public funds are needed for long-term operations and maintenance of all bridge structures. In the case of Bridge 7E, the existing structure has exceeded its normal lifespan. Replacing the structure would allow HDOT to extend the timeframe for major bridge repair. Design improvements would reduce ongoing maintenance costs, notably by engineering positive flow through the culvert, installing a bottom slab to inhibit vegetation growth within the culvert, and providing scour protection. These improvements would provide long-term fiscal benefits to HDOT.

3.14 Visual and Aesthetic Resources

3.14.1 Existing Conditions

The 2000 Kaua'i General Plan (General Plan) identifies important scenic resources, such as major land forms, open spaces, viewing points, and scenic drives. The Plan’s Koloa-Poipu-Kalaheo Planning District Heritage Resources map was reviewed to identify resources that may be affected by the proposed project. Long stretches of Kaumualii Highway are identified as scenic roadway corridors, including the section from Puhi to Omao which encompasses Bridge 7E.

The setting of Bridge 7E is rural, along a gently curving section of the highway with a sight distance of about 900 feet to the east and about 1,800 feet to the west, with no buildings that are in sight distance of the structure. Thick vegetation is growing in the stream bed and covering the low banks. Tall trees line the highway in both directions. Photo 3-1 shows a view of the highway circa 1998. At that time, land surrounding the highway was used for sugar cane production and the view from the highway offered a panoramic vista of the Waialeale foothills. Photo 3-2 was taken in almost the same location in 2014 and shows a different view after cessation of agriculture and subsequent forestation.
3.14.2 Potential Impacts and Mitigation Measures

As seen Photos 3-1 and 3-2, the highway corridor provides the remaining open view plane of the *mauka* scenery. The existing structure has low, solid concrete parapets (that is, low walls) about 1 foot, 6 inches high above the asphalt roadway surface (see Photo 2, Figure 1-2). Given the inconspicuous railings, motorists may not know they are driving over a culvert. The proposed replacement structure would be designed with single slope concrete railings that are 3 feet, 6 inches high, and would be noticeable to
motorists. Even at the new parapet height, motorists’ views would not be diminished because of the relatively short structure length (approximately 26 feet) (see Figure 3-3). Therefore, this project is not anticipated to have significant adverse impacts on view planes which are forward looking.

3.15 Roads and Traffic

3.15.1 Existing Conditions

Kaumualii Highway (State Route 50) is the main transportation corridor for the western side of the island. In the vicinity of Bridge 7E, at MP 7, the highway had an average daily traffic count of 13,900 in 2012. The highway is classified as a Rural Minor Arterial with a posted speed limit of 50 mph.

3.15.2 Potential Impacts and Mitigation Measures

Development in the State Highway Right-of-Way

The proposed project would affect approximately 760 feet of Kaumualii Highway. The replacement culvert would be constructed and operated predominantly within the right-of-way of the existing highway facility. Project improvements would occur in areas impacted by construction of the original structure in 1933 and subsequent highway upgrades and repairs. Permanent easements for slopes and maintenance access would be needed as described in Section 2.3.3, Properties Affected by the Project.

Traffic Impacts

Short-term Construction-related Impacts. Construction is expected to extend over 11 months. A temporary bypass road—including a temporary stream crossing—would be constructed to maintain traffic flow during construction. The bypass route would be located adjacent to, and mauka of, the existing structure. It would consist of two travel lanes, thereby accommodating travel in both directions. The bypass route would be designed for a travel speed of 30 mph (compared to the highway speed of 50 mph). While motorists would be required to slow down and may experience slightly longer travel times, traffic flow is not expected to be impeded.

Traffic Control. A traffic management plan would be developed by the contractor before construction and submitted to HDOT and FHWA for review and approval. Components of the traffic plan may include public notices and electronic signboards to inform motorists about the work schedule and to help with travel planning. All temporary signs, signals, and pavement markings would conform to standards contained in the FHWA Manual on Uniform Traffic Control Devices (revised 2009; adopted 2010).

Emergency Services. Kaumualii Highway is a lifeline transportation facility for police, fire, and emergency medical services. The project includes a temporary bypass road adjacent to the existing structure and designed to carry conventional loads, thereby resulting in no adverse impacts to emergency services access. The contractor would be required to make provisions for emergency access and would be required to maintain full access during non-working hours.

3.16 Solid Waste Management

3.16.1 Existing Conditions

The County of Kauai, Department of Public Works, Solid Waste Division operates the primary refuse collection system. The County is responsible for regulating the disposal of all solid waste with the exception of hazardous materials. Refuse collection crews operate out of three baseyards on Kauai.

The island has a single landfill located in Kekaha. Because it is located on the far-west side of the county, refuse vehicles servicing large portions of the island routinely pass over Bridge 7E to reach the facility. The 34-acre Kekaha Landfill Phase II site opened in 1993 and was allowed by the State to have its height limit.
increased to 60 feet in 1998. The facility also serves as a drop-off point for segregated recoverable waste (such as cardboard, newspaper, glass, and aluminum cans). The landfill, with the addition of the vertical expansion, is projected to reach capacity in several years. The County has identified a landfill site north of Lihue, makai of Maalo Road, and is currently preparing an EIS.

3.16.2 Potential Impacts and Mitigation Measures
Solid-waste impacts are expected to be short-term and related to construction activities. Removing the existing structure would generate debris consisting primarily of concrete slabs, asphalt pavement, and metal guardrails, posts, and fastenings. The contractor would be required to dispose of or recycle all materials at approved sites and with proper handling during transport. The contractor would be required to have a waste disposal plan that specifies proper removal and disposal of all debris from the project. Project-related waste material would be a small proportion of the island-wide total, and would not be expected to have a significant impact on the County’s solid waste facilities.

3.17 Electrical and Telecommunications Systems

3.17.1 Electrical System
KIUC is the local electrical utility company, providing electrical power to service customers on the island. Pole-mounted overhead 12.47-kilovolt lines are located on the makai side of the highway and run parallel to the proposed project.

3.17.2 Telecommunications Systems
Hawaiian Telcom provides land-line telecommunications service to customers on the island. Overhead telecommunication lines are also located on the makai side of the highway and parallel to the proposed project. There is an existing riser conduit rising up on the joint poles at each end of the structure, along the roadway.

Oceanic Time Warner Cable provides wired cable television service to customers on the island. The cable television distribution system is assumed to include overhead lines on the makai side of the highway and parallel to the proposed project.

SIC has an existing fiber optic ductline system that runs underground and is located on the mauka side of the structure. The section under the structure was directionally drilled under the streambed.

3.17.3 Highway Lighting and Power
There are no highway lights in the project limits.

3.17.4 Potential Impacts and Mitigation Measures
Utilities would remain functional during construction but may experience temporary and short-term interruptions, limited to the extent possible. Further coordination with utility owners would occur before and during construction. Temporary impacts on utilities would be negligible because service would be maintained during construction, and there would be no long-term adverse impacts related to utilities.

3.18 Secondary and Cumulative Impacts
Replacement of Bridge 7E is a self-contained project. It would not change the capacity of the existing highway and it is not expected to have secondary impacts such as population change, land development, or effects on public facilities and services. No other transportation or construction project is proposed to occur in the project vicinity, thereby reducing the potential for cumulative adverse impacts to resources such as water quality and wildlife.
3.19 References


County of Kauai. Kauai County Code.


FIGURE 3-1
Soils
7E Bridge Project
Hawaii Bridges Program -
Central Federal Lands Highway Division and
Hawaii Department of Transportation

LEGEND
Survey Area
Soil Map Unit

- HfB, Halii gravelly silty clay, 3 to 8 percent slopes
- KkB, Kapaa silty clay, 3 to 8 percent slopes
- LcB, Lawai silty clay, 0 to 8 percent slopes

Base Map: Google Earth Aerial Imagery (2012)
Data Sources: CSH, SSURGO
FIGURE 3-2
Waters of the U.S.
7E Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

LEGEND
- Permanent Impact Area
- Temporary Impact Area
- Waters of the U.S.
- Waters of the U.S. within the Project Area

Notes:
1. High-Res Imagery Source: Google Earth 12/16/2013
2. Low-Res Imagery Source: Digital Globe 08/26/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.
FIGURE 3-3
Visual Simulation
7E Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation
CHAPTER 4

Relationships to Public Plans and Policies

The plans and policies relating to the proposed project range from broad program guidance to land use controls governing the project site. Construction of the proposed improvements is consistent with the various plans, policies, and regulatory controls, as discussed below.

4.1 Federal

The proposed project would include the use of Federal funds through FHWA. As a result, the proposed project must be consistent with various Federal statutory and regulatory requirements.

4.1.1 National Environmental Policy Act of 1970

The proposed project would be partially funded by FHWA; this Federal funding subjects the project to the environmental review requirements of NEPA, prescribed under 40 CFR Parts 1500 – 1508 (Council on Environmental Quality [CEQ]). FHWA serves as the lead Federal agency, or Administrator, responsible for the project’s compliance with NEPA documentation and processing requirements, as provided in 23 CFR Part 771, Environmental Impact and Related Procedures.

The NEPA determination of impact significance is related to the type of document and process required to comply with NEPA for a proposed project. There are three types of environmental documents under NEPA: (1) Categorical Exclusion (CE), (2) EA, and (3) EIS. A CE is appropriate where there would be no significant impacts on the environment, an EA when the significance of the effects are not clearly established, and an EIS when the action would have a significant impact on the environment.

Significance is defined in the CEQ regulations (40 CFR 1508.27). A “significant impact” is assessed in terms of an impact’s context and intensity. Context refers to the environment and the level of relative abundance of resources in the project limits. Intensity refers to the specific impact, or how much of the resource(s) would be used or affected by the project.

FHWA regulations for Environmental Impact and Related Procedures (23 CFR 771.117(a)) specify that CEs are actions that meet the definition contained in 40 CFR 1508.4 and act as follows:

- Do not induce significant impacts to planned growth or land use for the area
- Do not require the relocation of significant numbers of people
- Do not have a significant impact on any natural, cultural, recreational, historic, or other resources
- Do not involve significant air, noise, or water quality impacts
- Do not have significant impacts on travel patterns
- Do not otherwise, either individually or cumulatively, have any significant impacts

Specific actions that meet these criteria are listed in 23 CFR 771.117(c)). This list includes “bridge rehabilitation, construction or replacement or construction of grade separation to replace existing at-grade railroad crossings” (23 CFR 771.117(c)(28)).

Consistent with its regulations for NEPA compliance, and as further justified by the findings of this EA, FHWA anticipates issuing a CE for this project.

4.1.2 Section 106 of the National Historic Preservation Act of 1966

The NHPA of 1966, as amended (PL 89-665, codified as 16 United States Code [U.S.C.] 470), recognizes the nation’s historic heritage and establishes a national policy for the preservation of historic properties as well as the National Register of Historic Places. Section 106 of the NHPA of 1966 (16 U.S.C. 470f) requires that Federal agencies consider the effects of their projects on historic properties. Use of Federal funds sets forth the need for Section 106 consultation. The purpose of the Section 106 consultation process is to evaluate
CHAPTER 4: RELATIONSHIPS TO PUBLIC PLANS AND POLICIES

the potential for effects on existing historic sites, if any, resulting from the project. Findings relating to historic properties are discussed in Sections 3.9 and 3.10 of this document.

The Section 106 review process encompasses good faith effort in ascertaining the existence and location of historic properties near and within the project site, establishing an APE for the project, identifying whether a potential for adverse effects on historic properties by the project exists, and developing a reasonable and acceptable resolution in the monitoring and treatment of any historic sites that is agreed upon by the agency, the SHPO, and consulting government agencies, community associations, and Native Hawaiian organizations and families.

Meetings were held with the SHPO on September 9 and December 10, 2014, to provide an overview of the CFLHD Hawaii Bridge Program and to discuss the general parameters for historic preservation review. The Section 106 consultation process was formally initiated by letters to the SHPO and to potential consulting parties dated August 26, 2015. A legal notice requesting public input to the Section 106 process was published in The Garden Island on August 28, 2015. Additional documentation, including a description of the APE, determination of eligibility, and determination of effects, was sent to the SHPO on December 7, 2015. Copies of the consultation documents are provided in Appendix D. Consultation on the project will continue through project development and be completed by FHWA prior to their project approval.

4.1.3 Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303 and 23 U.S.C. 138) permits the use of publicly-owned park land, recreational area, wildlife and waterfowl refuge, or land of an historic site of National, State, or local significance for a transportation project only if (1) there is no prudent and feasible alternative to using that land and (2) the project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. The purpose of Section 4(f) requirements is to preserve significant parkland recreation areas, refuges, and historic and archaeological sites by limiting the circumstances where such land can be used for transportation projects.

There are no Section 4(f) properties that will be impacted by the project.

4.1.4 Uniform Relocation Assistance and Real Property Acquisition Act of 1970

The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 U.S.C. 4601 et seq. and 49 CFR 24), as amended by the Uniform Relocation Act Amendments of 1987 is commonly referred to as the Uniform Act. The Uniform Act provides important protection and assistance for people affected by Federally funded projects. The law was enacted by Congress to ensure that people whose real property is acquired, or who move as a result of projects receiving Federal funds, would be treated equitably and would receive assistance in moving from the property they occupy.

This project would be constructed within the existing right-of-way and would not require fee acquisition of land, structures, or residences, or displacement of persons or businesses. Permanent easements would be obtained to accommodate slopes and maintenance. All applicable and appropriate measures will be followed in acquiring property interests consistent with the requirements of the Uniform Act.

4.1.5 Endangered Species Act of 1973

The ESA of 1973 (16 U.S.C. 1531-1544) establishes a process for identifying and listing threatened and endangered species. It requires Federal agencies to carry out programs for the conservation of Federally listed endangered and threatened plants and wildlife and designated critical habitats for such species, and prohibits actions by Federal agencies that would likely jeopardize the continued existence of those species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA requires consultations with Federal wildlife management agencies, such as the USFWS and NMFS.

To begin consultations with agencies that have authority over listed species, FHWA-CFLHD sent a letter requesting a list of threatened and endangered species, candidate species, plants and animals of concern,
and critical habitats in the vicinity of the proposed project. USFWS responded by letter dated December 22, 2014, providing location-specific biological information and recommended standard BMPs. Discussions continued through meetings held with the USFWS on January 12, 2015 and with USFWS, USEPA, NMFS, and DLNR Division of Aquatic Resources on March 15, 2015.

A Biological Assessment was prepared for the Bridge 7E project and was submitted as part of the informal Section 7 consultation process on December 8, 2015 (see Appendix C).

4.1.6 Migratory Bird Treaty Act

The MBTA of 1918, as amended (16 U.S.C. 760), protects migratory wild birds found in the U.S. The MBTA makes it unlawful to pursue, hunt, take, capture, possess, sell, purchase, barter, import, export, or transport any migratory bird or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the U.S. Department of the Interior.

Consultation related to the MBTA is occurring as part of ongoing coordination with resource agencies.

4.1.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667e) calls for conservation of wildlife resources related to projects where the “waters of any stream or other body of water” are impounded, diverted, or modified by any agency under a Federal permit or license. The law requires consultation with USFWS and State fish and wildlife agencies for the purpose of “preventing loss of and damage to wildlife resources.”

Consultation related to the FWCA is occurring as part of ongoing coordination with resource agencies.

4.1.8 Clean Water Act of 1972

The Federal Water Pollution Control Act (FWPCA) (33 U.S.C. §§1251 et seq.), is the Federal statute regulating the discharge of water pollution. Congress revised the FWPCA into the CWA in 1972. The goals of the CWA include (1) “the discharge of pollution into the navigable waters be eliminated by 1985,” (2) “the discharge of toxic pollutants in toxic amounts be prohibited,” and (3) an “interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and... recreation in and on the water... by July 1, 1983” (CWA §101a, 33 U.S.C. §1251a).

Section 404 of the CWA regulates discharge of dredge and fill material in the Waters of the U.S., including wetlands, and requires a Department of the Army permit from USACE. Section 401 of the CWA directs states to establish water quality certification (WQC) programs. In Hawaii, the Section 401 WQC program is administered by HDOH, Clean Water Branch. The project would result in a discharge to a Waters of the U.S. regulated under Section 404; and as such, the project will require a Section 404 Department of Army Permit and Section 401 WQC.

Section 402 of the CWA requires an NPDES permit for point source discharges, including stormwater discharges associated with construction activities. The permit is required for construction activities that disturb 1 acre or more and discharge stormwater from the project site to Waters of the U.S. NPDES permits are issued by the HDOH Clean Water Branch. The project will require an NPDES permit.

FHWA-CFLHD will coordinate with USACE and HDOH regarding permitting under CWA.

4.1.9 Clean Air Act of 1970

The CAA and amendments (42 U.S.C. §7401 et seq.) is the comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes USEPA to establish National Ambient Air Quality Standards to protect public health and the environment.

The purpose of this project is to replace Bridge 7E. This project has been determined to generate minimal air quality impacts for CAA criteria pollutants (discussed in Section 3.2) and has not been linked with any special MSAT concerns. As such, this project would not result in changes in traffic volumes, vehicle mix, basic
project location, or any other factor that would cause an increase in MSAT impacts of the project from the No Action Alternative.

USEPA regulations for vehicle engines and fuels would cause overall MSAT emissions to decline over the next several decades. Based on regulations now in effect, an analysis of national trends with USEPA's Motor Vehicle Emission Simulator model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050. Vehicle miles of travel are projected to increase by over 100 percent. This would both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

4.1.10 Floodplain Management, Executive Orders 11988 and 12148

Executive Order 11988, Floodplain Management, dated May 24, 1977, requires Federal agencies to take action to reduce the risk of flood loss, restore the natural and beneficial values of floodplains, and minimize the impacts of floods on human safety, health, and welfare. Executive Order 12148, July 20, 1979, amended Executive Order 11988. The main feature of the amendment added that agencies with responsibilities for Federal real estate properties and facilities shall, at a minimum, require the construction of Federal structures and facilities to be in accordance with the criteria of the National Flood Insurance Program.

Bridge 7E is not located in a floodplain regulated by FEMA.

4.1.11 Protection of Wetlands, Executive Order 11990

Executive Order 11990, Protection of Wetlands, dated 1977, requires Federal agencies to avoid, preserve, or mitigate effects of new construction projects on lands that have been designated wetlands.

A delineation of Waters of the U.S. (including wetlands) was conducted and identified a single non-tidal, non-wetland water. No wetlands were found in the area surveyed.

4.1.12 Invasive Species, Executive Order 13112

Executive Order 13112 (64 Federal Register 6183), issued in 1999, requires Federal agencies to implement policies to minimize the spread of invasive species. Federal agencies cannot authorize, fund, or carry out action(s) that are likely to cause or promote the introduction or spread of invasive species, unless it has been determined (1) that the benefits of the action outweigh the potential harm caused by invasive species and (2) that all feasible and prudent measures to minimize risk of harm will be taken. Vegetation disturbed during construction would be replaced as part of the project and the spread of noxious weeds would be managed through the implementation of BMPs as part of the project.

4.1.13 Coastal Zone Management Act (16 U.S.C. §1456(C)(1))

In 1972, the U.S. Congress enacted the Federal Coastal Zone Management Act to ensure that each Federal agency undertaking an activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone will be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of approved State management programs. Each Federal agency carrying out an activity subject to the Act will provide a consistency determination to the relevant state agency designated under Section 1455(d)(6) of this title at the earliest practicable time.

The State administers the enforcement of this Act under the Hawaii CZM Program (HRS Chapter 205A), and therefore, the discussion of the project’s consistency with CZM objectives is discussed in Section 4.2.4.

4.1.14 Environmental Justice, Executive Order 12898

Executive Order 12898, Environmental Justice, was signed on February 11, 1994. The intent of Executive Order 12898 (full title: Federal Actions to Address Environmental Justice to Minority and Low-income Populations) is to avoid disproportionately high adverse human health or environmental effects of projects on minority and low-income populations. Executive Order 12898 also requires Federal agencies to ensure that minority and low-income communities have adequate access to public information related to health and the environment.
Guidance from CEQ indicate minority populations should be identified where either (1) the minority population of the affected area exceeds 50 percent, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage of the general population. Minorities are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. U.S. Census Bureau poverty status data are used to identify low-income populations. Poverty status is assigned to individuals and families whose income is below the poverty threshold appropriate for that person’s family size and composition, as reported in the U.S. Census Bureau, 2010 Census of Population and Housing.

Bridge 7E is located on an undeveloped stretch of Kaumualii Highway, approximately 5.3 miles west of Puhi, 3.5 miles north of Koloa, and 1.5 miles east of Omao. The construction and operation of the proposed project would not result in adverse effects on minority and low-income populations.

4.1.15 Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d and 49 CFR 21) establishes that no person shall, on the grounds of race, color, or national origin be excluded from participation in, be denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance.

The project complies with Title VI through coordination with and outreach to Native Hawaiian communities required under Section 106, HRS 343, and Act 50 on cultural practices.

4.2 State of Hawaii

4.2.1 Hawaii State Plan

The Hawaii State Plan, HRS Chapter 226, is the umbrella document in the statewide planning system. It serves as written guide for the long-range development of the State by describing the desired future for the residents of Hawaii and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

The proposed project supports and is consistent with the following State Plan objectives:

*Facility Systems – Transportation*

(a)(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.

(a)(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.

(b)(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.

(b)(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.

(b)(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.

(b)(10) Encourage the design and the development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii’s natural environment.

*Facility systems – in general*

(a) Planning for the State’s facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.
(b)(1) Accommodate the needs of Hawaii’s people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

Discussion: As the facility owner, it is HDOT’s mission to provide a safe, efficient, and accessible transportation system for the public. HDOT recognizes the need to provide for the replacement of the existing two-cell box culvert. The replacement structure and improvements to appurtenant features would be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering for highway projects in Hawaii.

4.2.2 State Functional Plans

The Hawaii State Plan directs appropriate State agencies to prepare functional plans for their respective program areas. There are twelve State Functional Plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the State Plan.

State Transportation Functional Plan

The 1991 State Transportation Functional Plan (HDOT, 1991) identified the four most critical issues of transportation: congestion, economic development, funding, and education. Objectives, policies, and implementing actions were identified for each issue. The following objectives and policies apply to the project:

Objective I.A. Expansion of the transportation system.

Policy I.A.1. Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans and laws requiring accessibility for people with disabilities.

Policy I.A.2. Improve regional mobility in areas of the State experiencing rapid urban growth and road congestion.

Discussion: As discussed under the Hawaii State Plan, replacement of deficient bridges is integral to HDOT’s mission of providing a safe, efficient, and accessible transportation system for the public. The replacement structure would be designed using current design standards that have been adopted by HDOT for planning and engineering highway projects in Hawaii.

4.2.3 State Land Use Law

The State Land Use Commission, pursuant to HRS Chapters 205 and 205A and HAR Chapter 15-15 is empowered to classify all lands in the State into one of four land use districts: Urban, Rural, Agricultural, and Conservation. The lands surrounding the project limits are classified in the Agricultural District. Roadways are permitted use in the Agricultural District. No change in land use classification would be needed.

4.2.4 Coastal Zone Management Program and Federal Consistency Determination

In 1977, Hawaii enacted HRS Chapter 205A, Hawaii Coastal Zone Management Program, to carry out the State’s CZM policies and regulations under the Federal Coastal Zone Management Act (see Section 4.1.14). The CZM area encompasses the entire state, including all marine waters seaward, to the extent of the State’s police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters.

As a result, the project is within the CZM area and subject to consistency with the objectives and policies of the Hawaii CZM Program. The CZM Federal Consistency Certification is reviewed by the State Office of Planning.

The Hawaii Coastal Zone Management Program focuses on ten policy objectives:

- Recreational Resources. To provide coastal recreational opportunities accessible to the public and protect coastal resources uniquely suited for recreational activities that cannot be provided elsewhere.
**Discussion:** The project limits do not contain coastal recreation resources nor would it affect access to coastal recreation opportunities.

- **Historic Resources.** To 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.

  **Discussion:** Studies focusing on archaeology, historic architecture, and cultural perspectives were conducted for this project, but no historic resources were found within the APE that would be adversely affected by the proposed construction.

- **Scenic and Open Space Resources.** To protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

  **Discussion:** The project would be developed to be visually compatible with the surrounding environment. The project is not located along the shoreline, but is located on a roadway identified as a scenic corridor in the General Plan. The replacement structure would not negatively impact coastal scenic resources and is not anticipated to obstruct views of the rural landscape.

- **Coastal Ecosystems.** To protect valuable coastal ecosystems, including reefs, from disruption and to minimize adverse impacts on all coastal ecosystems.

  **Discussion:** Because of its inland location and the intermediation of stream flow by the large Mauka Reservoir, the project would not affect coastal ecosystems.

- **Economic Uses.** To provide public or private facilities and improvements important to the State’s economy in suitable locations, and ensure that coastal dependent development such as harbors and ports, energy facilities, and visitor facilities are located, designed, and constructed to minimize adverse impacts in the coastal zone area.

  **Discussion:** The project is not a coastal dependent development.

- **Coastal Hazards.** To reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

  **Discussion:** The project is not located in a tsunami or floodplain, and is not subject to coastal hazards.

- **Managing Development.** To improve the development review process, communication, and public participation in the management of coastal resources and hazards.

  **Discussion:** A general public announcement was made regarding the FHWA-CFLHD Hawaii Bridge Program, which covers a number of State highway bridges on three islands. There would be opportunity for the public to review and comment on the project through the HRS Chapter 343 EA process.

- **Public Participation.** To stimulate public awareness, education, and participation in coastal management; and maintain a public advisory body to identify coastal management problems and provide policy advice and assistance to the CZM program.

  **Discussion:** The project does not contain a public participation component for programmatic coastal management issues. Project-specific input would be elicited through the HRS Chapter 343 EA process.

- **Beach Protection.** To protect beaches for public use and recreation; and locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements because of erosion.

  **Discussion:** The project is located inland and does not affect Kauai beaches.

- **Marine Resources.** To implement the State’s ocean resources management plan.
**Discussion:** Although the project is not expected to affect marine resources directly, BMPs would be implemented to prevent degradation of the aquatic environment, including the quality of state waters.

Other key areas of the CZM program include (1) a permit system to control development within a Special Management Area (SMA) managed by each County and the Office of Planning (see Section 4.3.3) and (2) a Shoreline Setback Area that serves as a buffer against coastal hazards and erosion and protects view-planes and marine and coastal resources. Finally, a Federal Consistency provision requires that Federal activities, permits, and financial assistance be consistent with the Hawaii CZM program.

The proposed project is not located within the County of Kauai SMA. The proposed project does not involve the placement, construction, or removal of materials near the coastline, and does not have the potential to significantly affect coastal resources. The proposed project is consistent with the CZM objectives that are relevant to preserving the existing highway infrastructure. FHWA will submit a Federal Consistency determination to the Office of Planning for its concurrence.

### 4.2.5 Act 50, Cultural Practices

Hawaii Act 50 (2000) sought to “promote and protect cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups” and requires the proposing agency/applicant under HRS Chapter 343 to consider cultural practices in a cultural impact assessment. A cultural impact assessment is being completed for the project in compliance with this requirement, as discussed in Section 3.11.

### 4.3 County of Kauai

#### 4.3.1 Kauai General Plan

The General Plan is a policy document for the long-range comprehensive development of the County of Kauai and also provides the direction for future growth through 2020. The current General Plan was adopted in November 2000.

Chapter 7 of the General Plan relates to Public Facilities and Services. Relevant to this project is the following policy (County of Kauai, 2000):

> **7.1.5(a)** Use General Plan policies concerning rural character, preservation of historic and scenic resources, and scenic roadway corridors as part of the criteria for long-range highway planning and design. The goal of efficient movement of through traffic should be weighted against community goals and policies relating to community character, livability, and natural beauty.

**Discussion:** The existing Bridge 7E would be replaced by a single-cell box culvert with a minimal footprint. The design acknowledges the project’s rural setting and the importance of maintaining a continuous green belt, while also meeting current standards for bridge engineering and functionality.

#### 4.3.2 Zoning

County zoning provides the most detailed set of regulations affecting land development before actual construction. Zoning is typically limited to lands classified in the Urban District under the State land use system. Because the area surrounding the proposed project is classified in the Agricultural District, the zoning is not applicable. However, as shown in Figure 4-1, the project site is located primarily in the Open District, which was established to create and maintain an adequate and functional amount of predominantly open land to provide for the recreational and aesthetic needs of the community and to provide for the effective functioning of land, air, water, plant, and animal systems or communities. In the project vicinity, the Open District encompasses such natural and aesthetic features as stream corridors and Maluhia (Tree Tunnel) Road.

The proposed project would not require any zoning change.
4.3.3 Special Management Area

The CZM objectives and policies (HRS Section 205A-2) were developed to preserve, protect and, where possible, restore the natural resources of Hawaii’s coastal zone. Any development within the SMA boundary requires a SMA Use permit that is administered by the County. The permitting process provides a heightened level of public scrutiny to ensure consistency with SMA objectives.

The proposed project is not located within the County’s SMA.

4.4 Transportation Plans

4.4.1 Statewide Federal-aid Highways 2035 Transportation Plan

The 2035 Transportation Plan was developed as the State’s first long-range multimodal transportation for Federal-aid highways. The plan is intended to guide transportation decisions by identifying goals and solutions within a context of limited resources. It addresses future land transportation needs for motorists, freight, transit, bicyclists, and pedestrians based on land use and socioeconomic projections through 2035.

The long-range plan was developed with participation from a wide spectrum of community members and stakeholders. A series of meetings were held to develop and refine the goal statements. Specifically relevant to this project are the goals provided in Table 4-1, which focus on prudent and timely investments in the transportation (highway) system to maintain functionality and longevity.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
<th>Federal Planning Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Manage transportation assets and optimize investments</td>
<td>Plan and implement maintenance, resurfacing, rehabilitation, and reconstruction to optimize existing transportation system improvements and spending.</td>
<td>Aligns to MAP-21 Performance Goal: Infrastructure Condition—maintain highway infrastructure assets in state of good repair. MAP-21, signed into law on July 6, 2012 (P.L. 112-141) is the current Federal authorization for surface transportation, whose full title is Moving Ahead for Progress in the 21st Century Act.</td>
</tr>
<tr>
<td>3.2 Maintain safe, efficient, complete transportation system for the long term</td>
<td>Plan and implement existing system improvements to effectively sustain the overall transportation system’s safe, efficient, and complete operations.</td>
<td></td>
</tr>
</tbody>
</table>

4.4.2 Federal-aid Highways 2035 Transportation Plan for the District of Kauai

Each district in the state has a Regional Federal-aid Highways 2035 Transportation Plan or regional long-range land transportation plan. The purpose of this plan is to provide a basis for making multimodal land transportation decisions over a 20-year time frame. As a regional plan, it serves as an interface between overarching state transportation issues and island-specific needs and funding priorities.

The Federal-Aid Highways 2035 Transportation Plan for the District of Kauai (HDOT, 2014) includes a list of potential solutions that were evaluated based on ability to address local needs and deficiencies. Kaumualii Highway Improvements—Huleia Bridge (aka Halfway Bridge), west of Kahili Mountain Park Road, is among the recommendations. This stretch of Kaumualii Highway, which extends between Mile Markers 4.80 and 7.22, includes Bridge 7E. While a specific project description is not yet developed, the recommendation points to the importance of ongoing investment in Kaumualii Highway.

4.4.3 Bike Plan Hawaii

Bike Plan Hawaii (HDOT, 2003) is the statewide bicycle master plan, which serves as a blueprint for accommodating and promoting bicycle use. The latest update was completed in September 2003. The plan contains objectives and implementing actions, an inventory of existing facilities, and proposals to expand the network of bicycle facilities.
The bike plan includes a proposal for a future signed shared route on Kaumualii Highway between Maluhia Road and Hanapepe (Map No. 48). The proposed project is consistent with bicycle planning because the replacement structure includes 8-foot-wide shoulders that would accommodate possible development of a future signed bike route.

### 4.4.4 Statewide Pedestrian Master Plan

The Statewide Pedestrian Master Plan, completed in May 2013 (HDOT, 2013), provides a comprehensive strategy for improving pedestrian safety, mobility, and accessibility along state highways. The plan identifies and prioritizes pedestrian infrastructure projects throughout the state.

The pedestrian plan does not address foot traffic in the vicinity of Bridge 7E because the area lacks land uses that would attract pedestrian travel. Nevertheless, the 8-foot shoulders on the replacement structure, that are wider than the existing shoulders, would improve safety for pedestrians who may need to use it.

### 4.5 References


State of Hawaii Department of Transportation (HDOT). 1991 *Transportation; State Functional Plan*.


FIGURE 4-1
Zoning
7E Bridge Project
Hawaii Bridges Program -
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Source: Kauai County, 2015
CHAPTER 5
Findings and Reasons Supporting the Anticipated Determination

This EA has found that the potential for impacts associated with the proposed project would not be significant, or would be mitigated to less than significant levels. Potential environmental impacts are generally temporary, occurring during construction, and would not be expected to adversely impact the long-term environmental quality of the area surrounding the proposed project. This section summarizes the significance criteria used to determine whether the proposed project would have a significant effect on the environment.

5.1 Significance Criteria

The potential effects of the proposed project were evaluated based on the Significance Criteria specified in HAR §11-200-12. The following summarize potential short-term and long-term effects of the action relative to the criteria.

Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources. The proposed project would replace an existing two-cell box culvert with a one-cell culvert that substantially matches the footprint of the existing culvert. It would not have a significant adverse effect on important natural or cultural resources. Biological surveys of the project limits found no threatened or endangered plant or animal species within the project limits. BMPs and protocols would be implemented to avoid and minimize effects on Federally and state protected species that have the potential to occur in the project limits. The existing structure is more than 50 years old, but determined to be ineligible for listing in the National and Hawaii Registers of Historic Places. No other historic properties were found in the project limits. The contractor would be required to comply with State laws and administrative rules for handling inadvertent discoveries of cultural artifacts and human remains during construction.

Curtails the range of beneficial uses of the environment. Replacing the existing structure in place would not curtail the range of beneficial uses of the environment.

Conflicts with the state’s long-term environmental policies or goals and guidelines as expressed in HRS Chapter 344, and any revisions thereof and amendments thereto, court decisions or executive orders. The proposed project is consistent with the environmental policies, goals, and guidelines defined in HRS Chapter 344. In particular, the project is consistent with transportation guidelines by improving the regional transportation infrastructure.

Transportation

A. Encourage transportation systems in harmony with the lifestyle of the people and environment of the State.

B. Adopt guidelines to alleviate environmental degradation caused by motor vehicles.

C. Encourage public and private vehicles and transportation system to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.

Kaumualii Highway—including Bridge 7E—carries all modes of land transportation on a daily basis, including passenger vehicles, buses, freight trucks, and bicyclists. The highway connects communities on the south shore and west side. It is used by commuters for work and school, and is essential for commerce and emergency response. The existing structure has exceeded its design life and a replacement structure is needed to maintain system-wide integrity.
Substantially affects the economic or social welfare of the community or state. The proposed project would have a positive impact on the economic and social welfare of the community by improving the long-term functionality of the highway system.

Substantially affects public health. The project site is in an undeveloped stretch of Kaumualii Highway and would not adversely affect public health. It is part of a highway system that is a critical component of Kauai’s emergency response and recovery capabilities. Preserving this transportation system would benefit public health and safety.

Involves substantial secondary impacts, such as population changes or effects on public facilities. The proposed project would not change the traffic volume using the structure or the highway; therefore, the new structure itself would not generate secondary impacts, such as population growth or the need to expand public facilities.

Involves a substantial degradation of environmental quality. The replacement structure would not substantially degrade environmental quality. By design and function, the proposed structure would provide a safe crossing while minimizing harm to the surrounding environment.

Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions. The proposed project is a self-contained action and is not part of additional and/or related actions. There are no other HDOT or FHWA projects within a 1-mile radius of Bridge 7E.

Substantially affects a rare, threatened, or endangered species, or its habitat. Biological surveys in August 2014 found no rare, threatened, or endangered species in the project limits. Tall, large canopy trees near the project site may provide roosting and foraging habitat for the Hawaiian hoary bat. BMPs for tree trimming and cutting as well as fencing would be implemented to avoid all direct impacts on these protected mammals. Additional BMPs would be established to avoid and minimize light attraction of protected seabirds and to avoid contact with endangered Hawaiian waterbird or nene that may enter the project limits.

Detrimentally affects air or water quality or ambient noise levels. There would be minimal short-term impacts on air and water quality and noise levels during the construction period. Mitigation measures would be implemented to minimize construction-related noise, erosion and dust impacts. In the long term, there would be no adverse impacts on air and water quality.

Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters. This project is not located in an environmentally sensitive area; specifically, it is located neither within a FEMA-designated floodplain nor a coastal area. The replacement structure is being designed in accordance with standards appropriate to the geologic, hydrologic, and seismic setting.

Substantially affects scenic vistas and view planes identified in county or state plans or studies. The General Plan identifies portions (including in the project area) of the Kaumualii Highway as a scenic road corridor. This project would replace a portion of the existing guardrails with 42-inch-high concrete barrier railings that are slightly higher than the existing guardrails, but would not obstruct view planes from within passing vehicles. Given a relatively short structure length, the new railings on Bridge 7E are not expected to adversely affect the scenic vista for motorists traveling at the posted speed limit of 50 mph.

Requires substantial energy consumption. Fuel would be consumed by construction vehicles and equipment but this use would be comparable to other construction projects and no adverse effects are expected.

5.2 Conclusion

Through structure design, impact avoidance and minimization actions, and proposed BMPs and mitigation measures, the analysis contained in this EA has determined that the proposed project would have no significant adverse impacts or would have impacts that can be mitigated to less than significant levels.
CHAPTER 6

Anticipated Determination

Based on the information presented and examined in this document, the proposed project is not expected to produce significant adverse social, economic, cultural, or environmental impacts. Consequently, a finding of no significant impact is anticipated, pursuant to HRS Chapter 343 and the provisions of HAR Chapter 200, Title 11, Subchapter 6.
CHAPTER 7
Consultation and Coordination

7.1 Organizations Consulted During Preparation of the Draft Environmental Assessment

The following agencies and organizations were contacted during preparation of the Draft EA. They received preliminary project information and asked to provide comments relative to specific environmental compliance (such as NHPA Section 106 and ESA Section 7) or for general assistance in preparing the Draft EA.

7.1.1 Federal
- USACE
- USFWS

7.1.2 State of Hawaii
- Department of Accounting and General Services
- Department of Education, Kauai Area Complex
- Department of Hawaiian Home Lands
- HDOH, Clean Water Branch
- HDOH, Environmental Planning Office
- DLNR
- Office of Hawaiian Affairs
- Office of Planning (OP)
- SHPO
- Senator Ronald Kouchi, Senate District 8
- Representative James Tokioka, House District 15

7.1.3 County of Kauai
- Civil Defense Agency
- Department of Parks and Recreation
- Department of Public Works
- Department of Water
- Fire Department
- Planning Department
- Police Department
- Transportation Agency
- Kauai Council Chair Mel Rapozo
- Kauai Council Vice Chair Ross Kagawa
- Kauai Councilmember Mason Chock
- Kauai Councilmember Arryl Kaneshiro
- Kauai Councilmember KipuKai Kuali‘i
- Kauai Councilmember JoAnn Yukimura

7.1.4 Utilities
- Hawaiian Telcom
- KIUC
- Oceanic Time Warner Cable
- SIC
7.1.5 Organizations

- Kauai Chamber of Commerce
- Kauai Path
- Kauai Visitors Bureau
- Sierra Club, Kauai Group of Kauai Chapter
- West Kauai Business and Professional Association

7.2 Early Consultation Comment Letters Received

A total of six agencies responded to requests for comments during the Draft EA preparation period. Of these, substantive comments from five agencies. These comments are summarized herein and incorporated into relevant sections of the Draft EA. A template of the early consultation letters is included at the end of this chapter. Comment letters and responses to them are also reproduced in full.

7.2.1 State Agencies

- HDOH, Clean Water Branch (letter dated May 18, 2015).
  1. A project that potentially impacts State waters must meet the following: (1) antidegradation policy, (2) designated uses, and (3) water quality criteria.
  2. NPDES permit coverage may be required.
  3. Permit from USACE may be required.
  4. Compliance with State water quality standards is required.
  5. All projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters.

- HDOH, Environmental Planning Office (letter dated May 12, 2015)
  1. Use of the online Hawaii Environmental Health Portal is encouraged.
  2. Water Quality Standards Maps have been updated and are posted online.
  3. University of Hawaii studies related to potential sea level rise changes in Hawaii are available online.

  A Stream Channel Alteration Permit is needed before alteration(s) can be made to the stream bed and/or banks.

- OP (letter dated May 1, 2015)
  1. Verify project TMKs.
  2. Draft EA should contain an analysis of project conformance with the Hawaii State Plan.
  3. Draft EA should contain an assessment of project conformance with CZM objectives.
  4. Confirm whether an SMA permit is required.
  5. Federal Consistency Review should be listed as a potential requirement.
  6. Draft EA should include a section on watershed protection and management (see Hawaii Watershed Guidance developed by OP).
  7. Consider OP’s Stormwater Impact Assessment when evaluating project-related stormwater impacts
  8. Consider Low Impact Development design concepts and Best Management Practices
7.2.2 County Agencies

• Kauai Department of Public Works (letter dated May 6, 2015)

There is a discrepancy between construction of Bridge 7E in 1933 and the following statement, “Bridge 7E is a common post-war bridge constructed after 1945.”

7.3 Distribution List for the Draft EA

The following agencies, organizations, and individuals will be included on the distribution list for notification of the Draft EA public review and comment period.

7.3.1 Federal

• USACE
• USEPA
• USFWS

7.3.2 State of Hawaii

• Department of Accounting and General Services
• Department of Education, Kauai Area Complex
• Department of Hawaiian Home Lands
• HDOH Clean Water Branch
• HDOH, Environmental Planning Office
• DLNR
• Office of Hawaiian Affairs
• OP
• SHPO
• Senator Ronald Kouchi, Senate District 8
• Representative James Tokioka, House District 15

7.3.3 County of Kauai

• Civil Defense Agency
• Department of Parks and Recreation
• Department of Public Works
• Department of Water
• Fire Department
• Mayor’s Office
• Planning Department
• Police Department
• Transportation Agency
• Kauai Council Chair Mel Rapozo
• Kauai Council Vice Chair Ross Kagawa
• Kauai Councilmember Mason Chock
• Kauai Councilmember Arryl Kaneshiro
• Kauai Councilmember KipuKai Kuali’i
• Kauai Councilmember JoAnn Yukimura

7.3.4 Utilities

• Hawaiian Telcom
• KIUC
• Oceanic Time Warner Cable
• Sandwich Isles Communications
7.3.5 Organizations
- Kauai Chamber of Commerce
- Kauai Path
- Kauai Visitors Bureau
- Sierra Club, Kauai Group of Kauai Chapter
- West Kauai Business and Professional Association

7.3.6 Individuals
- Property Owner/Resident TMK: [4] 2-7-001: 004
- Property Owner/Resident TMK: [4] 2-7-002: 001

7.3.7 Media
- The Garden Island Newspaper

7.3.8 Public Library
- Koloa Public Library (hardcopy will be available for public review)
PRE-ASSESSMENT COMMENTS

Template Letter with Project Sheet
Comments Received

- State of Hawaii Department of Health, Clean Water Branch
- State of Hawaii Department of Health, Environmental Planning Office
- State of Hawaii Department of Land and Natural Resources, Commission on Water Resource Management
- Office of Planning, Department of Business Economic Development and Tourism
- Kauai Department of Public Works
Dear Mr. Dahilig:

Subject: Hawaii Bridge Program for Island of Kauai
Federal Highway Administration, Central Federal Lands Highway Division Pre-Assessment Consultation
Chapter 343, Hawaii Revised Statutes and National Environmental Policy Act

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in partnership with the Hawaii Department of Transportation (HDOT), is conducting environmental studies to examine the impacts of three projects to improve three bridges on the island of Kauai. We are assisted in this effort by our consultant, CH2M HILL.

- Hanapepe River Bridge on Kaumualii Highway
- Bridge 7E on Kaumualii Highway
  Koloa District, TMK: [4] 2-7-001
- Intersection Improvements at Kuhio Highway and Mailihuna Road and Kapaa Stream Bridge on Kuhio Highway
  Kawaihau District, TMK: [4] 4-6-014 and 4-7-003

Attached to this letter are fact sheets for each of the projects, including photos and maps. We are requesting comments and input regarding environmental concerns in all resource areas, and information that might help us to evaluate the projects.

The environmental review for this project is being conducted in accordance with the National Environmental Policy Act (NEPA) and Hawaii Revised Statutes (HRS), Chapter 343.
Please send any concerns or comments to Kathleen Chu, CH2M Hill program manager (CH2M Hill, Inc, 1132 Bishop Street, Suite 1100, Honolulu, HI 96813) or myself, within 30 days receipt of this letter. If you have questions, please contact Ms. Chu at Ph. 440-0283 or kathleen.chu@ch2m.com or myself at Ph. 720-963-3647 or Michael.will@dot.gov. Thank you.

Sincerely,

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:

Fact Sheets for Hanapepe Bridge, Kapaa Stream Bridge and Intersection Improvements, and Bridge No. 7E

cc: Nicole Winterton/FHWA-CFLHD
    Kathleen Chu/CH2M HILL
    Paul Luersen/CH2M HILL
    Elizabeth Cutler/CH2M HILL
Bridge 7E
Koloa, Koloa District, Kauai
TMK: [4] 2-7-001

Location
The project area for the improvements includes Bridge 7E and its immediate environs. The bridge is located at milepost 7.0 on Kaumualii Highway (State Route 50) and approximately 800 feet west of Maluhia Road, also known as Tree Tunnel Road (see Project Location Map). The bridge crosses an unnamed intermittent waterway.

Existing Conditions
Bridge 7E was built in 1933 and constructed as a two-cell concrete box culvert. The existing bridge has a length of 23 feet and deck width of 28 feet. There are two 10-foot wide travel lanes and 2-foot wide paved shoulders on each side. The current structure utilizes metal guardrails on both sides of the roadway and the bridge itself is not easily visible from the roadway. HDOT’s 2013 Historic Bridge Inventory identified that Bridge 7E is a common post-war bridge constructed after 1945.

Kaumualii Highway is a two-lane undivided highway in the project area with a posted speed limit of 50 mph. It is classified as a Rural Minor Arterial. Average daily traffic (ADT) is currently 15,000. For long-range planning purposes, ADT in 2035 is estimated at 22,400. There is no plan to add travel lanes to increase the capacity of the bridge.

Purpose and Need
The purpose of this project is to improve Bridge 7E and its approaches, by rehabilitation or replacement, to create a crossing that remains a safe component of the regional transportation system and provides smoother traffic flow for highway users. Based on bridge inspections and studies, a number of conditions were identified that need to be remedied, including: overall structural and design deficiencies relative to current roadway width and bridge standards.

Project Description
Bridge design alternatives are being developed in conjunction with ongoing environmental studies. However, design options will include the following components:

- Design for structural integrity of the crossing via bridge rehabilitation or replacement
- Meet live load and seismic requirements
- Provide for adequate hydrological flow under flood conditions
- Mitigate erosion and sediment deposits
- Widen bridge to include adequate shoulders and travel lane widths
- Replace guardrails/bridge rails in compliance with crash test requirements
- Replace/relocate existing utilities
- Develop a traffic management plan with appropriate construction-period detours

This project is included in the Statewide Transportation Improvement Program (STIP) and will be funded, in part, with federal monies.
Project Location Map

Photo 2: View of Bridge 7E on the mauka (north) side

Photo 3: View under Bridge 7E
Approximate Project Limits

Notes:
1. Imagery Source: ESRI World Imagery
May 18, 2015

Mr. J. Michael Will, P.E.
Program Engineering Manager
Central Federal Lands Highway Division
U.S. Department of Transportation
12300 West Dakota Avenue, Suite 380
Lakewood, Colorado 80228

Dear Mr. Will:

SUBJECT: Comments on the Pre-Assessment Consultation for the Hawaii Bridge Program
State of Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated March 24, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).
For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NC1 Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State’s Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State’s position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like
community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State’s position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

NN:ay

c: Ms. Kathleen Chu, CH2M Hill [via e-mail kathleen.chu@ch2m.com only]
DOH-EPO #15-094 [via e-mail only]
Mr. Gary Ueunten, CWB, Kauai District Health Office [via e-mail only]
Mr. Neil Mukai, CWB, Hawaii District Health Office [via e-mail only]
TO: ALEC WONG, P.E.
CHIEF, CLEAN WATER BRANCH
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HI 96801

FROM: J. MICHAEL WILL, P.E.
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION
HAWAII BRIDGE PROGRAM
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Mr. Wong:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 18, 2015.

The project team is aware that certain projects may require certification or permits under the Clean Water Act. We have been engaged in early consultation with your staff and greatly appreciate their assistance.

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc:
Christine Yamasaki, HDOT
Kevin Ito, HDOT
Nicole Winterton, CFLHD
Kathleen Chu, CH2M HILL
May 12, 2015

Mr. J. Michael Will, P.E.
Program Engineering Manager
Central Federal Lands Highway Division
U.S. Department of Transportation
12300 West Dakota Avenue, Suite 380
Lakewood, Colorado 80228
Via email: Michael.will@dot.gov

Dear Mr. Will:

SUBJECT: Pre-Assessment Consultation (PC) for Hawaii Bridge Program for State of Hawaii

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PC to our office on March 24, 2015. Thank you for allowing us to review and comment on the proposed project. The PC was routed to the Clean Water Branch, and the District Health Offices on Kauai and Hawaii. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards

The University of Hawaii has examined potential sea level rise changes in Hawaii. You may find it useful to review their studies at: http://www.soest.hawaii.edu/coasts/sealevel

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: Kathleen Chu, CH2M Hill program manager – kahleen.chu@ch2m.com (via email only)
CWB, DHO Kauai, DHO Hawaii (via email only)
TO: LAURA LEIALOHA PHILLIPS McINTYRE, AICP  
PROGRAM MANAGER, ENVIRONMENTAL PLANNING OFFICE  
DEPARTMENT OF HEALTH  
P.O. BOX 3378  
HONOLULU, HI 96801

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Ms. McIntyre:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 12, 2015.

We acknowledge the information provided on the Hawaii Environmental Health Portal, Water Quality Standard Maps, and University of Hawaii studies related to sea level rise.

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

Cc: Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL
January 15, 2015

U. S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
Attn: J. Michael Will, Program Engineering Manager
12300 West Dakota Avenue, Suite 330
Lakewood, CO 80228

via email: michael.will@dot.gov

Dear Mr. Will,

SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information, HFPM-16

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments sent to you dated December 18, 2014, and January 9, 2015, enclosed are additional comments from the Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
December 2, 2014

MEMORANDUM

TO: DLNR Agency:
   X Div. of Aquatic Resources
   X Div. of Boating & Ocean Recreation
   X Engineering Division
   X Div. of Forestry & Wildlife
   ____ Div. of State Parks
   X Commission on Water Resource Management
   X Office of Conservation & Coastal Lands

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information

LOCATION: Various (see cover letter) including all Districts except Maui

APPLICANT: Federal Highway Administration, Central Federal Lands Highway Division, in cooperation with the Hawaii Department of Transportation

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by December 18, 2014. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: ____________________________
Print Name: William M. Tsuji, Deputy Director
Date: January 7, 2015
TO: Russell Tsuji, Administrator
    Land Division

FROM: William M. Tam, Deputy Director
    Commission on Water Resource Management

SUBJECT: Notification of Intent to Construct Hawaii Bridge Program, Request for Information

FILE NO.: HFPM-16
TMK NO.: Various including all Districts except Maui

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii’s water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

Our comments related to water resources are checked off below.

☐ 1. We recommend coordination with the county to incorporate this project into the county’s Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

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

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State’s Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area’s freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area’s hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☐ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program
8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://www.hawaiiscaping.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf

9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer’s acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/info_permits.htm.

10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

11. A Well Construction Permit(s) is (are) required before any well construction work begins.

12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

14. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

15. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

OTHER:

If there are any questions, please contact Dean Uyeno at 587-0234.
TO: ROY HARDY  
DEPUTY DIRECTOR  
COMMISSION ON WATER RESOURCE MANAGEMENT  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P.O. BOX 621  
HONOLULU, HI 96809  

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER  

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE  

Dear Mr. Hardy:  

Thank you for pre-assessment comments on the subject projects transmitted by letter dated January 7, 2015.  

We acknowledge that projects may require a Stream Channel Alteration Permit, and will initiate the application process as needed.  

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.  

Sincerely yours,  

J. Michael Will, P.E.  
Project Manager  

Cc:  
Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL
Ref. No. P-14732

May 1, 2015

Ms. Kathleen Chu
Program Manager
CH2M Hill, Inc.
1132 Bishop Street, Suite 1100
Honolulu, Hawaii 96813

Dear Ms. Chu:

Subject: Hawaii Bridge Program for the State of Hawaii
Federal Highway Administration, Central Federal Lands Highway Division, Pre-Assessment Consultation
Chapter 343, Hawaii Revised Statutes and National Environmental Policy Act; TMK: Various

Thank you for the opportunity to provide comments on the pre-consultation request for a Draft Environmental Assessment (Draft EA) being developed for the Hawaii Bridge Program. The pre-consultation review material was transmitted to our office by letter dated March 24, 2015.

It is our understanding that the Federal Highway Administration, Central Federal Lands Highway Division, in partnership with the Hawaii Department of Transportation, is conducting this environmental study for nine bridges on the islands of Kauai, Oahu, and Hawaii. The purpose of this bridge improvement project is the rehabilitation or replacement of identified bridges to create a safer and more functional stream, river, and canal crossing network for roadway users. The bridge improvements will focus on getting these bridges up to current design standards, increase load capacity, allow for safer pedestrian traffic, and improve on railings, transitions, and bridge approaches.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Some of the bridge sites listed in the Draft EA review material contain incorrect Tax Map Key (TMK) numbers. TMK’s generally have a nine digit number and are listed by island designation, plat, and parcel locations. The island of Oahu is classified by the number (1), Maui County by (2), Hawaii County by (3), and Kauai County by (4). The review material, for example, lists the Hanapepe River Bridge with the correct TMK: (4) 1-9-007:001. The bridges on the island of Oahu have an insufficient
amount of TMK numerals. The East Hawaii County locations list the wrong island designation (it should be listed with island designation of (3), rather than the island designation of (4)). The Draft EA should correct these errors and provide TMK locations with a nine digit format.

2. OP provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

The Draft EA should include an analysis that addresses whether the proposed project conforms or is in conflict with the objectives, policies, and priority guidelines listed in the Hawaii State Plan.

3. The coastal zone management area is defined as “all lands of the State and the area extending seaward from the shoreline to the limit of the State’s police power and management authority, including the U.S. territorial sea” see HRS § 205A-1 (definition of "coastal zone management area").

HRS Chapter 205A requires all State and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment addressing compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

4. Because of the proximity to the shoreline, some of the bridge sites may lie within areas designated as Special Management Areas (SMA). Please confirm with the City and County of Honolulu’s Department of Planning and Permitting, the County of Kauai Planning Department, and the County of Hawaii Planning Department on the location of these bridges in relation with the SMA boundaries and whether SMA permits are required.
5. The national Coastal Zone Management Act requires direct federal activities and development projects to be consistent with approved state coastal programs to the maximum extent practicable. OP is the lead state agency to conduct this Federal Consistency evaluation.

Because at least one of the proposing agencies for this Draft EA is a federal agency, and federal funding will be used to finance this endeavor, this project may require compliance with Federal Consistency requirements. The Draft EA should list all applicable permits needed for this project. Any federal permits required for this project may have implications on the federal consistency evaluation conducted by OP.

6. Our review indicates that these bridge improvement projects lie within proximity to perennial streams, canals, wetlands, and are within numerous watersheds. The project areas are adjacent to a range of human activities from agriculture, urban development, and activity along coastlines or upstream from the coastline. The Draft EA should consider inclusion of a section addressing watershed protection and management.

OP has created the Hawaii Watershed Guidance to provide direction on methods to safeguard Hawaii’s watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff. OP’s watershed guidance provides a number of management measures that address polluted runoff from urban activities, and a summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. Specifically please examine, Section B – Roads, Highways, and Bridges pages 132-135. The document can be viewed or downloaded from the Office of Planning website at http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI_Watershed_Guidance_Final.pdf.

7. We have reviewed the location maps of the bridge improvement projects and compared them to known coastal resources in the area. Many of these parcels are located in flood hazard zones, tsunami evacuation areas, and as noted above, land zoned for agriculture or urban uses, or are located near perineal streams, canals, wetlands, seasonal river gulches, or pass close to coastal areas and beaches. Therefore, inclusion of a stormwater impact evaluation would be beneficial to the Draft EA. Development and land use activities can create erosion, increased stormwater runoff, and coastal pollution that cause direct, secondary, and cumulative impacts to Hawaii’s resources.
Please consider OP’s Stormwater Impact Assessment in your stormwater impact evaluation for this project. This document can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and best management practices (BMP) listed in this document can be applied to water runoff strategies to prevent damage to coastal ecosystems. This document will assist in integrating stormwater impact assessment within the planning and environmental review process of a project. The document can be found at http://files.hawaii.gov/dbedt/op/czm/initiative/stormwater_impact/final_stormwater_impact_assessments_guidance.pdf.

8. Construction of widened roadways, new bridge approaches, increased support structures for bridge spans, and pedestrian crossing will introduce hardened impervious surfaces, secondary development, and may require additional drainage infrastructure to be built. Please consider Low-Impact Development (LID) design practices in the planning process for this project. LID techniques promote a range of structural BMP’s for stormwater control management, roadway development, and urban layout that minimizes negative environmental impact.

LID design concepts and BMP’s that should be considered include: the preservation of natural features and conservation design; the reduction of impervious cover; and utilizing natural features and source control for stormwater management. These methods are listed in OP’s Low Impact Development, A Practitioners Guide. For more information on LID – BMP’s, please examine Section 1.7, pgs. 1-4 to 1-11. This guidance can be viewed or downloaded from the OP website at: http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at 587-2845.

Sincerely,

[Signature]
Leo R. Asuncion
Acting Director

C: J. Michael Will, P.E., Program Engineering Manager
TO: LEO R. ASUNCION  
DIRECTOR  
OFFICE OF PLANNING  
235 SOUTH BERETANIA STREET, 6TH FLOOR  
HONOLULU, HI 96813

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Mr. Asuncion:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 1, 2015. We offer the following responses in the order presented in your letter:

1. Tax Map Key numbers will be verified.

2. The Draft Environmental Assessment (DEA) will discuss consistency with the Hawaii State Plan.

3. The DEA will discuss consistency with Coastal Zone Management objectives.

4. Where relevant, the Special Management Area permit will be listed as a potential requirement.

5. Federal Consistency Review will be listed as a potential requirement.

6. The DEA will assess potential impacts on water resources.

7. We acknowledge the availability of the Office of Planning’s Stormwater Impact Assessment as an environmental planning resource.

8. Stormwater management measures are being considered in project design and will be addressed in the DEA.
We appreciate your participation in the environmental review process. A copy of the DEA will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc:
Christine Yamasaki, HDOT
Kevin Ito, HDOT
Nicole Winterton, CFLHD
Kathleen Chu, CH2M HILL
May 6, 2015

Kathleen Chu
CH2M Hill, Inc.
1132 Bishop Street, Suite 100
Honolulu, Hawai‘i 96813

Subject Hawai‘i Bridge Program for Island of Kaua‘i
Federal highway Administration, Central Federal Lands Highway Division
Pre-Assessment Consultation
Chapter 343, Hawaii Revised Statutes and National Environmental Policy Act

Dear Ms. Chu:

Thank you for the opportunity to review the fact sheets and to provide input on three projects to improve three bridges on the island of Kaua‘i. We have the following comments on the projects:

**Hanapēpē River Bridge on Kaumualii Highway**
**Kōloa and Waimea Districts, TMK (4) 1-9-007: 001**

1. The Hanapēpē River Bridge lies within Zone AEF of Flood Insurance Rate Map (FIRM) Panel 287F. Zone AEF is the floodway area of Zone AE. Where development is proposed in a floodway, a registered engineer will need to certify that the work will not cause an increase in the base flood elevation during the occurrence of the base flood discharge.

2. Included in the Project Description for Hanapēpē River Bridge is “Develop a traffic management plan with appropriate construction-period detours”. The short term impacts of construction on traffic in the Hanapēpē area should be fully discussed and evaluated in the Environmental Assessment.

**Bridge 7E on Kaumualii Highway**
**Kōloa District, TMK (4) 2-7-001**

1. The fact sheet states that Bridge 7E was built in 1933, but later it states that “HDOT’s 2013 Historic Bridge Inventory identified that Bridge 7E is a common post-war bridge constructed after 1945.” The environmental document should clarify this discrepancy.

*An Equal Opportunity Employer*
Intersection Improvements at Kuhio Highway and Ma’ilihuna Road and Kapaa Stream Bridge on Kuhio Highway
Kawaihau District, TMK: (4) 4-6-014 and 4-7-003

1. The Kapaa Stream Bridge lies within Zone AEF on Flood Insurance Rate Map (FIRM) Panel 210F. Zone AEF is the floodway area of Zone AE. Where development is proposed in a floodway, a registered engineer will need to certify that the work will not cause an increase in the base flood elevation during the occurrence of the base flood discharge.

2. Included in the Project Description for Kapaa Stream Bridge is “Develop a traffic management plan with appropriate construction-period detours”. The short term impacts of construction on traffic in the area of the Ma’ilihuna Road Intersection should be fully discussed and evaluated in the Environmental Assessment.

3. A roundabout should be evaluated as one of the alternatives for improving the Ma’ilihuna Road intersection in the Environmental Assessment. We believe that a roundabout could have many benefits over both signalized and stop-controlled alternatives; including:
   - Better overall safety, especially given the curvilinear alignment of Kuhio Hwy.;
   - Improved safety and convenience of crossing for pedestrians and bicyclists to and from Ke Ala Hele Makalae (shared use path); and
   - Possible reduced bridge width due to there being no need to provide left turn and right turn storage lanes and associated tapers.

4. Due to the presence of Ke Ala Hele Makalae (shared use path), there is no need for sidewalks on this bridge. Therefore, the existing deck width may be sufficient to provide adequate travel lanes and shoulders, if it is structurally feasible to remove the sidewalks and replace them with shoulders. We recognize that the structure may be nearing the end of its service life, but it might be useful to evaluate an option that retains the existing structure and converts the sidewalks to paved shoulders.

Thank you for the opportunity to review and comment on the Fact Sheets for these three projects. We wish to remain on your mailing list to continue participating in the environmental review process. If you have any questions or need additional information, please feel free to contact Stanford Iwamoto, Engineering Division at (808) 241-4896.

Sincerely,

MICHAEL MOULE, P.E.
Chief, Engineering Division

SI/MM
Copy to: J. Michael Will, FHWA, Central Federal Lands Highway Division
Design and Permitting
County Engineer
TO: MICHAEL MOULE, P.E.
CHIEF, ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET, SUITE 275
LIHUE, HI 96766

FROM: J. MICHAEL WILL, P.E.
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION
HAWAII BRIDGE PROGRAM, KAUAI PROJECTS
HANAPEPE RIVER BRIDGE
BRIDGE 7E
KAPAA STREAM BRIDGE

Dear Mr. Moule:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 6, 2015. We offer the following responses in the order presented in your letter:

Hanapepe

1. Hydraulic analysis is being conducted for Hanapepe River Bridge. Project engineers will coordinate with the County to ensure that the project complies with requirements of the floodplain management program.

2. The Draft Environmental Assessment (DEA) will discuss construction-related traffic impacts.

Bridge 7E

1. Bridge 7E was constructed in 1933.

Kapaa

1. Hydraulic analysis is being conducted for Kapaa Stream Bridge. Project engineers will coordinate with the County to ensure that the project complies with requirements of the floodplain management program.

2. The DEA will discuss construction-related traffic impacts.
3. The roundabout option is being evaluated. Alternatives are being assessed from multiple perspectives, including safety, performance, environmental impacts, constructability, operations and maintenance, and cost.

4. We acknowledge your comment about using the shared use path for pedestrian travel. In evaluating rehabilitation of the existing structure, we note that the bridge is nearing the end of its service life. It is functionally obsolete, has substandard load carrying capacity, does not meet current seismic requirements, and is identified as scour critical. Therefore, we are leaning toward replacing the bridge as rehabilitation would necessitate modifying bridge substructure, superstructure, and railings to meet current AASHTO design standards.

We appreciate your participation in the environmental review process. A copy of the DEA will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc:
Christine Yamasaki, HDOT
Kevin Ito, HDOT
Nicole Winterton, CFLHD
Kathleen Chu, CH2M HILL
Appendix A
Determination and Delineation of Wetlands and Other Waters of the U.S. For the Bridge 7E Project, March 2015
Determination and Delineation of Wetlands and Other Waters of the U.S. for the Bridge No. 7E Project

Kaumuali‘i Highway, Route 50
Kōloa, Kauaʻi Island, Hawaiʻi

Prepared for
CH2M HILL

Prepared by
SWCA Environmental Consultants

March 2015
DETERMINATION AND DELINEATION OF WETLANDS AND OTHER WATERS OF THE U.S. FOR THE BRIDGE NO. 7E PROJECT

KAUMUALI'I HIGHWAY, ROUTE 50
KŌLOA, KAUAʻI ISLAND, HAWAIʻI

Prepared for

CH2M HILL
1132 Bishop Street, Suite 1100
Honolulu, Hawaiʻi 96813
(808) 943-1133

Prepared by

SWCA Environmental Consultants
Bishop Square ASB Tower
1001 Bishop Street, Suite 2800
Honolulu, Hawaiʻi
(808) 548-7899
www.swca.com

SWCA Project No. 27166

Submitted February 18, 2015
Revised March 20, 2015
WATERS OF THE U.S. DETERMINATION/DELINEATION SUMMARY

PROJECT NAME: Bridge No. 7E

SITE LOCATION: Kōloa, Kaua‘i Island, Hawai‘i
21°56’54.04”N, 159°28’10.20”W

OWNER: Hawaiʻi Department of Transportation

SURVEY DATES: September 29, 2014

PROJECT STAFF: Brian Nicholson, Wetland Specialist
Tiffany Bovino Agostini, Botanist/Project Manager
Bryson Luke, Field Technician

SUMMARY

SWCA Environmental Consultants (SWCA) was tasked by CH2M HILL to conduct a determination and delineation of wetlands and other potential Waters of the U.S. (WoUS) governed by the Clean Water Act and the Rivers and Harbors Act (RHA) at nine bridge projects throughout the state of Hawaiʻi. This report summarizes the findings of the WoUS delineation conducted at Bridge No. 7E along Kaumualii Highway, Route 50, located in Kōloa, Kaua‘i, on September 29, 2014.

The proposed project involves changes to the existing Bridge No. 7E to amend structurally deficient conditions, narrow roadway widths, limited load capacity, substandard bridge railings, and adverse effects from hydraulic scour. Although the current assumption is to replace the entire bridge, further investigation will take place to determine if the existing bridge can be rehabilitated and widened to accommodate the wider road design and current bridge design standards. Construction easements may be needed for a temporary detour or staging of the construction. A temporary bridge and detour may be required during construction on the mauka (landward) side of the highway. It is unknown if the project will require a water diversion (e.g., cofferdam, pumping) to complete construction. The survey was conducted to support the environmental compliance efforts for the project.

The survey area encompasses approximately 4.4 acres (1.8 hectares). Elevations range from approximately 635 to 645 feet (194 to 197 meters) above mean sea level. The National Wetlands Inventory program identifies one wetland/water type in the survey area: Riverine, Intermittent, Streambed, Seasonally Flooded, Excavated (R4SBCx). Geospatial data from the State of Hawai‘i and the U.S. Geological Survey identify an intermittent stream in the survey area.

One sampling point was evaluated in the survey area. A detailed field-based determination indicates that the sampling point does not meet the three-criterion test for wetlands pursuant the 1987 Corps of Engineers Wetland Delineation Manual (U.S. Army Corps of Engineers [USACE] 1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai‘i and Pacific Islands Region (USACE 2012). This sampling point was used to determine wetland vs. non-wetland status above the ordinary high water mark (OHWM). The boundaries of potential non-wetland WoUS (ephemeral or intermittent streams) were delineated by recording the location of the OHWM, as defined in the USACE Regulatory Guidance Letter 05-05 (USACE 2005). SWCA delineated approximately 0.21 acre (0.08 hectare) of non-tidal, non-wetland waters. This conclusion is subject to confirmation by the USACE.
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## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>CWRM</td>
<td>Commission on Water Resource Management</td>
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<tr>
<td>FAC</td>
<td>Facultative</td>
</tr>
<tr>
<td>FACW</td>
<td>Facultative Wetland</td>
</tr>
<tr>
<td>m</td>
<td>meter(s)</td>
</tr>
<tr>
<td>MHW</td>
<td>mean high water</td>
</tr>
<tr>
<td>MHHW</td>
<td>mean higher high water</td>
</tr>
<tr>
<td>mm</td>
<td>millimeter(s)</td>
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<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>NWI</td>
<td>National Wetlands Inventory</td>
</tr>
<tr>
<td>OBL</td>
<td>Obligate</td>
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<tr>
<td>RHA</td>
<td>Rivers and Harbors Act</td>
</tr>
<tr>
<td>SCAP</td>
<td>Stream Channel Alteration Permit</td>
</tr>
<tr>
<td>SWCA</td>
<td>SWCA Environmental Consultants</td>
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<tr>
<td>USACE</td>
<td>U.S. Army Corps of Engineers</td>
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<tr>
<td>USGS</td>
<td>U.S. Geological Survey</td>
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<tr>
<td>WoUS</td>
<td>Waters of the U.S.</td>
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</table>
1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE) derives its regulatory authority over wetlands and other Waters of the U.S. (WoUS) from two federal laws: 1) Section 10 of the Rivers and Harbors Act (RHA) of 1899 and 2) Section 404 of the Clean Water Act (CWA) of 1972. The RHA of 1899 prevents unauthorized obstruction or alteration of navigable WoUS. *Navigable waters* are defined as “subject to the ebb and flow of the tide and/or presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 Code of Federal Regulations [CFR] 325.5(c)(2)). A Section 10 permit is required for non-fill discharging activities proposed within, over, or under WoUS. The limits of jurisdiction for tidally influenced navigable waters extend to the mean high water (MHW), mean higher high water (MHHW) line, or high tide line.

Under Section 404 of the CWA, dredged and fill material may not be discharged into jurisdictional WoUS (including wetlands) without a permit. According to 40 CFR 230.3, WoUS subject to agency jurisdiction under Section 404 include navigable waters and their tributaries, interstate waters and their tributaries, wetlands adjacent to these waters, and impoundments of these waters. In addition, waters are protected by the CWA if they are determined to have a “significant nexus” with a traditional navigable water or interstate water (U.S. Environmental Protection Agency [EPA] and USACE 2011). The U.S. Supreme Court’s decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208) provides further information regarding whether a wetland or tributary is a WoUS. A Section 404 permit is required for all fill or discharge activities below (seaward or makai) the MHW/MHHW line in tidal waters or below the ordinary high water mark (OHWM) for non-tidal, non-wetland waters.

The USACE (33 CFR 230.3) and EPA (40 CFR 230.3) define *wetlands* as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 CFR 232.3). The 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), as amended, outlines the technical guidelines and methods for identifying and delineating wetlands potentially subject to Section 404. This manual is supplemented by the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai‘i and Pacific Islands Region* (USACE 2012).

CH2M HILL is reviewing the proposed project for Bridge 7E (hereafter *project*) pursuant to Section 10 of the RHA and Section 404 of the CWA. The project involves replacing the existing Bridge 7E to amend structurally deficient conditions, narrow roadway widths, limited load capacity, substandard bridge railings, and adverse effects from hydraulic scour. Although the current assumption is to replace the entire bridge, further investigation will take place to determine if the existing bridge can be rehabilitated and widened to accommodate the wider road design and current bridge design standards. A temporary bridge and detour may be required during construction. The basic assumption is to detour traffic with one lane in each direction on the existing roadway. Alternatives to this option would be to provide a two-way temporary bridge to detour traffic. A potential detour route will be further investigated and coordinated with the appropriate agencies of the County of Kaua‘i. It is unknown if the project will require a water diversion (cofferdam, pumping, etc.) to complete construction. The survey was conducted in support of the environmental compliance efforts for the project.
2.0 DESCRIPTION OF THE SURVEY AREA

2.1 Location and Vicinity

The Bridge No. 7E survey area is in the district of Kōloa on the south side of the Island of Kauaʻi along Kaumualiʻi Highway (Route 50) at milepost 7. The survey area runs along Kaumualiʻi Highway for approximately 1,250 feet (380 meters [m]), and encompasses roughly 4.4 acres (1.8 hectares) (Figure 1). The surrounding area is predominantly undeveloped and agricultural land (timber cultivation).

2.2 Topography and Soils

Most of the survey area follows a shallow slope gradient from east to west, with marked depressions in topography attributed to streamflow from the intermittent stream. Elevations in the survey area range from roughly 635 to 645 feet (194 to 197 m) above mean sea level. The Natural Resources Conservation Service (NRCS) identifies two soil types in the survey area: Haliʻi gravely silty clay (HfB) 3%–8% slopes and Kapaʻa silty clay, 3%–8% slopes (KkB) (Foote et al 1972; NRCS 2013) (Figure 2). Neither soil type is listed as hydric (NRCS 2012).

2.3 Hydrology

Mean annual rainfall for this area is approximately 84.5 inches (2147 millimeters [mm]). Rainfall is typically highest in November–December and lowest in June (Giambelluca et al. 2013). The closest rainfall gage to the site has experienced above-average rainfall for 2014 through the end of September (National Oceanic and Atmospheric Administration/National Weather Service, Weather Forecast Office Honolulu 2014).

The U.S. Geological Survey (USGS) and the State of Hawaiʻi Division of Aquatic Resources identify an intermittent stream bisecting the survey area (Figure 1). USGS, including the National Hydrography Dataset, show the un-named stream as a small, non-permanent tributary flowing into Mauka Reservoir, which connects to a series of streams, ditches, and reservoirs (e.g., Puu O Hewa Reservoir, Waita Reservoir, Pia Mill Reservoir) before flowing into the Waikomo Stream (Figure 3). The Waikomo Stream, within the Waikomo Watershed, is approximately 21.6 miles (34.7 kilometers) long and flows south, terminating in Hanakaʻape Bay in Poʻipū (Parham et al. 2008). The State of Hawaiʻi names the feature under Bridge No. 7E as the Weoweopilau tributary, part of Hulēʻia Stream (Parham et al. 2008). Hulēʻia Stream is within the Hulēʻia Watershed and flows east into Nawiliwili Bay in Līhuʻe, Kauaʻi. However, based on aerial imagery, the stream under the bridge appears to flow south as a minor tributary within the Waikomo Watershed.

The National Wetlands Inventory (NWI) program identifies one wetland/water type in the survey area: Riverine, Intermittent, Streambed, Seasonally Flooded, Excavated (R4SBCx) (Figure 4).

2.4 Flora and Fauna

SWCA conducted a flora and fauna survey on the same date as the WoUS survey. Vegetation types identified during that survey include ruderal weedy vegetation, guinea grass grassland, and forestry plantings. The site is dominated by non-native plants, and no listed plant species were seen (SWCA 2015).

Finally, the endangered Hawaiian hoary bat or ‘ōpeʻapeʻa (Lasiurus cinereus semotus) may use the site by passing through, foraging, or roosting in the survey area (SWCA 2015).
Figure 1. Location of survey area.
Figure 2. Soil types in the survey area.
Figure 3. National Hydrographic Dataset in and near the survey area.
Figure 4. National Wetland Inventory classifications in and near the survey area.
3.0 METHODOLOGY

Before visiting the survey area, SWCA examined aerial photographs and topographic maps to identify potential wetlands or WoUS in or near the survey area. Information was also gleaned from the NWI program, NRCS hydric soil data, as well as from previous water resource reports and environmental assessments/environmental impact statements.

SWCA biologists conducted WoUS determination and delineation fieldwork on September 29, 2014. The biologists employed methods for determining the presence of wetlands as prescribed by the USACE 1987 Manual (USACE 1987) and the Hawai‘i and Pacific Island Regional Supplement (USACE 2012). Based on these documents, jurisdictional wetlands are identified using the following three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. All three criteria must be present for an area to be considered a wetland, unless the site is disturbed. An explanation of the three wetland criteria is provided in sections 3.1–3.3. A wetland determination data form prepared during the survey is included in Appendix A. The boundaries of potential non-wetland WoUS (ephemeral or intermittent streams) were delineated by recording the location of the OHWM (see section 3.4).

The geographic coordinates of the sampling point and non-wetland feature were collected in the field with a Trimble GeoXT 6000 Series global positioning system (GPS) unit, and data were post-processed in ArcGIS using GPS Correct to sub-meter accuracy. The linear length of the feature was calculated by projecting these point and line data files in a geographic information system.

An initial assessment of connectivity of the feature to downstream waters was based on aerial imagery, as well as USGS and NWI data. SWCA did not conduct a field-based assessment of connectivity.

3.1 Vegetation

The USACE defines hydrophytic vegetation as “the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence” (USACE 2012). The National Wetland Plant List (Lichvar 2012; USACE 2014) designates wetland indicator statuses for plants in the Hawaiian Islands. The use of plant indicators helps estimate the probability of a species occurring in wetlands versus uplands. Plants are considered hydrophytes if they are classified as Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC). Descriptions of the plant indicator statuses are provided in Table 1.

Each sampling point represents a different vegetation community or NWI-designated water. At the one sampling point, the absolute percentage cover was estimated for each plant species within each vegetation strata (i.e., tree, shrub, herb, and woody vine). Species that individually or collectively exceeded 50% of the total cover and those with 20% of the total cover in the stratum were considered dominant (USACE 2012). These species were then compared with The Hawaii 2013 State Wetland Plant List (Lichvar 2013). Taxonomy and nomenclature follow Wagner et al. (1999, 2012) and Wagner and Herbst (2003).
Table 1. Wetland Plant Indicators

<table>
<thead>
<tr>
<th>Plant Indicator</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligate Wetland species</td>
<td>OBL</td>
<td>Almost always is a hydrophyte, rarely in uplands.</td>
</tr>
<tr>
<td>Facultative Wetland species</td>
<td>FACW</td>
<td>Usually is a hydrophyte, but occasionally found in uplands.</td>
</tr>
<tr>
<td>Facultative species</td>
<td>FAC</td>
<td>Commonly occurs as either a hydrophyte or non-hydrophyte.</td>
</tr>
<tr>
<td>Facultative Upland species</td>
<td>FACU</td>
<td>Occasionally is a hydrophyte, but usually occurs in uplands.</td>
</tr>
<tr>
<td>Upland species</td>
<td>UPL</td>
<td>Rarely is a hydrophyte, almost always in uplands.</td>
</tr>
</tbody>
</table>

Source: Lichvar et al. (2012).

3.2 Soils

A *hydric soil* is “formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (NRCS 2010). The NRCS National List of Hydric Soils (NRCS 2012) for Kaua‘i Island includes 12 hydric soils for the island. SWCA compared the NRCS National List of Hydric Soils with soils mapped in the survey area by the NRCS.

This generalized soil survey does not always capture the true hydric condition of the soils on individual sites; therefore, on-site soil evaluations of wetlands by specialists are also necessary. Soil characteristics were determined in the field by digging pits using a spade. Bedrock substrate often prevented excavation to the recommended depth. SWCA biologists identified soil samples in the field with standardized color chips (i.e., Munsell Soil Color Charts; Kollmorgen Instruments Corporation 1998) of hue, value, and chroma, and by texture (sand, silt, clay, loam, muck, and peat). Anaerobic soil conditions and the presence of gleyed soils were of particular interest (USACE 1987).

3.3 Hydrology

Wetland hydrology examines the behavior of water in wetlands. Indicators of wetland hydrology are classified as primary or secondary. Examples of primary hydrologic indicators in Hawai‘i include soil saturation, high water table, surface water, hydrogen sulfide odor, sediment and drift deposits, algal mats, iron deposits, and the presence of tilapia (*Oreochromis* sp./*Sarotherodon* sp.) redds or aquatic fauna (USACE 2012). Secondary regional hydrologic indicators include surface soil cracks and geomorphic position. One primary indicator or any two secondary indicators must be present to conclude that wetland hydrology is present (USACE 2012). SWCA evaluated both primary and secondary hydrology indicators at the sampling point.

3.4 Boundaries of Non-Wetland Waters

The boundaries of potential non-wetland WoUS (ephemeral or intermittent streams) were delineated by recording the location of the OHWM, as defined in the USACE Regulatory Guidance Letter 05-05 (USACE 2005). Indicators of OHWM can be physical or vegetative and include benches, shelving, drift lines, natural lines impressed on the bank, changes in the character of soil, transitions in vegetation type and density, destruction of terrestrial vegetation (matted-down vegetation), sediment deposition, presence of litter and debris, presence of a wrack line, bed and banks, multiple observed flow events, scour, sediment sorting, and water staining (USACE 2005, 2008). Contours provided to SWCA by ControlPoint Surveying were also referenced.
4.0 FINDINGS

4.1 Non-Wetland Waters

A single non-tidal, non-wetland water was delineated in the survey area (Figure 5). During the survey, a steady trickling flow of water was observed under the bridge, moving south. The water feature appears intermittent with a slightly modified channelization (i.e., rip-rap and concrete vertical walls at bridge site along the right-of-way) (Figure 6).

SWCA documented the presence of OHWMs at various points along the stream, primarily using clear impressions along banks with distinct topographic indicators (e.g., vertical cut banks as high as 15 feet [4.5 m] in some places). Approximately 470 linear feet (143 m) of non-wetland waters were delineated on the east side of the streambank, and 388 linear feet (118 m) were delineated on the west side.

Downstream of the survey area, the stream appears to flow into Mauka Reservoir, roughly 0.33 mile (0.52 kilometer) from Bridge 7E. SWCA did not conduct a field-based assessment of this connection, but connectivity of the stream to the Mauka Reservoir is shown on information from the National Hydrography Dataset and NWI program. Connectivity of the intermittent stream to Mauka Reservoir was also reported by Glenn Higashi of Hawai‘i Division of Aquatic Resources (Glenn Higashi, personal communication, March 13, 2015). Based on the National Hydrography Dataset, Mauka Reservoir connects to a series of streams, ditches, and reservoirs before terminating in Hanaka‘ape Bay (see Figure 3).

4.2 Wetlands

The single sampling point (P1) evaluated by SWCA does not meet the three-criterion test indicative of wetland conditions pursuant to the USACE 1987 Manual and the Hawai‘i and Pacific Island Regional Supplement. It serves to illustrate that no wetlands are found above the OHWM along the stream in the survey area. Guinea grass (*Urochloa maxima*) (FAC) was the dominant plant species in the sampling point (Figure 7); no hydric soil indicators or wetland hydrology were observed. A wetland determination data form for the sampling point is included in Appendix A.
Figure 5. Survey results and delineated non-wetland waters.
Figure 6. Bridge No. 7E, with concrete vertical walls, and low stream flow. Photo by CH2M HILL.

Figure 7. Guinea grass (*Urochloa maxima*) was the dominant species at sampling point.
5.0 CONCLUSIONS

SWCA surveyed and delineated a single non-perennial, non-tidal non-wetland water in the survey area. Based on the National Hydrography Dataset and NWI data, this feature may eventually connect to the Pacific Ocean and has potential to be a WoUS.

If the project is designed to avoid placement of dredged or fill material either temporarily or permanently below the delineated OHWM, SWCA recommends requesting a preliminary jurisdictional determination and a No Permit Required letter from the Honolulu USACE (under the condition that fill is not placed below the OHWM).

If the proposed project intends to place dredged or fill material within the delineated feature (such as a bridge foundations or pillars), it could be subject to Section 404 of the CWA. A Section 404 permit is not valid without a State 401 Water Quality Certification permit from the Clean Water Branch, which can take several months to a year to process. In addition, a Stream Channel Alteration Permit (SCAP) may be required from the Commission on Water Resource Management (CWRM), depending on the activities proposed. SWCA recommends submitting a Request for Determination from CWRM. If a SCAP is required, the permit timeframe is 90 days. These conclusions are subject to confirmation by the USACE Honolulu District.
6.0 LITERATURE CITED


Appendix A

Data Form
WETLAND DETERMINATION DATA FORM – Hawai‘i and Pacific Islands Region

Hydrophytic Vegetation Present? Yes ☒ No ☐
Hydric Soil Present? Yes ☐ No ☒
Wetland Hydrology Present? Yes ☐ No ☒

Is the Sample Area within a Wetland? Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 15')</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
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<tr>
<td>5.</td>
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Sapling/Shrub Stratum (Plot size: 15')

<table>
<thead>
<tr>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
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</table>

0 = Total Cover

Herb Stratum (Plot size: 15')

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<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator Status</th>
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<tbody>
<tr>
<td>Megathrys maximus</td>
<td>60</td>
<td>Y FAC</td>
</tr>
<tr>
<td>Coix lacryma-jobi</td>
<td>10</td>
<td>N FACW</td>
</tr>
<tr>
<td>Ageratum conyzoides</td>
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<td>N FAC</td>
</tr>
<tr>
<td>Crotalaria incana</td>
<td>5</td>
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<tr>
<td>Euphorbia hyporporfolia</td>
<td>2</td>
<td>N FACU</td>
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<tr>
<td>Eleusine indica</td>
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<td>N FACU</td>
</tr>
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0 = Total Cover

Woody Vine Stratum (Plot size: 15')

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D = Total Cover

Remarks:
Johnson Grass

Dominance Test worksheet:
Number of Dominant Species
That Are OBL, FAC, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species
That Are OBL, FAC, or FAC: 100% (A/B)

Prevalence Index worksheet:

<table>
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<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
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<tr>
<td>OBL species</td>
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<tr>
<td>FACW species</td>
<td>x 10 = 20</td>
</tr>
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<td>FAC species</td>
<td>x 75 = 225</td>
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<td>FACU species</td>
<td>x 3 = 12</td>
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<td>UPL species</td>
<td>x 5 = 25</td>
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<td>Column Totals:</td>
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Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is > 50%
3 - Prevalence Index is ≤ 3.01

Problematic Hydrophytic Vegetation? (Explain in Remarks or in the delineation report)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐
## SOIL

### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>0-14</td>
<td>10 YR 4/4</td>
<td>100</td>
<td>Sandy Loam</td>
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</tr>
<tr>
<td>14-24</td>
<td>10 YR 6/6</td>
<td>100</td>
<td>Sand</td>
<td>No redox</td>
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</tbody>
</table>


### Hydric Soil Indicators:
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Muck Presence (A8)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Dark Surface (S7)
- Loamy Gleyed Matrix (F2)
- Depressed Matrix (F3)
- Redox Dark Surface (F3)
- Depressed Dark Surface (F7)
- Redox Depressions (F6)

### Indicators for Problematic Hydric Soils:
- Stratified Layers (A5)
- Sandy Mucky Mineral (S1)
- Hed Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

### Restrictive Layer (if observed):  
- Type: ____________________  
- Depth (inches): ____________  
- Hydric Soil Present? Yes ☒ No ☒

### HYDROLOGY

#### Wetland Hydrology Indicators:  
(Explain observations in Remarks, if needed.)

<table>
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<th>Primary Indicators (minimum of one required; check all that apply)</th>
<th>Secondary Indicators (minimum of two required)</th>
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</thead>
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<tr>
<td>Surface Water (A1)</td>
<td>Surface Soil Cracks (B6)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Sparsely Vegetated Concave Surface (B8)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Drainage Patterns (B10)</td>
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<tr>
<td>Water Marks (B1)</td>
<td>Dry-Season Water Table (C2)</td>
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<td>Sediment Deposits (B2)</td>
<td>Salt Deposits (C5)</td>
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<tr>
<td>Drift Deposits (B3)</td>
<td>Stunted or Stressed Plants (D1)</td>
</tr>
<tr>
<td>Algal Mat or Crust (B4)</td>
<td>Geomorphic Position (D2)</td>
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<tr>
<td>Iron Deposits (B5)</td>
<td>Shallow Aquillard (D3)</td>
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<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>FAC-Neutral Test (D5)</td>
</tr>
<tr>
<td>Water Stained Leaves (B9)</td>
<td>Other (Explain in Remarks)</td>
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</tbody>
</table>

### Field Observations:
- Surface Water Present? Yes ☒ No ☒ Depth (inches): ____________
- Water Table Present? Yes ☒ No ☒ Depth (inches): ____________  
- Saturation Present? Yes ☒ No ☒ Depth (inches): ____________  

### Wetland Hydrology Present? Yes ☒ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

---

*Note: All indicators and units are approximate and may vary based on specific field conditions.*
Appendix B
Summary of EDR Radius Map Report™ with GeoCheck®, May 13, 2015
7E Bridge
Kaumualii Highway/Highway 520
Koloa, HI 96756

Inquiry Number: 4293168.2s
May 13, 2015

The EDR Radius Map™ Report with GeoCheck®
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
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<tbody>
<tr>
<td>Executive Summary</td>
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<td>Overview Map</td>
<td>2</td>
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<td>Detail Map</td>
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<tr>
<td>Map Findings Summary</td>
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<td>Orphan Summary</td>
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*Thank you for your business.*
Please contact EDR at 1-800-352-0050 with any questions or comments.

---

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A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA’s Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

**TARGET PROPERTY INFORMATION**

**ADDRESS**

KAUMUALII HIGHWAY/HIGHWAY 520  
KOLOA, HI 96756

**COORDINATES**

Latitude (North): 21.9484000 - 21° 56' 54.24"
Longitude (West): 159.4696000 - 159° 28' 10.56"
Universal Tranverse Mercator: Zone 4
UTM X (Meters): 451508.8
UTM Y (Meters): 2427047.5
Elevation: 638 ft. above sea level

**USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY**

Target Property Map: 21159-H4 WAIALEALE, HI
Most Recent Revision: Not reported
Target Property Address:
KAUMUALII HIGHWAY/HIGHWAY 520
KOLOA, HI 96756

Click on Map ID to see full detail.

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<tr>
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<th>ADDRESS</th>
<th>DATABASE ACRONYMS</th>
<th>RELATIVE DIST (ft. &amp; mi.)</th>
<th>ELEVATION</th>
<th>DIRECTION</th>
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NO MAPPED SITES FOUND
TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR’s search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list
- NPL________________________ National Priority List
- Proposed NPL______________ Proposed National Priority List Sites
- NPL LIENS_______________ Federal Superfund Liens

Federal Delisted NPL site list
- Delisted NPL______________ National Priority List Deletions

Federal CERCLIS list
- CERCLIS_______________ Comprehensive Environmental Response, Compensation, and Liability Information System
- FEDERAL FACILITY_______ Federal Facility Site Information listing

Federal CERCLIS NFRAP site List
- CERC-NFRAP______________ CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list
- CORRACTS______________ Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list
- RCRA-TSDF______________ RCRA - Treatment, Storage and Disposal

Federal RCRA generators list
- RCRA-LQG______________ RCRA - Large Quantity Generators
- RCRA-SQG______________ RCRA - Small Quantity Generators
- RCRA-CESQG__________ RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries
- US ENG CONTROLS________ Engineering Controls Sites List
- US INST CONTROL________ Sites with Institutional Controls
EXECUTIVE SUMMARY

LUCIS, .......................... Land Use Control Information System

Federal ERNS list
ERNS, .......................... Emergency Response Notification System

State- and tribal - equivalent CERCLIS
SHWS, .......................... Sites List

State and tribal landfill and/or solid waste disposal site lists
SWF/LF, .......................... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists
LUST, .......................... Leaking Underground Storage Tank Database
INDIAN LUST, .......................... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists
UST, .......................... Underground Storage Tank Database
INDIAN UST, .......................... Underground Storage Tanks on Indian Land
FEMA UST, .......................... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries
ENG CONTROLS, .......................... Engineering Control Sites
INST CONTROL, .......................... Sites with Institutional Controls

State and tribal voluntary cleanup sites
INDIAN VCP, .......................... Voluntary Cleanup Priority Listing
VCP, .......................... Voluntary Response Program Sites

State and tribal Brownfields sites
BROWNFIELDS, .......................... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists
US BROWNFIELDS, .......................... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites
DEBRIS REGION 9, .......................... Torres Martinez Reservation Illegal Dump Site Locations
ODI, .......................... Open Dump Inventory
INDIAN ODI, .......................... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites
US CDL, .......................... Clandestine Drug Labs
EXECUTIVE SUMMARY

CDL. .......................... Clandestine Drug Lab Listing
US HIST CDL. ............... National Clandestine Laboratory Register

**Local Land Records**
LIENS 2. ...................... CERCLA Lien Information

**Records of Emergency Release Reports**
HMIRS ......................... Hazardous Materials Information Reporting System
SPILLS ....................... Release Notifications
SPILLS 90 .................... SPILLS 90 data from FirstSearch

**Other Ascertainable Records**
RCRA NonGen / NLR. ........ RCRA - Non Generators / No Longer Regulated
DOT OPS ...................... Incident and Accident Data
DOD .................... Department of Defense Sites
FUDS ......................... Formerly Used Defense Sites
CONSENT .................... Superfund (CERCLA) Consent Decrees
ROD ......................... Records Of Decision
UMTRA ....................... Uranium Mill Tailings Sites
US MINES ................... Mines Master Index File
TRIS ......................... Toxic Chemical Release Inventory System
TSCA ........................ Toxic Substances Control Act
FTTS ......................... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS .................. FIFRA/TSCA Tracking System Administrative Case Listing
SSTS ......................... Section 7 Tracking Systems
ICIS ......................... Integrated Compliance Information System
PADS ........................ PCB Activity Database System
MLTS ........................ Material Licensing Tracking System
RADINFO ..................... Radiation Information Database
FINDS ....................... Facility Index System/Facility Registry System
RAATS ....................... RCRA Administrative Action Tracking System
RMP ........................ Risk Management Plans
UCI ........................ Underground Injection Wells Listing
DRYCLEANERS ............. Permitted Drycleaner Facility Listing
AIRS ........................ List of Permitted Facilities
INDIAN RESERV ........... Indian Reservations
SCRD DRYCLEANERS ...... State Coalition for Remediation of Drycleaners Listing
LEAD SMELTERS ........... Lead Smelter Sites
PRP ......................... Potentially Responsible Parties
2020 COR ACTION ........... 2020 Corrective Action Program List
COAL ASH DOE .......... Steam-Electric Plant Operation Data
PCB TRANSFORMER ....... PCB Transformer Registration Database
COAL ASH EPA .......... Coal Combustion Residues Surface Impoundments List
US AIRS .................... Aerometric Information Retrieval System Facility Subsystem
Financial Assurance ...... Financial Assurance Information Listing
US FIN ASSUR ............. Financial Assurance Information
EPA WATCH LIST .......... EPA WATCH LIST

**EDR HIGH RISK HISTORICAL RECORDS**

**EDR Exclusive Records**
EDR MGP ..................... EDR Proprietary Manufactured Gas Plants
EXECUTIVE SUMMARY

EDR US Hist Auto Stat, EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners, EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives
RGA LF, Recovered Government Archive Solid Waste Facilities List
RGA LUST, Recovered Government Archive Leaking Underground Storage Tank
RGA HWS, Recovered Government Archive State Hazardous Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS
Surrounding sites were not identified.
Unmappable (orphan) sites are not considered in the foregoing analysis.
Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

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<td>FINDS</td>
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<tr>
<td>KAUMUALII HIGHWAY RESURFACING, KIP</td>
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<td>PHASE 1 - KAUMUALII HIGHWAY IMPROV</td>
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This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.
### MAP FINDINGS SUMMARY

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**State and tribal Brownfields sites**

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### ADDITIONAL ENVIRONMENTAL RECORDS

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### NOTES:

- **TP** = Target Property
- **NR** = Not Requested at this Search Distance
- Sites may be listed in more than one database
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<th>Elevation</th>
<th>Site</th>
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To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

**STANDARD ENVIRONMENTAL RECORDS**

**Federal NPL site list**

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

| Date of Government Version: 12/16/2014 | Source: EPA |
| Date Data Arrived at EDR: 01/08/2015 | Telephone: N/A |
| Date Made Active in Reports: 02/09/2015 | Last EDR Contact: 04/08/2015 |
| Number of Days to Update: 32 | Next Scheduled EDR Contact: 07/20/2015 |
| | Data Release Frequency: Quarterly |

NPL Site Boundaries
Sources:
EPA’s Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

**Proposed NPL:** Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

| Date of Government Version: 12/16/2014 | Source: EPA |
| Date Data Arrived at EDR: 01/08/2015 | Telephone: N/A |
| Date Made Active in Reports: 02/09/2015 | Last EDR Contact: 04/08/2015 |
| Number of Days to Update: 32 | Next Scheduled EDR Contact: 07/20/2015 |
| | Data Release Frequency: Quarterly |

**NPL LIENS:** Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

| Date of Government Version: 10/15/1991 | Source: EPA |
| Date Data Arrived at EDR: 02/02/1994 | Telephone: 202-564-4267 |
| Date Made Active in Reports: 03/30/1994 | Last EDR Contact: 08/15/2011 |
| Number of Days to Update: 56 | Next Scheduled EDR Contact: 11/28/2011 |
| | Data Release Frequency: No Update Planned |
Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the
EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the
NPL where no further response is appropriate.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32
Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities,
private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation,
and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities
List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94
Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/01/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive
Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities
Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 13
Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status
indicates that, to the best of EPA’s knowledge, assessment at a site has been completed and that EPA has determined
no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates
this decision was not appropriate or other considerations require a recommendation for listing at a later time.
This decision does not necessarily mean that there is no hazard associated with a given site; it only means that,
based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94
Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/01/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.
Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transports are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

RCRA-SQG: RCRA - Small Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.
Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31
Next Scheduled EDR Contact: 06/15/2015
Number of Days to Update: 31
Source: Environmental Protection Agency
Telephone: 703-603-0695

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31
Next Scheduled EDR Contact: 06/15/2015
Source: Environmental Protection Agency
Telephone: 703-603-0695

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48
Next Scheduled EDR Contact: 06/01/2015
Source: Department of the Navy
Telephone: 843-820-7326

Federal ERNS list
ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37
Next Scheduled EDR Contact: 07/13/2015
Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180

State- and tribal - equivalent CERCLIS
SHWS: Sites List
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 12/02/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/27/2015
Number of Days to Update: 36
Next Scheduled EDR Contact: 06/08/2015
Source: Department of Health
Telephone: 808-586-4249
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists
SWF/LF: Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/17/2012
Source: Department of Health
Telephone: 808-586-4245
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 37
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/02/2015
Source: Department of Health
Telephone: 808-586-4228
Date Data Arrived at EDR: 03/04/2015
Date Made Active in Reports: 03/17/2015
Number of Days to Update: 13
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Source: EPA Region 7
Telephone: 913-551-7003
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 01/30/2015
Source: EPA, Region 5
Telephone: 312-886-7439
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 32
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/23/2015
Source: EPA Region 6
Telephone: 214-665-6597
Date Data Arrived at EDR: 02/10/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 31
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014
Source: EPA Region 4
Telephone: 404-562-8677
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Semi-Annually
## INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

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## INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

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## INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada.

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## INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land


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## State and tribal registered storage tank lists

**UST: Underground Storage Tank Database**

Registered Underground Storage Tanks. UST’s are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

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## INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

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TC4293168.2s Page GR-6
INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/29/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 36
Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/28/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies
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<th>Date Made Active in Reports</th>
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<th>Last EDR Contact</th>
<th>Next Scheduled EDR Contact</th>
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<td>Department of Health</td>
<td>404-586-4249</td>
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<td><strong>ENG CONTROLS: Engineering Control Sites</strong></td>
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<td>12/22/2014</td>
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<td>Department of Health</td>
<td>808-586-4249</td>
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<td><strong>State and tribal voluntary cleanup sites</strong></td>
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<td>EPA, Region 1</td>
<td>617-918-1102</td>
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<td>Varies</td>
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<td><strong>INDIAN VCP R1: Voluntary Cleanup Priority Listing</strong></td>
<td>09/29/2014</td>
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<td><strong>INDIAN VCP R7: Voluntary Cleanup Priority Listing</strong></td>
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<td>EPA, Region 7</td>
<td>913-551-7365</td>
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</table>
VCP: Voluntary Response Program Sites
Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites
With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment.
Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/24/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/23/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: No Update Planned
INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/01/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/10/2010
Date Made Active in Reports: 10/22/2010
Number of Days to Update: 42

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies
Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/29/2014  Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/30/2014 Telephone: 202-366-4555
Date Made Active in Reports: 03/09/2015 Last EDR Contact: 03/31/2015
Number of Days to Update: 69 Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

SPILLS: Release Notifications
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 12/02/2014  Source: Department of Health
Date Data Arrived at EDR: 12/22/2014 Telephone: 808-586-4249
Date Made Active in Reports: 01/28/2015 Last EDR Contact: 02/27/2015
Number of Days to Update: 37 Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012  Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013 Telephone: N/A
Date Made Active in Reports: 02/11/2013 Last EDR Contact: 01/03/2013
Number of Days to Update: 39 Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014  Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/29/2014 Telephone: (415) 495-8895
Date Made Active in Reports: 01/29/2015 Last EDR Contact: 03/31/2015
Number of Days to Update: 31 Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012  Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012 Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012 Last EDR Contact: 05/05/2015
Number of Days to Update: 42 Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.
FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

ROD: Records Of Decision
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System, TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.
TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

HIST FTTS INSPI: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.
SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/10/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/17/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly
FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and ‘pointers’ to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 40

Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013
Date Data Arrived at EDR: 02/12/2013
Date Made Active in Reports: 04/09/2013
Number of Days to Update: 56

Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies
DRYCLEANERS: Permitted Drycleaner Facility Listing
A listing of permitted drycleaner facilities in the state.
Date of Government Version: 12/31/2014
Source: Department of Health
Date Data Arrived at EDR: 01/09/2015
Telephone: 808-586-4200
Date Made Active in Reports: 02/11/2015
Last EDR Contact: 04/06/2015
Number of Days to Update: 33
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

AIRS: List of Permitted Facilities
A listing of permitted facilities in the state.
Date of Government Version: 04/08/2015
Source: Department of Health
Date Data Arrived at EDR: 04/10/2015
Telephone: 808-586-4200
Date Made Active in Reports: 04/30/2015
Last EDR Contact: 04/06/2015
Number of Days to Update: 20
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.
Date of Government Version: 12/31/2005
Source: USGS
Date Data Arrived at EDR: 12/08/2006
Telephone: 202-208-3710
Date Made Active in Reports: 01/11/2007
Last EDR Contact: 04/14/2015
Number of Days to Update: 34
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.
Date of Government Version: 03/07/2011
Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/09/2011
Telephone: 615-532-8599
Date Made Active in Reports: 05/02/2011
Last EDR Contact: 02/18/2015
Number of Days to Update: 54
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.
Date of Government Version: 07/01/2014
Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014
Telephone: N/A
Date Made Active in Reports: 10/20/2014
Last EDR Contact: 03/13/2015
Number of Days to Update: 40
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.
Date of Government Version: 03/09/2015
Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/10/2015
Telephone: 202-566-1917
Date Made Active in Reports: 03/25/2015
Last EDR Contact: 02/16/2015
Number of Days to Update: 15
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly
Financial Assurance:  Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/13/2015  Source:  Department of Health
Date Data Arrived at EDR: 03/17/2015  Telephone:  808-586-4226
Date Made Active in Reports: 03/25/2015  Last EDR Contact: 03/13/2015
Number of Days to Update: 8  Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Varies

FEDLAND:  Federal and Indian Lands

Date Data Arrived at EDR: 02/06/2006  Telephone:  888-275-8747
Date Made Active in Reports: 01/11/2007  Last EDR Contact: 04/14/2015
Number of Days to Update: 339  Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: N/A

LEAD SMELTER 2:  Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001  Source:  American Journal of Public Health
Date Data Arrived at EDR: 10/27/2010  Telephone:  703-305-6451
Date Made Active in Reports: 12/02/2010  Last EDR Contact: 12/02/2009
Number of Days to Update: 36  Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1:  Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014  Source:  Environmental Protection Agency
Date Data Arrived at EDR: 11/26/2014  Telephone:  703-603-8787
Date Made Active in Reports: 01/29/2015  Last EDR Contact: 04/10/2015
Number of Days to Update: 64  Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

PRP:  Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013  Source:  EPA
Date Data Arrived at EDR: 10/17/2014  Telephone:  202-564-6023
Date Made Active in Reports: 10/20/2014  Last EDR Contact: 02/13/2015
Number of Days to Update: 3  Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

2020 COR ACTION:  2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013  Source:  Environmental Protection Agency
Date Data Arrived at EDR: 03/03/2015  Telephone:  703-308-4044
Date Made Active in Reports: 03/09/2015  Last EDR Contact: 02/13/2015
Number of Days to Update: 6  Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies
PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011  
Source: Environmental Protection Agency
Telephone: 202-566-0517

Date Made Active in Reports: 01/10/2012  
Last EDR Contact: 05/01/2015
Number of Days to Update: 83  
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013  
Source: Environmental Protection Agency
Telephone: 617-520-3000

Date Made Active in Reports: 06/17/2014  
Last EDR Contact: 05/07/2015
Number of Days to Update: 88  
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005  
Source: Department of Energy
Telephone: 202-586-8719

Date Made Active in Reports: 10/22/2009  
Last EDR Contact: 04/15/2015
Number of Days to Update: 76  
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014  
Source: EPA
Telephone: 202-564-2496

Date Made Active in Reports: 11/17/2014  
Last EDR Contact: 03/30/2015
Number of Days to Update: 17  
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014  
Source: EPA
Telephone: 202-564-2496

Date Made Active in Reports: 11/17/2014  
Last EDR Contact: 03/30/2015
Number of Days to Update: 17  
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records
EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR’s researchers. Manufactured gas sites were used in the United States from the 1800’s to 1950’s to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  Source: EDR, Inc.
Date Data Arrived at EDR: N/A  Telephone: N/A
Date Made Active in Reports: N/A  Last EDR Contact: N/A
Number of Days to Update: N/A  Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  Source: EDR, Inc.
Date Data Arrived at EDR: N/A  Telephone: N/A
Date Made Active in Reports: N/A  Last EDR Contact: N/A
Number of Days to Update: N/A  Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  Source: EDR, Inc.
Date Data Arrived at EDR: N/A  Telephone: N/A
Date Made Active in Reports: N/A  Last EDR Contact: N/A
Number of Days to Update: N/A  Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List
The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  Source: Department of Health
Date Data Arrived at EDR: 07/01/2013  Telephone: N/A
Date Made Active in Reports: 01/08/2014  Last EDR Contact: 06/01/2012
Number of Days to Update: 191  Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies
RGA LF: Recovered Government Archive Solid Waste Facilities List
The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases
and includes many records that no longer appear in current government lists. Compiled from Records formerly available
from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/17/2014
Number of Days to Update: 200
Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank
The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents
derived from historical databases and includes many records that no longer appear in current government lists.
Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186
Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)
Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be
complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the
area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily
mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs
from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily
gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity
to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all
sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers,
and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association’s annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services,
a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics’ primary database on elementary
and secondary public education in the United States. It is a comprehensive, annual, national statistical
database of all public elementary and secondary schools and school districts, which contains data that are
c omparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics’ primary database on private school locations in the United States.
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.
GROUNDWATER FLOW DIRECTION INFORMATION
Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY
General Topographic Gradient: General ESE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.
HYDROLOGIC INFORMATION
Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE
- Target Property County: KAUAI, HI, FEMA Flood Electronic Data
- Flood Plain Panel at Target Property: 1500020185C - FEMA Q3 Flood data
- Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY
- NWI Quad at Target Property: KAUAI, HI, FEMA Flood Electronic Data Coverage

HYDROGEOLOGIC INFORMATION
Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®
- Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>LOCATION FROM TP</th>
<th>GENERAL DIRECTION GROUNDWATER FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Reported</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GROUNDWATER FLOW VELOCITY INFORMATION
Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY
Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

<table>
<thead>
<tr>
<th>ROCK STRATIGRAPHIC UNIT</th>
<th>GEOLOGIC AGE IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Era:</td>
<td>Category: -</td>
</tr>
<tr>
<td>System:</td>
<td></td>
</tr>
<tr>
<td>Series:</td>
<td></td>
</tr>
<tr>
<td>Code: N/A</td>
<td>(decoded above as Era, System &amp; Series)</td>
</tr>
</tbody>
</table>

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture’s (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Kapaa
Soil Surface Texture: silty clay
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class: Well drained
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Moderate
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches

<table>
<thead>
<tr>
<th>Layer</th>
<th>Upper</th>
<th>Lower</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>14 inches</td>
<td>silty clay</td>
<td>Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.</td>
<td>MH-O (proposed)</td>
<td>Max: 42 Min: 4.23 Max: 5.5 Min: 4.5</td>
</tr>
<tr>
<td>2</td>
<td>14 inches</td>
<td>59 inches</td>
<td>paragranvelly silty clay</td>
<td>Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.</td>
<td>MH-O (proposed)</td>
<td>Max: 14.11 Min: 1.41 Max: 6.5 Min: 5.1</td>
</tr>
</tbody>
</table>

Soil Map ID: 2

Soil Component Name: Halii
Soil Surface Texture: gravelly silty clay
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class: Well drained
GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: High
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches

### Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Boundary</th>
<th>Soil Texture Class</th>
<th>AASHTO Group</th>
<th>Unified Soil</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>5 inches</td>
<td>gravelly silty clay</td>
<td>MH-O (proposed)</td>
<td>Max: 141.14 Min: 14.11</td>
<td>Max: 5 Min: 3.6</td>
</tr>
<tr>
<td>2</td>
<td>5 inches</td>
<td>59 inches</td>
<td>clay loam</td>
<td>MH-O (proposed)</td>
<td>Max: 4.23 Min: 1.41</td>
<td>Max: 5 Min: 3.6</td>
</tr>
</tbody>
</table>

**Soil Map ID: 3**

Soil Component Name: Lawai
Soil Surface Texture: silty clay
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class: Moderately well drained
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: High
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches
Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Upper</th>
<th>Lower</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>14 inches</td>
<td>silty clay</td>
<td>Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.</td>
<td>MH-O (proposed)</td>
<td>Max: 42.34 Min: 4.23 Max: 6 Min: 5.1</td>
</tr>
<tr>
<td>2</td>
<td>14 inches</td>
<td>59 inches</td>
<td>silty clay</td>
<td>Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.</td>
<td>MH-O (proposed)</td>
<td>Max: 4.23 Min: 1.41 Max: 6 Min: 5.6</td>
</tr>
</tbody>
</table>

Soil Map ID: 4

Soil Component Name: Water > 40 acres
Soil Surface Texture: silty clay
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: 
Hydric Status: Unknown
Corrosion Potential - Uncoated Steel: Not Reported
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches
No Layer Information available.

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.
**WELL SEARCH DISTANCE INFORMATION**

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>SEARCH DISTANCE (miles)</th>
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</thead>
<tbody>
<tr>
<td>Federal USGS</td>
<td>1.000</td>
</tr>
<tr>
<td>Federal FRDS PWS</td>
<td>Nearest PWS within 1 mile</td>
</tr>
<tr>
<td>State Database</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**FEDERAL USGS WELL INFORMATION**

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>WELL ID</th>
<th>LOCATION FROM TP</th>
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</thead>
<tbody>
<tr>
<td>A2</td>
<td>USGS00000271539</td>
<td>1/2 - 1 Mile South</td>
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</tbody>
</table>

**FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

No PWS System Found

Note: PWS System location is not always the same as well location.

**STATE DATABASE WELL INFORMATION**

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>WELL ID</th>
<th>LOCATION FROM TP</th>
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</thead>
<tbody>
<tr>
<td>A1</td>
<td>HI9000000000412</td>
<td>1/2 - 1 Mile South</td>
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</tbody>
</table>
### GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Direction</th>
<th>Distance</th>
<th>Elevation</th>
<th>Database</th>
<th>EDR ID Number</th>
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</thead>
<tbody>
<tr>
<td>A1</td>
<td>South</td>
<td>1/2 - 1 Mile</td>
<td>Lower</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HI WELLS</td>
<td>HI9000000000412</td>
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<tr>
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<tr>
<td>Wid:</td>
<td>2-5628-001</td>
<td>Island:</td>
<td>Kauai</td>
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<td>Old name:</td>
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<td>Yr drilled:</td>
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<tr>
<td>Driller:</td>
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<td>Quad map:</td>
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<td>Owner user:</td>
<td>McBryde Sugar Co. Ltd.</td>
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<td>Land owner:</td>
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<td>Pump insta:</td>
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Ground-water levels, Number of Measurements: 0
### AREA RADON INFORMATION

Federal EPA Radon Zone for KAUAI County: 3

- Zone 1 indoor average level > 4 pCi/L.
- Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
- Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96756

Number of sites tested: 1

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TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.
LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR’s Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

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Appendix C

Endangered Species Act Section 7 Consultation
Documentation
November 21, 2014

Ms. Michelle Bogardus
U.S. Department of the Interior
Fish & Wildlife Service
Pacific Islands Fish & Wildlife Office
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96850

Subject: Notification of Intent to Construct the Hawaii Bridge Program
Request for Species and Critical Habitat List under Section 7, Endangered Species Act

Dear Ms. Michelle Bogardus:

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT), is planning to undertake environmental studies for the Hawaii Bridge Program. The Program includes work on 12 bridges at 10 locations on the islands of Oahu (4 locations total: 4 locations with 1 bridge each), Kauai (4 locations total: 3 locations with 1 bridge each and 1 location with 3 bridges), and Hawaii (2 locations total: 2 locations with 1 bridge each).

Attachment 1, Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu, includes location maps, and project descriptions, for each of the 10 locations.

In accordance with Section 7 of the Endangered Species Act, FHWA-CFLHD and HDOT are requesting a list of threatened, endangered, proposed, and candidate plant and animal species, and critical habitats in the vicinity of each of the bridge projects to enable an appropriate determination for these projects.

Furthermore, to assist us with our assessment, we also respectfully ask for input the USFWS may have in relation to specific avoidance and minimization measures that should be considered for each project. 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 contact Nicole Winterton, Environmental Protection Specialist, at (720) 963-3689 or by e-mail at Nicole.Winterton@dot.gov.

Sincerely,

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:

Attachment 1: Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu

cc: Nicole Winterton/FHWA-CFLHD
Paul Luersen/CH2M HILL
Elizabeth Cutler/CH2M HILL
Central Federal Lands Highway Division
12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228
720-963-3647
michael.will@dot.gov

In Reply Refer To:
HFPM-16

November 21, 2014

Mr. Frazer McGilvray
Administrator
Department of Aquatic Resources
1151 Punchbowl St. Room 330
Honolulu, HI 96813

Subject: Notification of Intent to Construct the Hawaii Bridge Program
Request for Information

Dear Mr. Frazer McGilvray:

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT), is planning to undertake environmental studies for the Hawaii Bridge Program. The Program includes work on 12 bridges at 10 locations on the islands of Oahu (4 locations total: 4 locations with 1 bridge each), Kauai (4 locations total: 3 locations with 1 bridge each and 1 location with 3 bridges), and Hawaii (2 locations total: 2 locations with 1 bridge each). Attachment 1, Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu, includes location maps, and project descriptions, for each of the 10 locations.

We are writing to request information you may have regarding known presence of listed species and designated critical habitat in the vicinity of each of the bridge projects to appropriately assess potential impacts for these projects.

Furthermore, to assist us with our assessment, we also respectfully ask for DAR’s opinion on the likely impact of each of the bridge projects based on the potential issues of the location considering the proposed construction activities and schedule.

Your response within 30 calendar days of receipt of this letter would be appreciated.

Should you have any questions, please contact Nicole Winterton, Environmental Protection Specialist, at (720) 963-3689 or by e-mail at Nicole.Winterton@dot.gov.

Sincerely,

[Signature]

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:
Attachment 1: Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu

Cc: Glenn Higashi/DAR
    Nicole Winterton/FHWA-CFLHD
    Paul Luersen/CH2M HILL
    Elizabeth Cutler/CH2M HILL
Central Federal Lands Highway Division
12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228
720-963-3647
michael.will@dot.gov

In Reply Refer To:
HFPM-16

Ms. Lisa Hadway
Administrator
Division of Forestry and Wildlife
Kalanikaku Building
1151 Punchbowl St. Room 325
Honolulu, HI 96813

Subject: Notification of Intent to Construct the Hawaii Bridge Program
          Request for Information

Dear Ms. Lisa Hadway:

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT), is planning to undertake environmental studies for the Hawaii Bridge Program. The Program includes work on 12 bridges at 10 locations on the islands of Oahu (4 locations total: 4 locations with 1 bridge each), Kauai (4 locations total: 3 locations with 1 bridge each and 1 location with 3 bridges), and Hawaii (2 locations total: 2 locations with 1 bridge each). Attachment 1, Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu, includes location maps, and project descriptions, for each of the 10 locations.

We are writing to request information you may have regarding known presence of listed species and designated critical habitat in the vicinity of the each of the bridge projects to appropriately assess potential impacts for these projects. Furthermore, to assist us with our assessment, we also respectfully ask for input the DOFAW may have in relation to specific avoidance and minimization measures that should be considered for each project.

To assist us with our assessment, we also respectfully ask for DOFAW's opinion on the likely impact of each of the bridge projects based on the potential issues of the location considering the proposed construction activities and schedule.

Your response within 30 calendar days of receipt of this letter would be appreciated.

Should you have any questions, please contact Nicole Winterton, Environmental Protection Specialist, at (720) 963-3689 or by e-mail at Nicole.Winterton@dot.gov.

Sincerely,

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:

Attachment 1: Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu

Cc: Nicole Winterton/FHWA-CFLHD
    Paul Luersen/CH2M HILL
    Elizabeth Cutler/CH2M HILL
November 21, 2014

Central Federal Lands Highway Division
12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228
720-963-3647
michael.will@dot.gov

In Reply Refer To:
HFPM-16

Mr. Aaron Nadig
U.S. Department of the Interior
Fish & Wildlife Service
Pacific Islands Fish & Wildlife Office
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96850

Subject: Notification of Intent to Construct the Hawaii Bridge Program
Request for Species and Critical Habitat List under Section 7, Endangered Species Act

Dear Mr. Aaron Nadig:

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT), is planning to undertake environmental studies for the Hawaii Bridge Program. The Program includes work on 12 bridges at 10 locations on the islands of Oahu (4 locations total: 4 locations with 1 bridge each), Kauai (4 locations total: 3 locations with 1 bridge each and 1 location with 3 bridges), and Hawaii (2 locations total: 2 locations with 1 bridge each).

Attachment 1, Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu, includes location maps, and project descriptions, for each of the 10 locations.

In accordance with Section 7 of the Endangered Species Act, FHWA-CFLHD and HDOT are requesting a list of threatened, endangered, proposed, and candidate plant and animal species, and critical habitats in the vicinity of each of the bridge projects to enable an appropriate determination for these projects.

Furthermore, to assist us with our assessment, we also respectfully ask for input the USFWS may have in relation to specific avoidance and minimization measures that should be considered for each project. 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 contact Nicole Winterton, Environmental Protection Specialist, at (720) 963-3689 or by e-mail at Nicole.Winterton@dot.gov.

Sincerely,

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:
Attachment 1: Hawaii Bridges Program Summary Map Set - Hawaii, Kauai, and Oahu

cc: Nicole Winterton/FHWA-CFLHD
Paul Luersen/CH2M HILL
Elizabeth Cutler/CH2M HILL
K – Bridge 7E

The project purpose is to replace the existing deficient Bridge No. 7E, which crosses an unnamed drainage, to meet current design standards for roadway width, load capacity, bridge railing, and transitions.
United States Department of the Interior

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

In Reply Refer To:
2015-SL-0081

J. Michael Will
U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 380
Lakewood, CO 80228

DEC 22 2014

Subject: Species List for Hawaii Bridges Program, Hawaii, Kauai, and Oahu

Dear Mr. J. Michael Will:

The U.S. Fish and Wildlife Service (Service) received your letter, dated November 21, 2014, requesting a list of federally threatened and endangered species, candidate species, plants and animals of special concern, and critical habitats in the vicinity of the proposed bridge projects.

The Federal Highways Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning to conduct environmental studies for the proposed rehabilitation or replacement of 12 bridges at 10 locations on the islands of Hawaii, Kauai, and Oahu to improve the safety and reliability of the bridges.

On the island of Hawaii, the Ninole Bridge located along Mamalahoa Highway (Route 11) at mile post 56.7 would be rehabilitated or replaced, addressing bridge width, load capacity, railing, transitions, and approaches. The Hilea Bridge located on Mamalahoa Highway (Route 11) at mile post 57.7 would be rehabilitated or replaced, addressing bridge width, load capacity, railing, and transitions.

On the island of Kauai, Bridge 7E located along Kaumualii Highway (Route 50), approximately 800 feet west of Maluhia Road intersection, would be rehabilitated or replaced, addressing bridge width, load capacity, railing, and transitions. Hanapepe Bridge located on Kaumualii Highway (Route 50) in Hanapepe town would be rehabilitated or replaced, addressing bridge width, load capacity, railing, transitions, approaches, and effects of scour. Kapaa Stream Bridge located on Kuhio Highway (Route 56) near mile post 10 would be rehabilitated or replaced, addressing bridge width, load capacity, railing, transitions, and approaches. This project would also involve improvements to the highway intersection at Mailihuna Road, including roadway
widening, lighting, signing, pavement markings, drainage, and other improvements such as installation of traffic signals. The three Wainiha Stream bridges located on Kuhio Highway (Route 560) at mile post 6.4 and 6.7 would be replaced. Additionally, three load-restricted bridges which cross Waialului, Waipa, and Waikoko streams, located at mile posts 3.4, 3.9, and 4.2, will be studied to determine loads and alternatives such as temporary bridges or supports necessary to provide construction access to the Wainiha Stream bridges.

On the island of Oahu, the Halona Bridge located on Halona Street, which crosses Kapalama Canal, would be rehabilitated or replaced, addressing bridge width, load capacity, railing, transitions, approaches, and pedestrian traffic. The Kawela Bridge located on Kamehameha Highway (Route 83) at mile post 11.4 would be replaced, addressing bridge width, load capacity, railing, transitions, and approaches. The Nanahu Bridge located on Kamehameha Highway (Route 83) at mile post 13.4 would be rehabilitated or replaced, addressing bridge width, load capacity, railing, transitions, and approaches. The Roosevelt Bridge located on Kamehameha Highway (Route 99) at mile post 14.4 would be rehabilitated, addressing bridge load capacity, railing, and transitions.

The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 et seq.).

Our databases, including data compiled by the Hawaii Biodiversity and Mapping Program (HBMP), indicate the following species are known to occur or transit through the vicinity of the proposed project areas at Ninole Bridge and Hilea Bridge on the island of Hawaii: the federally endangered Blackburn’s sphinx moth (Manduca blackbumi, BSM), Hawaiian goose (Branta sandvicensis), Hawaiian hawk (Buteo solitarius), Hawaiian hoary bat (Lasiurus cinereus semotus), and Hawaiian petrel (Pterodroma sandwichensis); and the threatened Newell’s shearwater (Puffinus auricularis newelli). There is no designated critical habitat in the vicinity of the proposed project areas on the island of Hawaii.

Our databases, including data compiled by the HBMP, indicate the following species are known to occur or transit through the proposed project areas at Bridge 7E, Hanapepe Bridge, Kapaa Stream Bridge, and the Wainiha Stream bridges on the island of Kauai: the endangered Hawaiian black-necked stilt (Himantopus mexicanus knudseni), Hawaiian moorhen (Gallinula chloropus sandvicensis), Hawaiian coot (Fulica alai), Hawaiian duck (Anas wyvilliana), Hawaiian goose, Hawaiian hoary bat, and Hawaiian petrel; the threatened Newell’s shearwater; and a candidate for listing band-rumped storm-petrel (Oceanodroma castro). Additionally, our databases indicate the threatened green sea turtle (Chelonia mydas) is known to occur in the vicinity of the proposed project areas at the Kapaa Stream Bridge and the Wainiha Stream bridges. There is no designated critical habitat in the vicinity of the proposed project areas on the island of Kauai.

The endangered Hawaiian monk seal (Monachus schauinslandi) may use beach habitat in the vicinity of the proposed project at the Kapaa Stream Bridge and the Wainiha Stream bridges. The National Marine Fisheries Service (NMFS) is the Federal agency that consults on potential impacts to monk seals, both in their on-shore and ocean habitats. Therefore, we did not review
the proposed project for potential project impacts to monk seals. We recommend that you contact NMFS regarding the presence of monk seals in the area and potential impacts to the species from the project.

Our databases, including data compiled by the HBMP, indicate the following species are known to occur or transit through the proposed project areas at Kawela Bridge, Nanahu Bridge, and Roosevelt Bridge on the island of Oahu: the endangered Hawaiian black-necked stilt, Hawaiian moorhen, Hawaiian coot, Hawaiian duck, Hawaiian goose, Hawaiian hoary bat, and Hawaiian petrel; and the threatened Newell’s shearwater. Hawaiian geese recently arrived on Oahu. A pair was first observed in early January 2014 at the First Wind Kawaiola wind farm facility. They have successfully nested, fledging two goslings at the James Campbell National Wildlife Refuge (NWR) near the town of Kahuku. The pair, originally from Kauai, was translocated to Hilo, Hawaii in February 2012, by the State of Hawaii Division of Forestry and Wildlife, and were apparently attempting to return to Kauai when they arrived on Oahu. As of December 2014 the four birds have been seen at the Mililani Agricultural Park, Mililani golf course, and James Campbell NWR.

Additionally, our databases indicate the endangered Hawaiian hoary bat is known to occur or transit through the proposed project area at Halona Bridge on the island of Oahu. There is no designated critical habitat in the vicinity of the proposed project areas on the island of Oahu.

The Service recommends the following measures to avoid and minimize project impacts to the above listed species.

**Island of Hawaii**

**Blackburn’s sphinx moth**

Adult Blackburn’s sphinx moths feed on nectar from native plants including beach morning glory (*Ipomoea pes-caprae*), ʻildee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*). BSM larvae feed upon native tree tobacco (*Nicotiana glauca*), which occupies disturbed areas such as open fields and roadway margins, and the native aiea (*Nothocestrum sp.*), which is found in dry to moist forests at elevations ranging from 1,500 to 5,000 feet. We recommend that a qualified biologist survey the project area for the presence of larval host plants. If larval host plants are detected and will be affected during project construction or operation, we recommend that the biologist document 1) general larval plant density; 2) proximity of larval plants to project sites; 3) average height of the larval plants; 4) signs of larval feeding damage on leaves; and 5) presence of BSM larvae on leaves. We recommend that surveys be conducted for BSM and potential host plants approximately four to eight weeks following significant rainfall and during the wettest portion of the year (usually November-April).

**Hawaiian Goose**

In order to avoid impacts to Hawaiian geese, we recommend a biologist familiar with the nesting behavior of the Hawaiian goose survey the area prior to the initiation of any work, or after any subsequent delay in work of three or more days (during which birds may attempt nesting). If a nest is discovered, work should cease immediately and our office should be contacted for further guidance. Furthermore, all on-site project personnel should be apprised that Hawaiian geese
Mr. Will

may be in the vicinity of the project at any time during the year. If a Hawaiian goose (or geese) appears within 100 feet of ongoing work, all activity should be temporarily suspended until the Hawaiian goose (or geese) leaves the area of its own accord.

_Hawaiian Hawk_

Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators. To avoid impacts to Hawaiian hawks, we recommend avoiding brush and tree clearing during their breeding season (March through September). If you must clear the property during the Hawaiian hawk breeding season, we recommend a nest search of the proposed construction site and surrounding area be conducted by a qualified ornithologist immediately prior to start of construction activities. Surveys should ensure that construction activity will not occur within 1,600 feet of any Hawaiian hawk nest.

_Hawaiian Hoary Bat_

The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, 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). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.

_Sebirds_

Seabirds, including the Newell's shearwater, Hawaiian petrel and band-rumped storm petrel, fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. To reduce potential impacts to seabirds, we recommend the following minimization measures be incorporated into your project description:

- Construction activities should only occur during daylight hours. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality.

- If lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below.
Island of Kauai

Please refer to “Hawaiian goose”, “Hawaiian hoary bat”, and “Seabirds” under the Island of Hawaii (above) for recommended measures to avoid and minimize impacts to the Hawaiian goose, Hawaiian hoary bat, and Hawaiian petrel, Newell’s shearwater, and band-rumped storm petrel.

Hawaiian Waterbirds
The Hawaiian stilt, moorhen, coot, and duck are hereafter collectively referred to as “Hawaiian waterbirds.” Our records indicate there is a high probability that Hawaiian waterbirds may occur in the vicinity of the proposed project. We recommend you incorporate the following measures into your project description to avoid and minimize impacts to Hawaiian waterbirds:

- A biological monitor should conduct Hawaiian waterbird and nest surveys at the proposed project site prior to project initiation.
- Any documented nests or broods within the project vicinity should be reported to the Service within 48 hours.
- A 100-foot buffer should be established and maintained around all active nests and/or broods until the chicks/ducklings have fledged. No potentially disruptive activities or habitat alteration should occur within this buffer.
- The Service should be notified immediately prior to project initiation and provided with the results of pre-construction Hawaiian waterbird surveys.
- A biological monitor(s) should be present on the project site during all construction or earth moving activities to ensure that Hawaiian waterbirds and nests are not adversely impacted.
- If a listed Hawaiian waterbird is observed within the project site, or flies into the site while activities are occurring, the biological monitor should halt all activities within 100 feet of the individual(s). Work should not resume until the Hawaiian waterbird(s) leave the area on their own accord.
- A post-construction report should be submitted to the Service with 30 days of the completion of the project. The report should include the results of Hawaiian waterbird surveys, the location and outcome of documented nests, and any other relevant information.

Sea Turtles
Artificial lighting can disorient adult sea turtles and hatchlings by affecting their ability to find the ocean. To minimize potential impacts to sea turtles that may utilize beaches in the project vicinity, no light from the proposed project should be visible from the beach. We recommend installation of shielded lighting at construction sites near beaches and around shoreline developments. Shielded lights reduce the direct and ambient lighting of beach habitats within and adjacent to the project site. Effective light shields should be completely opaque, sufficiently large, and positioned so that light from the shielded source does not reach the beach. Projects should also be designed to minimize adverse impacts to basking or nesting sea turtles from off-leash pets, mammalian predators, and human disturbance.
Island of Oahu

Please refer to “Hawaiian goose”, “Hawaiian hoary bat”, “Seabirds”, and “Hawaiian waterbirds” (above) for recommended measures to avoid and minimize impacts to the Hawaiian goose, Hawaiian hoary bat, Hawaiian petrel, Newell’s shearwater, Hawaiian black-necked stilt, Hawaiian moorhen, Hawaiian coot, and Hawaiian duck.

Because the proposed activities may cause soil erosion and sedimentation in sensitive aquatic habitats, 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. In addition to the guidance provided in this letter, the Service anticipates responding to the U.S. Army Corps of Engineers inter-agency notification process and providing further recommendations pursuant to the Fish and Wildlife Coordination Act of 1934 (FWCA), as amended (16 U.S.C. 661 et seq.; 48 Stat. 401); and the Clean Water Act (CWA), as amended (33 U.S.C. 1251 et seq.; 62 Stat. 1155).

If additional information becomes available, or it is determined that the proposed project may affect federally listed species, we recommend you coordinate with our office early in the planning process so that we may further assist you with Endangered Species Act compliance. We appreciate your efforts to conserve endangered species. Please contact Adam Griesemer, Endangered Species Biologist (phone: 808-285-8261, email: adam_griesemer@fws.gov) should you have any questions pertaining to this response.

Sincerely,

[Signature]

Aaron Nadig
Assistant Field Supervisor:
Oahu, Kauai, NWHI, Am.Samoan

Cc: Paul Luersen, CH2M HILL
U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service recommends that the measures below be incorporated into projects to minimize the degradation of water quality and minimize the impacts to fish and wildlife resources.

1. Turbidity and siltation from project-related work shall be minimized and contained within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.

2. Dredging/filling in the marine environment shall be scheduled to avoid coral spawning and recruitment periods and sea turtle nesting and hatching periods.

3. Dredging and filling in the marine/aquatic environment shall be designed to avoid or minimize the loss special aquatic site habitat (beaches, coral reefs, wetlands, etc.) and the function of such habitat shall be replaced.

4. All project-related materials and equipment (dredges, barges, backhoes, etc.) to be placed in the water shall be cleaned of pollutants prior to use.

5. No project-related materials (fill, revetment rock, pipe, etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.) or on beach habitats.

6. All debris removed from the marine/aquatic environment shall be disposed of at an approved upland or ocean dumping site.

7. No contamination (trash or debris disposal, non-native species introductions, attraction of non-native pests, etc.) of adjacent habitats (reef flats, channels, open ocean, stream channels, wetlands, beaches, forests, etc.) shall result from project-related activities. This shall be accomplished by implementing a litter-control plan and developing a Hazard Analysis and Critical Control Point Plan (HACCP – see http://www.haccp-nrm.org/Wizard/default.asp) to prevent attraction and introduction of non-native species.

8. Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases.

9. Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.

10. Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with native or non-invasive vegetation matting, hydroseeding, etc.).
January 9, 2015

U. S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
Attn: J. Michael Will, Program Engineering Manager
12300 West Dakota Avenue, Suite 330
Lakewood, CO 80228

Dear Mr. Will,

SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information, HFPM-16

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments sent to you dated December 18, 2014, enclosed are additional comments from the Division of Aquatic Resources on the subject matter. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

[Signature]
Russell Y. Tsuji
Land Administrator

Enclosure(s)
MEMORANDUM

TO: DLNR Agency:  
   X Div. of Aquatic Resources  
   X Div. of Boating & Ocean Recreation  
   X Engineering Division  
   X Div. of Forestry & Wildlife  
   X Div. of State Parks  
   X Commission on Water Resource Management  
   X Office of Conservation & Coastal Lands  

X Land Division – Oahu District  
X Land Division – Kauai District  
X Land Division – Maui District  
X Land Division – Hawaii District  
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information

LOCATION: Various (see cover letter) including all Districts except Maui

APPLICANT: Federal Highway Administration, Central Federal Lands Highway Division, in cooperation with the Hawaii Department of Transportation

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by December 18, 2014. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: William J. Aila, Jr.
Print Name: William J. Aila Jr.
Date: 12/23/14
MEMORANDUM

TO: William Aila Jr., Chairperson
DATE: 12/18/14
FROM: Glenn Higashi, Aquatic Biologist
SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information

Comment | Date Request | Receipt | Referral | Due Date
---------|--------------|---------|----------|-----------
12/2/14   | 12/3/14      | 12/4/12 | 12/18/14 |

Requested by: Russell Y. Tsuji, Administrator
Land Division

Summary of Proposed Project

Title: Notification of intent to Construct the Hawaii Bridge Program - Request for information

Project by: Federal Highway Administration, Central Federal Lands Highway Division, in cooperation with the Hawaii Department of Transportation

Location: Hawaii, Kauai, and Oahu

Brief Description:

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT), is planning to undertake environmental studies for the Hawaii Bridge Program. The program includes work on 12 bridges at 10 locations on the islands of Oahu (4 locations with 1 bridge each - Halona, Kawela, Nanahui, and Kipapa (Roosevelt bridge)); Kauai (4 locations with 3 locations with 1 bridge each and 1 location with 3 bridges - Bridge No. 7E, Hanapepe, Kapaa, and Wainiha; respectively); and Hawaii (2 locations with 1 bridge each - Ninole, Hilea).

The FHWA is requesting information regarding the known presence of listed species and designated critical habitat in the vicinity of each of the bridge projects to appropriately assess potential impacts for these projects.
They are also requesting DAR’s opinion on the likely impact of each of the bridge projects based on the potential issues of the location considering the proposed construction activities and schedule.

All the bridge projects would improve the safety and reliability of the existing bridges, through rehabilitation or replacement, addressing bridge width, load capacity, bridge railing and transitions, bridge approaches. Hanapepe bridge project would also include mitigation to the effects of scour. The project for Wainiha would involve the replacement of the 3 existing temporary bridges.

Comments:

For the aquatic biological resources there are no listed aquatic species and no known designated critical habitat in the vicinity of each of the bridge projects that may impose potential impacts for these projects.

The proposed replacement bridges are not expected to have any significant impact on the aquatic resource values in these areas. However, the stream channel should be maintained to provide a continuous connection to the ocean during stream flows resulting from heavy rains to accommodate the upstream migration of postlarval native Hawaiian stream animals and allow the downstream passage of larval drift to the ocean should recruitment or spawning occur.

Mitigative measures should be implemented during the rehabilitation or construction of the replacement bridges and to minimize the potential for erosion, siltation and pollution of the aquatic environment.

1) lands denuded of vegetation should be planted or covered as quickly as possible to prevent erosion and the vegetation cleared along stream banks should be removed and prevented from falling into the stream/estuary environment;

2) scheduling site work (particularly the excavation and demolition of existing bridge abutments, piers, footings and supports, the construction of bridge foundations structures, and stream bank hardening) during periods of minimal rainfall;

3) prevent construction materials, petroleum products, debris and landscaping products from falling, blowing or leaching into the aquatic environment during the rehabilitation /replacement of the bridges and their associated improvements.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.
Mary Abrams, Field Supervisor  
U.S. Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, HI 96850

Re: Section 7 Consultation for Proposed Bridge 7E Replacement Project, Kaumualii Highway (Route 50), Island of Kauai, Hawaii

Dear Ms. Abrams:

The Central Federal Lands Highway Division (CFLHD) of the Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), is proposing the replacement of Bridge 7E on Kaumualii Highway (Route 50), in the Koloa District on the island of Kauai, Hawaii. The purpose of the project is to improve Bridge 7E and its approaches to maintain the Kaumualii Highway as a safe and functional component of the regional transportation system for highway users and to alleviate maintenance issues in the channel caused by the deteriorated culvert. FHWA is the lead federal agency for this consultation.

The enclosed biological assessment (BA) addresses potential project impacts on federally listed threatened and endangered species, including three seabirds (the endangered Hawaiian petrel \textit{Pterodroma sandwichensis}, the threatened Newell’s shearwater \textit{Puffinus auricularis newelli}, and the proposed endangered band-rumped storm petrel \textit{Oceanodroma castro}), and the endangered Hawaiian hoary bat \textit{(Lasiurus cinereus semotus)}. The BA concludes the following:

- The Hawaiian petrel, Newell’s shearwater, and band-rumped storm-petrel are unlikely to occur in the action area because suitable habitat does not exist; however, these seabirds may be attracted to construction lights as they fly over the action area. The proposed project may affect, but is not likely to adversely affect the Hawaiian petrel and Newell’s shearwater. The proposed project is not likely to jeopardize the continued existence of the band-rumped storm petrel, which is proposed for listing.
- The action area contains habitat that could support roosting and foraging for the Hawaiian hoary bat. However, the timing of construction and minimal construction footprint will preclude any major or long-term effects, such that the project may affect, but is not likely to adversely affect the Hawaiian hoary bat.
- The project would have no effect on five endangered species (Hawaiian coot \textit{Fulica alai}, Hawaiian moorhen \textit{Gallinula chloropus sandvicensis}, Hawaiian stilt \textit{Himantopus mexicanus knudseni}, Hawaiian duck \textit{Anas wyvilliana}, and Hawaiian goose \textit{Branta sandvicensis}) as no suitable habitat for these species is present in the action area.
- No designated or proposed critical habitat for threatened or endangered species occurs in the action area.
To comply with Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(ESA), FHWA is requesting informal consultation on the Hawaiian petrel, Newell’s shearwater and the Hawaiian hoary bat, as well as the proposed endangered band-rumped storm petrel.

If you require further information or have questions, please contact Nicole Winterton, Environmental Protection Specialist, by email at Nicole.winterton@dot.gov or by phone at (720) 963-3689. We appreciate your assistance with this project.

Sincerely,

 Nicole Winterton
 Michael Will
 Project Manager

Enclosure:
Biological Assessment for the Proposed Bridge No. 7E Project, Kauumualii Highway, Route 50, Koloa, Kauai Island, Hawaii
# CONTENTS

1. **Introduction** ....................................................................................................................... 1  
   1.1. Consultation to Date.................................................................................................. 1  

2. **Proposed Action and Project Description** ............................................................................. 1  
   2.1. Replacement Structure .................................................................................... 3  
   2.2. Construction Activities..................................................................................... 3  
   2.3. Survey Area and Project Area .......................................................................... 4  
   2.4. Action Area....................................................................................................... 4  
   2.5. Conservation Measures .................................................................................. 5  

3. **Methodology and Species Covered in the Evaluation of Potential Impacts** .................. 7  

4. **Affected Environment** ........................................................................................................ 8  
   4.1. Soils and Hydrology ......................................................................................... 8  
   4.2. Vegetation ......................................................................................................... 9  
   4.3. Wildlife ........................................................................................................... 11  
      4.3.1. Birds ...................................................................................................... 11  
      4.3.2. Mammals .............................................................................................. 11  
      4.3.3. Terrestrial Reptiles and Amphibians .................................................... 11  
      4.3.4. Terrestrial Invertebrates ..................................................................... 11  
      4.3.5. Fish and Aquatic Invertebrates ............................................................ 12  

5. **Species and Critical Habitat Considered** ........................................................................... 12  
   5.1. U.S. Fish and Wildlife Service Critical Habitat ........................................... 14  

6. **Effects Analysis** .................................................................................................................... 14  
   6.1. Seabirds ........................................................................................................... 14  
   6.2. Hawaiian Hoary Bat ....................................................................................... 15  

7. **Conclusion** ......................................................................................................................... 16  

8. **Literature Cited** .................................................................................................................... 17
APPENDICES

Appendix A. Photographs of the Project Area

FIGURES

Figure 1. Kaumualii Bridge No. 7E survey area and project area. ......................................................... 2
Figure 2. Kaumualii Bridge No. 7E action area..................................................................................... 6
Figure 3. National Wetland Inventory classifications near the survey area. ........................................... 10

TABLES

Table 1. Birds Observed by SWCA in and near the Survey Area ....................................................... 11
Table 2. Species Federally Listed as Endangered or Threatened.......................................................... 12
1. INTRODUCTION

The Federal Highway Administration, Central Federal Lands Highway Division (FHWA), in partnership with the Hawai‘i Department of Transportation (HDOT), is proposing to replace Bridge No. 7E (project) to meet current design standards for roadway width, load capacity, bridge railing and transitions, and bridge approaches. CH2M HILL contracted SWCA Environmental Consultants (SWCA) on behalf of FHWA to complete a biological assessment (BA) for the project. Bridge No. 7E is on Kaumuali‘i Highway (Route 50), approximately 800 feet west of the Maluhia Road (Route 520) intersection at milepost 6.95 in Kōloa District, Island of Kaua‘i (Figure 1). Kaumuali‘i Highway is a rural minor arterial that serves as the primary route between Lihue and both Koloa and Waimea Districts.

The purpose of this BA is to evaluate the proposed project in sufficient detail to determine its potential effects on federally listed threatened and endangered species, proposed species, and candidate species for listing. No proposed species potentially occur in the project action area, and no proposed or designated critical habitat is present in the project action area.

Section 7(a)(1) of the Endangered Species Act (ESA) of 1973 (as amended) directs all federal agencies to participate in the conservation and recovery of threatened and endangered species. Section 7(a)(2) of the ESA states that each Federal agency shall consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. This project will be federally funded and FHWA is the lead agency for the Section 7 consultation.

1.1. Consultation to Date

Project Manager Michael Will from the U.S. Department of Transportation, FHWA–Central Federal Lands Highway Division, sent a letter to the USFWS on November 21, 2014, requesting a list of federally threatened and endangered species, candidate species, plants and animals of special concern, and critical habitats near the proposed action. The USFWS replied to the letter on December 22, 2014, listing the species that may occur on Kaua‘i along with recommended measures that the USFWS believes will reduce impacts on each species (USFWS 2014a). Conservation measures that will be incorporated into the proposed project are listed in section 2.5.

CH2M HILL hosted a meeting in their Honolulu Office on March 13, 2015, to discuss the Hawai‘i Bridges Program with the FHWA–Central Federal Lands Highway Division, USFWS, CH2M HILL, State of Hawai‘i Division of Aquatic Resources, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency, and SWCA. On December 11, 2014, CH2M HILL and SWCA also met with the U.S. Army Corps of Engineers at their Honolulu District Office. The purpose of these meetings was to introduce the project locations, and generally discuss potential biological and regulatory issues associated with the Hawai‘i Bridges Program.

2. PROPOSED ACTION AND PROJECT DESCRIPTION

The proposed action consists of replacing the existing Bridge No. 7E to address structural and functional deficiencies. The highway section at the bridge will be closed during the construction period, and a two-way bypass route and temporary stream crossing will be provided immediately mauka of the highway.

Components of the project, construction considerations, a description of the survey area and action area, as well as conservation measures to be incorporated into the project are described below.
Figure 1. Kaumuali'i Bridge No. 7E survey area and project area.
2.1. Replacement Structure

The existing structure was built in 1933 and is a two-cell box culvert, with a concrete bottom and wing wall abutments. The existing structure is approximately 32 feet wide. The structure currently accommodates two, 10-foot-wide travel lanes with 2-foot shoulders on both sides. The existing structure is considered both structurally deficient and functionally obsolete. In addition, HDOT has also had maintenance challenges with soil deposition and vegetation overgrowth in the culvert bottom. The project will also aim to address this issue.

Preliminary design anticipates a single-cell box culvert replacing the existing structure on the current highway alignment, with minor adjustments needed only to accommodate a wider bridge. The new structure is being designed to current standards for roadway width, load capacity, crash-tested barrier railing and transitions, and approach roadways. The anticipated proposed typical section of the new culvert would be 44 feet wide and consist of two, 12-foot-wide travel lanes, with two 8-foot-wide shoulders on each side, and two 2-foot-wide crash-tested barrier rails. As bridge design proceeds, project features will be studied and developed to further minimize impacts. Upon project completion, there would be no changes in highway operations (that is, the posted speed limit of 50 miles per hour [mph] will remain).

Adjustments to the roadway profile and alignment may be needed to accommodate the transitions and the new wider structure within the existing 60-foot right-of-way. The roadway approaches on each side would need to transition from the 2-foot-wide shoulders along the highway to the full 8-foot-wide shoulders on the new structure. The structure and roadway approaches are on generally flat terrain, but some fill and a widened embankment are anticipated on the approaches.

Preliminary geotechnical analyses indicate that soils at the structure transition to relatively soft and moderately compressible conditions at depths below 9 feet; therefore, deep foundations would be used to support the replacement structure. A new deep foundation system, either driven piles or drilled shafts, would support the replacement culvert. If piles are used, they would consist of concrete piles under each of the culvert walls. If drilled shafts are used, a large-diameter shaft (up to 60 inches) would be used to minimize the potential of drilling difficulty. The culvert’s depth would be similar to the existing structure so the hydraulic capacity of the stream would remain unchanged. The structure would be reinforced concrete and either precast or cast-in-place structures.

The current culvert is sized to accommodate irrigation flows; natural storm events are smaller than those flows. The proposed culvert is sized to match the existing culvert size, in accordance with HDOT Design Criteria for Highway Drainage (HDOT 2010). To address the accumulation of sedimentation and debris, the bottom of the new structure would have a concrete lining and be sloped to facilitate downstream flows. Grouted rubble paving aprons are anticipated to be constructed at the inlet and outlet of the drainage area for scour protection and vegetation control.

Utility relocations (temporary or permanent) may be required for this project and will be confirmed during final design. Activities may include relocation of a utility pole and associated overhead electrical lines or fiber optic lines on the mauka side of the highway. There is currently no highway lighting within the project limits, and none proposed by this project. The proposed project by FHWA includes only the road improvement activities. Operation and maintenance of the road are the responsibility of HDOT.

2.2. Construction Activities

A temporary bypass road is proposed to maintain traffic during construction. The temporary bypass will be adjacent to and mauka of the highway to minimize utility impacts. It provides a 10-foot-wide lane in
each direction, 2-foot-wide shoulders, and barriers, as needed. Temporary traffic control measures would be in place as needed throughout construction. Water flowing through the culvert would be routed through a pipe during removal of the existing culvert and construction of the new culvert and the associated wing walls.

The temporary bypass road would cross the stream using a vented low-water crossing. This type of crossing uses temporary pipes or culverts that would be placed at the bottom of the stream channel and be sized to accommodate the 5-year flood flow. The pipe would be covered with fill material to create a driving surface. The total duration of construction is anticipated to last approximately 11 months.

Personnel and equipment will be staged within the project area, potentially in a grassy area along the eastern approach to the structure, mauka of the highway. This potential staging area is approximately 20 feet wide and 350 feet long. Standard construction equipment would be used, such as track-mounted dozers, loaders, excavators, cranes, compactors, dump trucks, and pickup trucks. Demolition debris would require disposal at an approved landfill offsite.

Night work is generally not anticipated. However, for traffic control reasons, some phases of construction—for example, tying the temporary bypass road into the highway or bringing the new structure on line—may be performed at night when traffic volumes are lower. No night work will be scheduled during periods that would have an adverse effect on biological resources.

It is unknown if the contractor will install temporary fencing on the project site; if so, the fence’s design will adhere to conservation measures listed in section 2.5. The project does not include permanent fencing.

Project improvements would occur within the existing HDOT right-of-way and on private property. The proposed project would require permanent easements on private properties located outside the existing 60-foot right-of-way. HDOT would execute a construction parcel agreement to use adjacent lands during construction.

2.3. Survey Area and Project Area

The survey area is the area within which field observations were made during September 2014 site visits by SWCA biologists. The project area is defined as all areas where direct project impacts (permanent and temporary) are proposed to occur. The survey area and project area are nearly identical. The project area encompasses roughly 4.4 acres (1.8 hectares [ha]) and stretches approximately 1,400 feet (427 meters [m]) along Kaumuali‘i Highway (Figure 1). The existing right-of-way within the project area is approximately 60 feet (18 m) wide. Elevations in the project area range from roughly 635 to 645 feet (194 to 197 m) above mean sea level. Most of the project area follows a shallow slope gradient from east to west, with marked depressions in topography attributed to streamflow from the intermittent stream. The surrounding area is predominantly undeveloped and agricultural land, used predominantly for timber cultivation.

2.4. Action Area

The action area is defined in the ESA (50 CFR 402.02) as the area within which all of the direct and indirect effects of the project will occur. In other words, it is the geographic area that will be affected by construction and maintenance of the project. The Bridge No. 7E action area was determined based on potential for construction noise to travel through the surrounding area. This is because noise would be the most far-reaching impact resulting from the proposed action. The action area (Figure 2) extends 1,000
feet from the project area, covering 125.6 acres (50.8 ha). The 1,000-foot (305-m) buffer defines the action area based on the distance a 100 A-weighted-decibel (dBA) noise (such as a rock drill, paver, or impact pile driver) would attenuate to background levels (approximately 50 dBA) over flat terrain with little to no vegetation. This area is conservatively defined, and likely encompasses an area larger than the area within which all impacts would occur. The actual distance that noise effects would occur is likely smaller than the action area due to quieter equipment being used and local topography and vegetation shielding the produced noise.

2.5. Conservation Measures

Implementation of the proposed action will include a variety of conservation measures to reduce or eliminate project-related impacts and avoid adverse effects to listed species. Conservation measures for the proposed action include the following:

- If an endangered Hawaiian waterbird is present or flies into the area during ongoing activities, all activities within 100 feet (30 m) of the bird will cease, and the bird will also not be approached. Work may continue after the bird leaves the area of its own accord. All regular on-site staff will be trained to identify listed waterbirds that may be found on-site, and they will know the appropriate steps to take if listed waterbirds are present.

- Night work is not anticipated, but may be unavoidable. Construction activity will be restricted to daylight hours during the seabird peak fallout period (September 15–December 15) to avoid the use of nighttime lighting that could attract seabirds.

- No existing street lights occur in the project area, and none are expected as part of the project; however, if required, all outdoor lights will be shielded to prevent upward radiation. This has been shown to reduce the potential for seabird attraction (Reed et al. 1985; Telfer et al. 1987). A selection of acceptable seabird-friendly lights can be found online at the Kauaʻi Seabird Habitat Conservation website (2013).

- No permanent fencing is expected; however, if any fences are erected as part of the project, they will have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the survey area were observed with barbed wire during the survey; however, if fences are present, the top strand of barbed wire will be removed or replaced with barbless wire.

- No trees taller than 15 feet (4.6 m) will be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.
Figure 2. Kaumuali‘i Bridge No. 7E action area.
3. METHODOLOGY AND SPECIES COVERED IN THE EVALUATION OF POTENTIAL IMPACTS

The USFWS maintains lists of endangered, threatened, proposed, and candidate species known or thought to occur in Hawai‘i. The USFWS also designates critical habitat in the state for some listed species. Endangered and threatened species are protected under the ESA (16 United States Code [USC] 1531 et seq.). The ESA specifically prohibits take, which is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct” of a listed species. Harm includes “significant habitat modification or degradation that kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”

All information on the vegetation and wildlife in the action area was derived from biological surveys conducted by SWCA in September 2014. In addition to recording wildlife and plants during the surveys, SWCA evaluated habitat for the possible occurrence of federally-listed species. As part of that habitat evaluation effort, the presence of any water, wetlands, and special soils was documented.

The species evaluated in this report are all federally protected (endangered and threatened) species, proposed species, and candidates for federal listing.

The determination of potential for local species occurrence was based on 1) existing information on distribution and 2) qualitative comparisons of the habitat requirements of each species with vegetation communities, landscape features, and/or water quality conditions in the survey area. Possible impacts to these species were evaluated based on reasonably foreseeable project-related activities and the local loss of habitat.

Federally-listed species were evaluated for potential to occur in the action area using the following categories:

- **Known to occur**: The species was documented in the action area either during or before the field surveys by a reliable observer.
- **May occur**: The action area is within the species’ currently known range, and vegetation communities, soils, water quality conditions, etc., resemble those known to be used by the species.
- **Unlikely to occur**: The action area is within the species’ currently known range, but vegetation communities, soils, water quality conditions, etc., do not resemble those known to be used by the species, or the survey area is clearly outside the species’ currently known range.

Species with the potential to occur in the action area were then further evaluated for possible impacts from the proposed action. However, effect determination categories are defined differently based on the exact legal status of a species and the mandates and responsibilities of the agency tasked to manage or protect that species. Federally protected (i.e., threatened or endangered) species were assigned to one of three categories of possible effect, following USFWS guidelines.

- **No effect**: A determination of no effect means there are absolutely no effects to the species and its critical habitat, either positive or negative. It does not include small effects or effects that are unlikely to occur.
- **May affect, is not likely to adversely affect**: Under this effect determination, all effects to the species and its critical habitat are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without adverse effects to the species (for example, there cannot be “balancing,” so that the benefits of the action will outweigh the adverse effects). Discountable effects relate to the magnitude of the impact and should not reach the scale where
take occurs. Discountable effects are considered extremely unlikely to occur. Based on best judgment, a person will not 1) be able to meaningfully measure, detect, or evaluate discountable effects or 2) expect discountable effects to occur. Determinations of “not likely to adversely affect, due to beneficial, insignificant, or discountable effects” require written concurrence from the USFWS.

- **May affect, is likely to adversely affect:** This effect determination means that the proposed action will have an adverse effect on the species or its critical habitat. Any action that will result in “take” of an endangered or threatened species is considered an adverse effect. A combination of beneficial and adverse effects is still considered “likely to adversely affect,” even if the net effect is neutral or positive. The effect on the species and/or critical habitat must be extremely small to qualify as a discountable effect. Likewise, an effect that can be detected in any way or that can be meaningfully articulated in a discussion of the results of the analysis is not discountable; it is an adverse effect.

As directed by the USFWS, species proposed or candidates for listing are evaluated using the following effect determination categories. *Jeopardy* is defined under the ESA as occurring when “an action is reasonably expected, directly or indirectly, to diminish a species’ numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced.”

- No effect.
- Not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat.
- Likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat.

### 4. AFFECTED ENVIRONMENT

SWCA conducted a review of available scientific and technical literature regarding natural resources in and near the survey area and action area. This literature review encompassed a thorough search of refereed scientific journals, technical journals and reports, environmental assessments and environmental impact statements, relevant government documents, and unpublished data that provide insight into the natural history and ecology of the area. SWCA also reviewed available geospatial data, aerial photographs, and topographic maps of the survey area.

A field reconnaissance of the survey area was conducted by SWCA biologists on September 17, 2014, and September 29, 2014. Representative portions of the area were driven or walked to describe vegetation types, fauna, and wetlands or streams, as well as known or suspected threatened, endangered, or candidate wildlife or plant species.

#### 4.1. Soils and Hydrology

The action area is underlain by the Kōloa Volcanics, which erupted 0.15–3.85 million years ago (Sherrod et al. 2007). The Natural Resources Conservation Service (NRCS) identifies two soil types in the survey area: Hali‘i gravelly silty clay (HfB), 3%–8% slopes and Kapa’a silty clay (KkB), 3%–8% slopes (Foote et al 1972; NRCS 2013).

Mean annual rainfall for this area is approximately 84.5 inches (2,147 millimeters [mm]). Rainfall is typically highest in November–December and lowest in June (Giambelluca et al. 2013). The closest rainfall gage to the site has experienced above-average rainfall for 2014 through the end of September.
The U.S. Geological Survey (USGS) and the State of Hawai‘i Division of Aquatic Resources identify an intermittent stream bisecting the action area (Figure 3). USGS data show the un-named stream as a small, non-permanent tributary flowing into Mauka Reservoir and into the Waikomo Stream. The Waikomo Stream, within the Waikomo Watershed, is approximately 21.6 miles (34.7 kilometers) long and flows south, terminating in Hanaka‘ape Bay in Po‘ipū (Parham et al. 2008). The State of Hawai‘i names the feature under Bridge No. 7E the Weoweopilau tributary, part of Hulē‘ia Stream (Parham et al. 2008). Hulē‘ia Stream is within the Hulē‘ia Watershed and flows east into Nawiliwili Bay in Līhu‘e, Kaua‘i. However, based on aerial imagery, the stream under the bridge appears to flow south as a minor tributary within the Waikomo Watershed. The stream channel also conveys irrigation water from an upstream reservoir. No wetlands are present in the survey area (see Figure 3).

4.2. Vegetation

No state or federally listed threatened, endangered, or candidate plant species and no native Hawai‘i plants were recorded in the survey area.1 The vegetation in the survey area is composed of five main vegetation types: guinea grass grassland, albizia forest, eucalyptus forest, riparian, and ruderal vegetation.

Guinea Grass Grassland: Guinea grass (Urochloa maxima) forms dense mats, reaching heights of 7 feet (2 m) in some areas adjacent to the highway (Appendix A, Figures A1 and A2). Very few other weedy species occur in this vegetation type. Small koa haole (Leucaena leucocephala) trees, albizia (Falcataria moluccana) seedlings, and maile pilau (Paederia foetida) vine are uncommon.

Albizia Forest: A large portion of the survey area comprises monotypic albizia stands (Appendix A, Figure A2) that maintain a canopy cover of 50% or greater. The understory is largely dominated by Guinea grass.

Eucalyptus Forest: Portions of the survey area are forested with rainbow eucalyptus trees (Eucalyptus deglupta). The understory is largely dominated by Guinea grass.

Riparian: The riparian vegetation type occurs in the non-perennial streambed. Common species in this area include Job's-tears (Coix lachryma-jobi), Guinea grass, octopus tree (Schefflera actinophylla), Koster's curse (Clidemia hirta), and ginger (Alpinia sp.).

Ruderal Vegetation: This vegetation type occurs in and along the highway right-of-way. It is dominated by a mix of non-native herbaceous plants. Abundant and common species found in the ruderal vegetation type are Guinea grass, swollen fingergrass (Chloris barbata), Spanish needle (Bidens pilosa), maile hohono (Ageratum conyzoides), graceful spurge (Euphorbia hypericifolia), pualele (Emilia fosbergii), kili‘o’opu (Kyllinga nemoralis), elephant grass (Cenchrus purpureus), and Hilo grass (Paspalum conjugatum). These weedy areas are likely mowed occasionally.

1 The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999), Wagner and Herbst (2003), and Staples and Herbst (2005). Recent name changes are those recorded in Wagner et al. (2012). Common/Hawaiian names are provided first, followed by scientific names in parenthesis. If no common or Hawaiian name is known, only the scientific name is provided.
Figure 3. National Wetland Inventory classifications near the survey area.
4.3. **Wildlife**

Fauna surveys consisted of a pedestrian survey on September 17 and 29, 2014, before 11 am or after 4 pm when wildlife was most likely active. Field observations of birds were conducted using 8 × 42–mm binoculars. Visual and auditory observations were included in the survey. All observed birds, mammals, reptiles, amphibians, fish, and invertebrate species were noted during the survey.

Field surveys for the endangered Hawaiian hoary bat or ‘ōpe‘ape‘a (*Lasiurus cinereus semotus*) were not conducted; however, areas of suitable habitat for foraging and roosting were noted when present.

The following section describes common wildlife observed during the September 2014 field surveys.

### 4.3.1. **Birds**

The bird species observed in and near the survey area are species typically found in disturbed lowland areas. In all, four bird species were documented (Table 1). All four species are introduced to the Hawaiian Islands. The native migrant Pacific golden-plover (*Pluvialis fulva*) could also occur in the survey area.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle egret</td>
<td><em>Bubulcus ibis</em></td>
<td>NN</td>
</tr>
<tr>
<td>House finch</td>
<td><em>Haemorhous mexicanus</em></td>
<td>NN</td>
</tr>
<tr>
<td>Hwamei</td>
<td><em>Garrulax canorus</em></td>
<td>NN</td>
</tr>
<tr>
<td>Japanese white-eye</td>
<td><em>Zosterops japonicus</em></td>
<td>NN</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

### 4.3.2. **Mammals**

Dogs (*Canis familiaris*) and cats (*Felis catus*) were not observed during the survey, but they are likely to enter the survey area. Other mammals that can be expected on-site include mice (*Mus musculus*) and rats (*Rattus* spp.).

### 4.3.3. **Terrestrial Reptiles and Amphibians**

No reptiles or amphibians were seen during the survey. None of the terrestrial reptiles or amphibians in Hawai‘i are native to the islands.

### 4.3.4. **Terrestrial Invertebrates**

Four species of terrestrial invertebrates were noted during the survey. These include two non-native snails: the giant African snail (*Achatina fulica*) and another snail (*Subulina octona*). Also observed were the large orange sulphur butterfly (*Phoebis agarithe*) and the native indigenous globe skimmer (*Pantala flavescens*).
4.3.5. Fish and Aquatic Invertebrates

Due to low stream flow and poor visibility (see Figures A3 and A4 in Appendix A), an instream survey was not conducted.

5. SPECIES AND CRITICAL HABITAT CONSIDERED

The species evaluated in this report consist of all federally protected (i.e., endangered and threatened), proposed species, and candidate species.

5.1. Species

The USFWS lists nine species that may occur in the action area: seven endangered species, one threatened species, and one proposed endangered species (Table 2). Based on current distribution and habitat requirements, one of these species—the Hawaiian hoary bat—has the potential to use the habitat of the action area; this species is discussed in further detail in section 6.1.2. The Hawaiian petrel (Pterodroma sandwichensis), Newell’s shearwater (Puffinus auricularis newelli), and band-rumped storm-petrel (Oceanodroma castro) are unlikely to occur in the action area because suitable habitat does not exist; however, these seabirds may be attracted to construction lights as they fly over the action area.

Table 2. Species Federally Listed as Endangered or Threatened

<table>
<thead>
<tr>
<th>Common Name (scientific name)</th>
<th>Status*</th>
<th>Range or Habitat Requirements†</th>
<th>Potential for Occurrence in Action Area</th>
<th>Determination of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaiian coot (Fulica alai)</td>
<td>Endangered</td>
<td>Found in freshwater and brackish-water marshes and ponds. On Kaua‘i, this species is associated with emergent marsh habitat in lowland valleys, reservoirs, and occasionally in high-elevation plunge pools. Nests are built on floating vegetation.</td>
<td>Unlikely to occur; no suitable emergent marsh or reservoir habitat is present in the action area.</td>
<td>No effect.</td>
</tr>
<tr>
<td>Hawaiian moorhen (Gallinula chloropus sandvicensis)</td>
<td>Endangered</td>
<td>Found in freshwater marshes, taro patches, irrigation ditches, reservoirs, and wet pastures. This species favors dense emergent vegetation near open water, floating or barely emergent mats of vegetation, and water depths of less than 3 feet. It prefers freshwater over saline or brackish water. Nesting occurs throughout the year.</td>
<td>Unlikely to occur; no suitable nesting habitat is present in the action area.</td>
<td>No effect.</td>
</tr>
<tr>
<td>Hawaiian stilt (Himantopus mexicanus knudseni)</td>
<td>Endangered</td>
<td>Prefers a variety of aquatic habitats but is limited by water depth and vegetation cover. This species likes to loaf around in open mudflats, sparsely vegetated pickleweed mats, and open pasture lands. Specific water depths of 5 inches are required for optimal foraging. Nest sites are frequently separated from feeding sites, and stilts move between these areas daily. Nesting sites are adjacent to or on low islands within bodies of fresh, brackish, or salt water.</td>
<td>Unlikely to occur; no suitable nesting or foraging habitat is present in the action area.</td>
<td>No effect.</td>
</tr>
</tbody>
</table>
Table 2. Species Federally Listed as Endangered or Threatened

<table>
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<tr>
<th>Common Name (scientific name)</th>
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<th>Potential for Occurrence in Action Area</th>
<th>Determination of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaiian duck (Anas wyvilliana)</td>
<td>Endangered</td>
<td>Found in lowland wetlands, river valleys, and mountain streams. They nest on the ground. Breeding can occur throughout the year.</td>
<td>Unlikely to occur; suitable nesting and foraging sites do not occur in the action area because the stream bisecting the action area is intermittent.</td>
<td>No effect.</td>
</tr>
<tr>
<td>Hawaiian goose, or nēnē (Branta sandvicensis)</td>
<td>Endangered</td>
<td>Frequents scrubland, grassland, golf courses, sparsely vegetated slopes, and on Kaua‘i, in open lowland country. They do not require standing or flowing water for successful breeding but will use it when available. Their current distribution has been highly influenced by captive-bred releases into the wild.</td>
<td>Unlikely to occur due to the lack of shrub cover and the abundance of tall grass; no suitable habitat is present in the action area.</td>
<td>No effect.</td>
</tr>
<tr>
<td>Hawaiian petrel (Pterodroma sandwichensis)</td>
<td>Endangered</td>
<td>Breeding season is from March to October, during which time this species nests in some of the main Hawaiian Islands, notably on Maui, Lāna‘i, and Kaua‘i. They nest in burrows, primarily in remote montane locations, along large rock outcrops, under cinder cones, under old lichen-covered lava, or in soil beneath dense vegetation. Burrows are generally 3–6 feet long (from entrance to nest chamber), although some may be as long as 15 feet. One white egg is laid deep within the burrows. This species was once abundant on all main Hawaiian islands except Ni‘ihau. Today, the largest known breeding colonies are found at Haleakala Crater on Maui and on the summit of Lāna‘i. Other colonies are on Kaua‘i, the island of Hawai‘i, and possibly Moloka‘i.</td>
<td>Unlikely to occur in the action area. Hawaiian petrels may fly over the action area at night while transiting between nest sites and the ocean, but they are not likely to land or use habitat because nesting habitat does not occur in the action area.</td>
<td>May affect, but is not likely to adversely affect.</td>
</tr>
<tr>
<td>Newell’s shearwater (Puffinus auricularis newelli)</td>
<td>Threatened</td>
<td>During their 9-month breeding season from April through November, this species nests in burrows under ferns on forested mountain slopes and needs an open downhill flight path through which it can become airborne. These burrows are used year after year and usually by the same pair of birds. The Newell’s shearwater was once abundant on all main Hawaiian islands. Today, Newell’s shearwater breed on Kaua‘i, the island of Hawai‘i, Moloka‘i, and Lehua. Breeding on Maui and Oah‘u has not been confirmed (Mitchell et al. 2005).</td>
<td>Unlikely to occur in the action area. Newell’s shearwater may fly over the action area at night while transiting between nest sites and the ocean, but are not likely to land or use habitat because nesting habitat does not exist in the action area.</td>
<td>May affect, but is not likely to adversely affect.</td>
</tr>
<tr>
<td>Band-rumped Storm Petrel (Oceanodroma castro)</td>
<td>Proposed endangered</td>
<td>This species is found in several areas of the subtropical Pacific and Atlantic Oceans. In Hawai‘i, it is known to nest on Kaua‘i, Lehua Islet, and the Island of Hawai‘i. It likely nests in remote cliff locations. Only three inactive nests have ever been found in the Hawaiian Islands; all were located in small caves or crevices. Adults visit the nest site after dark. When not at nest locations, it forages on the open ocean.</td>
<td>Unlikely to occur in the action area. Band-rumped storm petrel may fly over the action area at night while transiting between nest sites and the ocean, but are not likely to land or use habitat because nesting habitat does not exist in the action area.</td>
<td>Not likely to jeopardize the continued existence.</td>
</tr>
</tbody>
</table>
Table 2. Species Federally Listed as Endangered or Threatened

<table>
<thead>
<tr>
<th>Common Name (scientific name)</th>
<th>Status*</th>
<th>Range or Habitat Requirements†</th>
<th>Potential for Occurrence in Action Area</th>
<th>Determination of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaiian hoary bat (<em>Lasiurus cinereus semotus</em>)</td>
<td>Endangered</td>
<td>This species is found primarily from sea level to 7,500 feet, although it has also been observed above 13,000 feet. Most of the available documentation suggests that this elusive bat roosts among trees in forested areas. It has been observed on the islands of Hawai‘i, Maui, Moloka‘i, O‘ahu, and Kaua‘i.</td>
<td>May occur in the action area. The action area contains habitats that could support Hawaiian hoary bat roosting and foraging.</td>
<td>May affect, but is not likely to adversely affect.</td>
</tr>
</tbody>
</table>

* Federal (USFWS) status definitions:

Endangered: Any species considered by the USFWS as being in danger of extinction throughout all or a significant portion of its range. The ESA specifically prohibits the take of a species listed as endangered. Take is defined by the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct.

Threatened: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The ESA specifically prohibits the take (see definition above) of a species listed as threatened.

Proposed: Any species of fish, wildlife, or plant that is proposed in the Federal Register to be listed under Section 4 of the ESA.

† Unless otherwise noted, data are from USFWS (2014b).

5.2. U.S. Fish and Wildlife Service Critical Habitat

No designated or proposed critical habitat for threatened or endangered species occurs in the action area.

6. EFFECTS ANALYSIS

Federally protected species that may be affected by the proposed action are discussed in detail in this section. These species are Hawaiian petrel, Newell’s shearwater, band-rumped storm petrel (collectively referred to as Seabirds), and Hawaiian hoary bat, respectively. Species that will not be affected by the proposed action are discussed in Table 2 and are not evaluated in detail in this section.

6.1. Seabirds

The endangered Hawaiian petrel, threatened Newell’s shearwater, and proposed endangered band-rumped storm-petrel constitute the seabirds group. Because these species share similar habitat needs and biological characteristics, they are discussed as a single group.

The Hawaiian petrel was listed as an endangered species on March 11, 1967. The Hawaiian petrel was once abundant on all main Hawaiian Islands except Ni‘ihau (Mitchell et al. 2005). The population was most recently estimated to consist of approximately 20,000 individuals, with 4,000–5,000 breeding pairs (Spear et al. 1995).

Band-rumped storm petrels are considered the rarest breeding seabird in Hawai‘i (Banko et al. 1991; Slotterback 2002). Listing of the band-rumped storm petrel under the ESA is anticipated to occur in 2016. In the Pacific Ocean, breeding colonies have been documented in the Galapagos Islands, Japan, and the Hawaiian Islands (Pyle and Pyle 2009; USFWS 2015).

The Newell’s shearwater was listed as a threatened species by the USFWS in 1975. The largest breeding population of Newell’s shearwater occurs on Kaua‘i (Telfer et al. 1987; Ainley et al. 1995, 1997; Day et
al. 2003). This species has also been documented on Hawai‘i (Reynolds et al. 1997), Moloka‘i (Day and Cooper 2002), and O‘ahu (Day and Cooper 2008).

The types of habitat used for seabird nesting are diverse and range from xeric habitats with little or no vegetation, such as at Haleakalā National Park on Maui, to wet forests dominated by ‘ōhi’a (Metrosideros polymorpha) with uluhe (Dicranopteris linearis) understory, such as those found on Kaua‘i (Mitchell et al. 2005). Nests are located in various naturally occurring features such as lava tubes, cracks in tumuli (fractured hills on the surface of pāhoehoe flows), spaces created by uplift of pāhoehoe slabs, and other miscellaneous natural features (Hu et al. 2001; Mitchell et al. 2005; Pyle and Pyle 2009).

The main factors contributing to population declines of ground-nesting seabirds such as Hawaiian petrels are habitat degradation; the loss of nesting habitat; predation of eggs, hatchlings, and adults at nesting sites by introduced mammals (e.g., dogs, mongooses [Herpestes javanicus], cats, rats, and pigs [Sus scrofa]); and urban lighting associated with disorientation and fall-out of juvenile birds (Banko et al. 1991; Ainley et al. 1997; Mitchell et al. 2005; Hays and Conant 2007).

6.1.1. Effects Analysis and Determination

The action area does not provide suitable nesting or foraging habitat for these seabirds. However, breeding individuals may fly over the action area at night while travelling between upland nesting and ocean foraging sites. Disorientation and fall-out as a result of light attraction could occur to individuals attracted to nighttime construction lighting. The conservation measures regarding nighttime lighting, as listed in section 2.5, will minimize potential for light attraction, reducing it to an unlikely and discountable impact.

Because all impacts on the Hawaiian petrel and Newell’s shearwater would be discountable, the proposed action may affect, but is not likely to adversely affect, individuals or populations of these species.

Because all impacts on the band-rumped storm petrel would be discountable, the proposed action is not likely to jeopardize the continued existence of individuals or populations of the species.

6.2. Hawaiian Hoary Bat

The Hawaiian hoary bat was listed as an endangered species on October 13, 1970, under the ESA and the State of Hawai‘i's Endangered Species List. Hawaiian hoary bat is found on Hawai‘i, Maui, Moloka‘i, O‘ahu, and Kaua‘i and has been observed from sea level to approximately 13,000 feet (3,963 m) (USFWS 2014b).

The Hawaiian hoary bat is the only native terrestrial mammal that is still extant within the Hawaiian Islands (USFWS 1998). Hawaiian hoary bats use both closed habitats near vegetation such as tunneled roadways, and open habitats adjacent to forests, above tree canopies, and over open oceans (Jacobs 1996). Hawaiian hoary bats are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands up to 300 feet (100 m) offshore (U.S. Department of Agriculture 2009). Hawaiian hoary bats forage in open, wooded, and linear habitats with a wide range of vegetation types (USFWS 2014b). The bat typically roosts in dense canopy foliage or in the subcanopy when canopy is sparse, with open access for launching into flight (U.S. Department of Agriculture 2009).

Hawaiian hoary bats are believed to be threatened by habitat loss, pesticides, predation, and roost disturbance. Reduction of tree cover and indirect impacts from the use of pesticides may be the primary causes of recent declines (USFWS 2014b).
6.2.1. Effects Analysis and Determination

Acoustic surveys for Hawaiian hoary bats were not conducted, but areas of suitable habitat for roosting and foraging were noted during the biological survey. The stream/river corridor and riparian vegetation type in the action area are suitable for bat foraging. The Hawaiian hoary bat has been observed roosting in eucalyptus and albizia trees and could roost in the albizia forest and eucalyptus forest vegetation types in the action area.

Direct impacts to bats could occur during vegetation removal if a juvenile bat that is too small to fly but too large to be carried by a parent is present in a tree or branch that is cut down. However, because of the conservation measure that trees will not be cut during the breeding season (June 1 through September 15), direct impacts are unlikely to occur. The potential for direct impacts would also be reduced by ensuring the top wire strand of surrounding fences (if present) is barbless, as listed in the conservation measures.

The permanent removal of roosting habitat would constitute a long-term indirect impact. This impact would be discountable because of the small amount of habitat removed under the proposed action and the availability of adjacent roosting habitat for displaced bats to use. While some permanent vegetation removal would occur (e.g., widening the travel lanes and shoulders), the majority of the vegetation removal would be temporary.

In the short term, the human noise and disturbance associated with construction activities could temporarily displace bats from roosting and/or foraging habitats. This displacement could alter an individual’s typical foraging and roosting patterns, forcing it to expend energy to search for new foraging and roosting locations. Displacement from roosting habitat could lead to increased predation on individual bats if a bat is forced to leave its roost during daylight hours, making it more visible to potential predators. The potential for these impacts is low considering both that the project will occur on and immediately adjacent to a heavily traveled roadway and the sufficient availability of nearby habitat.

Because all impacts on the Hawaiian hoary bat would be discountable or insignificant, the proposed action may affect, but is not likely to adversely affect, individuals or populations of the species.

7. CONCLUSION

Four of the federally protected species (see Table 2) have the potential to occur in the action area. The Hawaiian petrel, Newell’s shearwater, and band-rumped storm petrel are unlikely to occur, and Hawaiian hoary bat may occur. Potential impacts from the proposed project to these species are expected to be temporary, and discountable and insignificant. As detailed above, the timing of construction (see section 2.5) and minimal construction footprint will preclude any major or long-term effects to these federally protected species. In general, no major or long-term effects are anticipated from the implementation of the proposed project.

In conclusion, the proposed project may affect, but is not likely to adversely affect the federally listed Hawaiian petrel, Newell’s shearwater, and Hawaiian hoary bat. The proposed project is not likely to jeopardize the continued existence of the band-rumped storm petrel, which is proposed for listing.
8. LITERATURE CITED


Appendix A

Photographs of the Project Area
Appendix A. Photographs of the Survey Area

Figure A1. Guinea grass grassland, showing dense and tall grass.

Figure A2. Ruderal vegetation along the guardrail and albizia forest in the background along Kaumualii Highway.
Figure A3. Bridge No. 7E, with concrete vertical walls, and low stream flow. Photograph by CH2M HILL.

Figure A4. Bridge No. 7E poor water visibility.
Appendix D

National Historic Preservation Act Section 106
and HRS Chapter 6E Consultation Documentation
STATE OF HAWAII
City and County of Honolulu

Doc. Date: AUG 28 2015 # Pages: 1
Notary Name: Patricia K. Reese First Judicial Circuit
Doc. Description: Affidavit of Publication

Lisa Kaukanakauwimami 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 0 times on:
MidWeek 0 times on:
The Garden Island 1 times on:
08/28/2015
Hawaii Tribune-Herald 0 times on:
West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affidavit is not a party to or in any way interested in the above entitled matter.

Lisa Kaukanakauwimami
Subscribed to and sworn before me this 28th day of AUG 2015 A.D. 2015

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2018
Ad # 0000791402

NOTICE OF CONSULTATION
AND CHAPTER 86 OF THE HAWAI'I REVISED STATUTES
BRIDGE NO. 7E REPLACEMENT PROJECT
KOA DISTRICT, KOA ISLAND, KOA AHU PUA
FEDERAL-AID PROJECT NUMBER: H-37 SRRS(S2)
TAX MAP KEYS: (42-7-002-361) (42-7-001-304), and (42-7-001)
(Kaumualii Highway Right-of-Way)
Notice is hereby given that the Federal Highway Administration, Central Federal Lands Highway Division and State of Hawai'i Department of Transportation, Highways Division propose to replace Bridge No. 7E on Kaumualii Highway State Highway 50 (HI-50) at Mile Post 6.95 in Koa Ahupua'a in Koa District on Kaua'i. The proposed project would replace the existing Bridge No. 7E and its approaches to maintain the stream crossing on HI-50 as a safe and functional component of the regional transportation system for highway users. The project would replace the existing double box culvert with a new single-cell box culvert and would accommodate two 12-foot travel lanes, two 8-foot shoulders, and guardrails. The potential area of disturbance, including temporary construction areas, is 2.1 acres.
Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended 2006, and Chapter 86 of the Hawai'i Revised Statutes, Native Hawaiian organizations and Native Hawaiian descendants with ancestral, lineal or cultural ties to, cultural knowledge or concern for, and cultural or religious attachment to the proposed project area are requested to contact N. Michael Will via email at Michael.Will@pildr.com or US Postal Service to 12350 West Dakota Avenue, Suite 300, Lakewood, CO 80228-2583.
Please respond by September 30, 2015.

SP. NO.: L.N.
Central Federal Lands Highway Division
12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228
Office: 720-963-3647
Fax: 720-963-3596
Michael.Will@dot.gov

In Reply Refer To:
HFPM-16

TO: ALAN DOWNER
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BLVD, SUITE 555
KAPOLEI, HI 96707

FROM: J. MICHAEL WILL, P.E.
PROJECT MANAGER

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 AND HAWAII REVISED STATUTES, CHAPTER 6E CONSULTATION
BRIDGE NO. 7E REPLACEMENT PROJECT
KOLOA DISTRICT, KAUAI ISLAND, KOLOA AHUPUAA
PROJECT NO. HI STP SR50(2)
TAX MAP KEY: (4)2-7-002:001 (POR.), (4)2-7-001:004 (POR.), AND (4)2-7-001 KAUMUALII HIGHWAY RIGHT-OF-WAY

Dear Mr. Downer:

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in partnership with the State of Hawaii Department of Transportation (HDOT), is proposing to replace Bridge Number (No.) 7E on Kaumualii State Highway 50 (HI-50), located at Mile Post (MP) 6.95 (see attached Area of Potential Effects USGS Map for project location). The proposed project is considered a federal action and undertaking, and will comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006), as well as Hawaii Revised Statutes (HRS) Chapter 6E. We would like to invite you to participate in the Section 106 consultation for the proposed project in accordance with Title 36 of the Code of Federal Regulations, Section 800.3, by providing information and/or by requesting to be a consulting party. This letter also initiates consultations in accordance with HRS Chapter 6E.

Overview of the Undertaking

The proposed project would replace the existing Bridge No. 7E and its roadway approaches to maintain the crossing over the unnamed intermittent water way on HI-50 as a safe and functional component of the regional transportation system for highway users. The bridge is located at milepost 7.0 on Kaumualii Highway, approximately 800 feet west of its intersection with Maluhia Road. The existing structure, which is a double box culvert, would be demolished and replaced with a single-cell box culvert. The bridge is not eligible for listing on the National Register of Historic Places (NRHP).
The proposed new bridge structure would be approximately 30 feet long and 44 feet wide, to accommodate two 12-foot travel lanes with 8-foot shoulders and guardrails on both sides. The roadway approaches to the bridges would be widened, which would require extending embankment slopes.

During construction, Bridge No. 7E would be closed to traffic, and a temporary bypass road would be constructed to maintain traffic over the stream. A low-water crossing upstream of the existing bridge is recommended for the temporary bypass road because flows in the stream are relatively low.

The proposed improvements would occur within the existing HDOT right-of-way and would extend approximately 20 to 50 feet into adjacent private property. Construction parcels (temporary easements) would be needed from the privately owned parcel mauka of the bridge. Permanent easements would be acquired on the makai side for maintenance of grading and drainage improvements. No historic resources eligible for listing on the NRHP are located within the permanent improvement or temporary construction limits.

**Area of Potential Effects**

The archaeological and historic architectural Area of Potential Effects (APE) is illustrated in the attached APE Aerial Imagery map, and includes both temporary and permanent impact areas.

**Cultural, Archaeological, and Historical Studies**

To provide you information on the cultural, archaeological, and historical settings of the project area, we are including two studies prepared for this project. Please note that the study areas indicated in the reports are larger than the attached APE maps. At the start of the project, we assumed a large study area so that field findings could inform the conceptual design process at an early stage to help avoid or minimize effects to potentially sensitive sites.

1. Draft Archaeological Inventory Survey Report for the Bridge 7E Replacement Project, Koloa Ahupuaa, Koloa District, Kauai
2. Hawaii State Historic Preservation Division (SHPD) Historic Resource Inventory Form (Reconnaissance Level) for Bridge 7E

**Consultations**

Section 106 notice/advertisement will be included in The Garden Island. 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.

Letters for this project are being sent to the following NHOs as well as other organizations with knowledge of cultural, archaeological, and historical resources:

- Office of Hawaiian Affairs
- Kauai Historic Preservation Review Commission
- Kauai-Niihau Island Burial Council
- Queen Deborah Kapule Hawaiian Civic Club
We welcome any comments you have on this project’s proposed improvements or APE. We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area, or other historic or cultural sites about which you may have knowledge. In addition, if you are acquainted with any person 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.

If you have information and/or would like to be a Consulting Party, we would appreciate a written response within 30 days from date of receipt, by email at Michael.will@dot.gov or by US Postal Service to 12300 West Dakota Avenue, Suite 380, Lakewood, CO 80228.

Please feel free to contact Nicole Winterton, Environmental Protection Specialist, by telephone at (720) 963-3689, or email Nicole.Winterton@dot.gov, if you have any questions.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Enclosures:

- Bridge 7E Area of Potential Effects (USGS Map)
- Bridge 7E Area of Potential Effects (Aerial Imagery)
- On CD: Draft Archaeological Inventory Survey Report for the Bridge 7E Replacement Project, Koloa Ahupuaa, Koloa District, Kauai
- On CD: Hawaii SHPD Historic Resource Inventory Form (Reconnaissance Level) for Bridge 7E

cc (with enclosures on CD):

Christine Yamasaki, HDOT
Todd Nishioka, HDOT
Jessica Puff, SHPD
Dr. Susan Lebo, SHPD
Mary Jane Naone, SHPD Kauai Lead Archaeologist
7E Bridge Project
Area of Potential Effects (Aerial Imagery)
Central Federal Lands - Koloa, Kauai

Notes:
1. High-Res Imagery Source: Google Earth 12/16/2013
2. Low-Res Imagery Source: Digital Globe 08/26/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.
Draft

Archaeological Inventory Survey Report
for the Bridge 7E Replacement Project,
Kōloa Ahupua‘a, Kōloa District, Kaua‘i,
Federal Highway Administration/
Central Federal Lands Highway Division
(FHWA/CFLHD) Contract DTFH68-13-R-00027
TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por.
Kaumuali‘i Highway Right-of-Way

Prepared for
CH2M HILL
and on behalf of the
Federal Highway Administration (FHWA)
Central Federal Lands Highway Division (CFLHD)

Prepared by
Trevor M. Yucha, B.S.,
Scott A. Belluomini, B.A.,
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: KOLOA 66)

August 2015

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## Management Summary

<table>
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<tr>
<td>Date</td>
<td>August 2015</td>
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| Project Number(s) | • FHWA/CFLHD Contract Code: DTFH68-13-R-00027  
• CH2M HILL Project Task ID: 499069.10SU.CS  
• Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: KOLOA 66 |
| Investigation Permit Number | CSH completed the archaeological inventory survey (AIS) fieldwork under archaeological permit number 14-04 (for 2014) and 15-03 (for 2015), issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-13-282. |
| Agencies | FHWA/CFLHD, SHPD |
| Land Jurisdiction | State Department of Transportation (HDOT) |
| Project Proponent | FHWA/CFLHD, HDOT |
| Project Funding | FHWA/CFLHD, HDOT |
| Project Location | The proposed project is located along Kaumuali‘i Highway, Route 50, approximately 800 feet (ft) west of the Maluhia Road/Kaumuali‘i Highway intersection within Kōloa Ahupua‘a, Kōloa District, Kaua‘i. The project area is depicted on a portion of the 1996 Koloa U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. |
| Project Description | The proposed project would replace the existing Bridge 7E and its roadway approaches to maintain the stream crossing on HI-50 as a safe and functional component of the regional transportation system for highway users. The existing structure, which is a double box culvert, would be demolished and replaced with a single-cell box culvert. The bridge is not eligible for listing on the National Register of Historic Places (NRHP).  

The proposed new bridge structure would be approximately 30 ft (9.1 meters [m]) long and 44 ft (13.4 m) wide, to accommodate two 12-ft (3.7 m) travel lanes with 8-ft (2.4 m) shoulders and guardrails on both sides. The roadway approaches to the bridges would be widened, which would require extending embankment slopes.  

During construction, Bridge 7E would be closed to traffic, and a temporary bypass road would be constructed to maintain traffic over the stream. A low-water crossing upstream of the existing bridge is
recommended for the temporary bypass road because streamflow is relatively low.

The proposed improvements would occur within the existing HDOT right-of-way and would extend approximately 20 to 50 ft (6.1 to 15.2 m) into adjacent private property. Construction parcels (temporary easements) would be needed from the privately owned parcel mauka (toward the mountains) of the bridge. Permanent easements would be acquired on the makai (seaward) side for maintenance of grading and drainage improvements.

**Project Acreage**
The project area includes approximately 2.07 acres (0.84 hectares).

**Area of Potential Effect (APE)**
The APE for the current project is defined as the entire 2.07-acre (0.84-hectare) project area.

**Historic Preservation**

**Regulatory Context**

This AIS investigation was designed to comply with both Federal and Hawai‘i State environmental and historic preservation review legislation. Due to federal funding, this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act, and Section 4(f) of the Department of Transportation Act. The proposed project is also subject to Hawai‘i State environmental and historic preservation review legislation (Hawai‘i Revised Statutes [HRS] §343 and HRS §6E-8/HAR §13-275, respectively).

In consultation with the SHPD, this AIS investigation fulfills the requirements of HAR §13-13-276 and the *Secretary of the Interior’s Standards for Archaeology and Historic Preservation*. It was conducted to identify, document, and make National Register of Historic Places (National Register) and Hawai‘i Register of Historic Places (Hawai‘i Register) eligibility recommendations1 for any cultural resources/historic properties2. This report is also intended to support any project-related historic preservation consultation with stakeholders, such as State and County agencies and interested Native Hawaiian Organizations (NHOs) and community groups, if applicable.

A companion architectural study (Ruzicka 2015) is being conducted by Mason Architects, Inc. in conjunction with this AISR. When applicable, the information from the architectural study has been incorporated into the present AIS document.

The entirety of the current project area has been previously subject to an AIS-level investigation. An AIS for an approximately 11.5-kilometers (km) long portion of Kaumuali‘i Hwy including the majority of the Bridge 7E project area was completed by CSH (Hammatt and Chiogioji 1998) with no significant finds. Therefore, the study was termed an archaeological assessment. However, the study did note the location of four cultural resources in the vicinity of the study area including Grove
Farm office building in Puhi, Līhuʻe Mill Bridge, Hoʻomana Overpass Bridge, and Līhuʻe Public Cemetery. None of these cultural resources are located in the vicinity of the current project area.

**Fieldwork Effort**
The fieldwork component of this AIS consists of a 100% pedestrian survey and subsurface testing. Fieldwork was conducted on 14 June and 15 June 2015 by CSH archaeologists Missy Kamai, B.A., Tom Martel, B.A., and Richard Stark, Ph.D. under the general supervision of principal investigator Hallett H. Hammatt, Ph.D. This work required approximately 4 person-days to complete.

**Consultation**
The Bridge 7E Replacement project is a HDOT and FHWA/CFLHD partnership project, which includes numerous proposed bridge improvement and replacement projects in the State of Hawaiʻi. Presently, National Historic Preservation Act Section 106 consultation with community, agency, and Native Hawaiian Organizations has been initiated and is on-going. Cultural consultation is also being conducted by CSH for a cultural impact assessment (CIA) for Bridge 7E (Liborio and Hammatt 2015). No cultural resources have been assessed as having traditional cultural significance to an ethnic group (HAR §13-13-275 Criterion “e”) within the project area.

**Cultural Resources Identified**
The AIS identified two cultural resources within the project area. These cultural resources include SIHP # 50-30-10-2285, Bridge 7E and SIHP # 50-30-10-2286, an earthen ditch that extends perpendicular to Kaumualiʻi Highway and passes water through the culverts of Bridge 7E.

SIHP # -2285 has been evaluated in the 1989 State Historic Bridge Inventory Evaluation as not eligible for historic status (Spencer Mason Architects 1989:27–28). Similarly, the 2013 State Historic Bridge Inventory Evaluation states, “This culvert does not have distinctive engineering or architectural features that depart from standard culvert design” (MKE Associates LLC/Fung Associates, Inc. 2013:3–6). Architectural recordation conducted during the current project supports the previous evaluations (Ruzicka 2015). CSH agrees with the Ruzicka (2015) assessment that Bridge 7E (SIHP # -2285) is not a significant cultural resource.

SIHP # -2286, an earthen ditch, is evaluated for significance under §13-275-6 Criterion “d” (Have yielded, or is likely to yield, information important for research on prehistory or history), however, the earthen ditch lacks integrity of design, materials, workmanship, feeling and association, and is therefore not eligible to the National Register and Hawaiʻi Register pursuant to 36 CFR 60.4 and HAR §13-198-8.

**Effect Recommendation**
In accordance with Federal regulations (36 CFR 800.5), CSH’s project-specific effect recommendation is “no adverse effect.” Under Hawaiʻi
State historic preservation review legislation, the project’s effect recommendation is “no historic properties affected” (in accordance with HAR §13-13-275-7). This is based on the lack of significant cultural resources within the project area and APE, based on the eligibility criteria to the National and/or Hawai‘i Registers (36 CFR 60.4 and HAR §13-198-8, respectively).

Mitigation Recommendations

No further archaeological fieldwork is recommended for the current project.

1 Cultural resource significance is evaluated and expressed as eligibility for listing on the National and/or Hawai‘i Registers. To be considered eligible for listing on the National and/or Hawai‘i Registers a cultural resource should possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and meet one or more of the following broad cultural/historic significance criteria: “A” reflects major trends or events in the history of the state or nation; “B” is associated with the lives of persons significant in our past; “C” is an excellent example of a site type/work of a master; and “D” has yielded or may be likely to yield information important in prehistory or history.

2 In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old (although there are exceptions) and include buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance.

Historic properties, as defined under Federal historic preservation legislation (36 CFR 800.16), are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria. Determinations of eligibility are generally made by a federal agency official in consultation with the SHPD. Under Federal legislation, a project’s (undertaking’s) potential effect on historic properties must be evaluated and potentially mitigated. Under Hawai‘i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their historic/cultural significance under State law, and a project’s effect and potential mitigation measures are evaluated based on the project’s potential impact to “significant” historic properties (those historic properties assessed as significant using the five State of Hawai‘i significance criteria).
# Table of Contents

Management Summary ........................................................................................................ i

## Section 1 Introduction ........................................................................................................ 1

1.1 Project Background ........................................................................................................ 1
1.2 Historic Preservation Regulatory Context ..................................................................... 1
1.3 Environmental Setting ................................................................................................... 7
1.3.1 Natural Environment .............................................................................................. 7
1.3.2 Built Environment ......................................................................................... 7

## Section 2 Methods ................................................................................................................. 9

2.1 Field Methods ............................................................................................................... 9
  2.1.1 Pedestrian Survey ............................................................................................... 9
  2.1.1 GPS Data Collection ......................................................................................... 9
  2.1.2 Subsurface Testing .......................................................................................... 9
  2.2 Laboratory Methods .................................................................................................. 10
    2.2.1 Traditional Hawaiian Artifacts ....................................................................... 10
    2.2.2 Historic Artifacts ........................................................................................... 10
  2.3 Disposition of Materials ........................................................................................... 10
  2.4 Research Methods ..................................................................................................... 10
  2.5 Consultation Methods ............................................................................................... 10

## Section 3 Background Research ........................................................................................ 11

3.1 Traditional and Historical Background .......................................................................... 11
  3.1.1 Mythological and Traditional Accounts ............................................................ 11
  3.1.2 Early Historic Period .......................................................................................... 13
  3.1.3 Mid-1800s and the Māhele ............................................................................... 14
  3.1.4 1900s ................................................................................................................. 16
  3.1.5 Modern Land Use .............................................................................................. 16
3.2 Previous Archaeological Research ................................................................................. 19
3.3 Background Summary and Predictive Model ................................................................. 23

## Section 4 Results of Fieldwork .......................................................................................... 25

4.1 Pedestrian Inspection Results ....................................................................................... 25
4.2 Subsurface Testing Results .......................................................................................... 25
  4.2.1 STP-1 ................................................................................................................ 28
  4.2.2 STP-2 ................................................................................................................ 28
  4.2.3 STP-3 ................................................................................................................ 28
  4.2.4 STP-4 ................................................................................................................ 28
  4.2.5 STP-5 ................................................................................................................ 28
  4.2.6 STP-6 ................................................................................................................ 39

## Section 5 Results of Laboratory Analysis .......................................................................... 42

## Section 6 Cultural Resource Descriptions ......................................................................... 43

6.1 SIHP # 50-30-10-2285 ............................................................................................... 46
6.2 SIHP # 50-30-10-2286 ............................................................................................... 48

## Section 7 Summary and Interpretation .............................................................................. 50
List of Figures

Figure 1. Portion of the 1996 Koloa USGS 7.5-minute topographic quadrangle showing the location of the project area ..............................................................2
Figure 2. Tax Map Key (TMK) [4] 2-7-01 showing the location of the project area
(Hawai‘i TMK Service 2012) ..................................................................................3
Figure 3. TMK: [4] 2-7-02 showing the location of the project area (Hawai‘i TMK Service 2012) ..........................................................4
Figure 4. Aerial photograph showing the project area (Google Earth 2012) ..............5
Figure 5. Aerial photograph (Google Earth 2012) showing the project area with an overlay of the USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972) ..............................................................8
Figure 6. Portion of the 1891 Monsarrat map of Kōloa showing the location of the project area ..................................................................................15
Figure 7. Portion of the 1910 Lihue USGS topographic quadrangle showing the location of the project area ..............................................................17
Figure 8. Portion of the 1963 Koloa USGS topographic quadrangle showing the location of the project area ..............................................................18
Figure 9. Portion of the 1978 Koloa USGS orthophotoquad aerial photograph showing the location of the project area ..............................................................20
Figure 10. Aerial photograph depicting one previous archaeological study within a 0.8-km (0.5-mile) radius of the project area (Google Earth 2013) ..................21
Figure 11. Overview of Kaumuali‘i Highway and surrounding area, view to east (from Hammatt and Chiogioji 1998) ...............................................................24
Figure 12. 2014 matching overview of Kaumuali‘i Highway and surrounding area from current archaeological reconnaissance, view to east ...............................24
Figure 13. Overview of the project area depicting eucalyptus trees and exotic grasses along both sides of Kaumuali‘i Highway, view to east .............................26
Figure 14. General view of exotic grasses within the project area that obscure ground visibility, view to northwest ............................................................26
Figure 15. Aerial photograph depicting the location of the six STP excavations within the project area (Google Earth 2013) .........................................................27
Figure 16. STP-1 northeast wall profile view ...............................................................29
Figure 17. STP-1, northeast wall, view to northeast .....................................................30
Figure 18. STP-2, east wall profile ..............................................................................31
Figure 19. STP-2, east wall, view to east .....................................................................32
Figure 20. STP-3, northeast wall profile .....................................................................33
Figure 21. STP-3, northeast wall, view to northeast ....................................................34
Figure 22. STP-4, west wall profile ............................................................................35
Figure 23. STP-4, west wall, view to west ..................................................................36
Figure 24. STP-5, west wall profile ............................................................................37
Figure 25. STP-5, west wall, view to west ..................................................................38
Figure 26. STP-6, east wall, view to east .................................................................39
Figure 27. STP-6, east wall, view to east ..................................................................40
Figure 28. Acc. # 1, porcelain body fragment .........................................................42
Figure 29. Portion of the 1996 Koloa USGS 7.5-minute topographic quadrangle showing the location of cultural resources within the project area ............................................44
Figure 30. Aerial photograph showing the location of cultural resources within the project area (Google Earth 2012) .........................................................................................................45
Figure 31. SIHP # -2285, Bridge 7E, view to east .................................................................47
Figure 32. SIHP # -2285, Bridge 7E, view to northeast .............................................................47
Figure 33. SIHP # -2286, earthen ditch south of Kaumuali‘i Highway, view to south ..........49
Figure 34. SIHP # -2286, earthen ditch north of Kaumuali‘i Highway, view to northeast .......49

List of Tables

Table 1. Previous Archaeological Investigations within a 0.8-km (0.5-mile) Radius of the Project Area ....................................................................................................................22
Table 2. Kōloa Heiau Documented by Thrum in 1907 .............................................................22
Table 3. Stratigraphic Description of STP-1 Northeast Wall ....................................................30
Table 4. Stratigraphic Description of STP-2 East Wall ..............................................................32
Table 5. Stratigraphic Description of STP-3 Northeast Wall ....................................................34
Table 6. Stratigraphic Description of STP-4 West Wall ............................................................36
Table 7. Stratigraphic Description of STP-5 West Wall ............................................................38
Table 8. Stratigraphic Description of STP-6 East Wall ............................................................41
Table 9. Artifacts Observed and Collected During Subsurface Testing ...................................42
Table 10. Cultural Resources Identified within the Current Project Area ..................................43
Section 1  Introduction

1.1 Project Background

At the request of CH2M HILL and on behalf of the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), Cultural Surveys Hawai‘i, Inc. (CSH) completed this archaeological inventory survey report for the Bridge 7E Replacement project, Kōloa Ahupua‘a, Kōloa District, Kaua‘i, FHWA/CFLHD Contract DTFH68-13-R-00027, TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por. Kaumuali‘i Highway Right-of-Way. The proposed project is located along Kaumuali‘i Highway, Route 50, approximately 800 feet (ft) west of the Maluhia Road/Kaumuali‘i Highway intersection. The project area is depicted on a portion of the 1996 Kōloa U.S. Geological Survey (USGS) topographic quadrangle (Figure 1), tax map plats (Figure 2 and Figure 3), and an aerial photograph (Figure 4).

The proposed project would replace the existing Bridge 7E and its roadway approaches to maintain the stream crossing on HI-50 as a safe and functional component of the regional transportation system for highway users. The existing structure, which is a double box culvert, would be demolished and replaced with a single-cell box culvert. The bridge is not eligible for listing on the National Register of Historic Places (NRHP).

The proposed new bridge structure would be approximately 30 ft (9.1 meters [m]) long and 44 ft (13.4 m) wide, to accommodate two 12-ft (3.7 m) travel lanes with 8-ft (2.4 m) shoulders and guardrails on both sides. The roadway approaches to the bridges would be widened, which would require extending embankment slopes.

During construction, Bridge 7E would be closed to traffic, and a temporary bypass road would be constructed to maintain traffic over stream. A low-water crossing upstream of the existing bridge is recommended for the temporary bypass road because flows in the stream are relatively low.

The proposed improvements would occur within the existing HDOT right-of-way and would extend approximately 20 to 50 ft (6.1 m to 15.2 m) into adjacent private property. Construction parcels (temporary easements) would be needed from the privately owned parcel mauka (toward the mountains, inland) of the bridge. Permanent easements would be acquired on the makai (seaward) side for maintenance of grading and drainage improvements.

The project area includes approximately 2.1 acres (0.84 hectares). The area of potential effect (APE) for the current project is defined as the entire 2.1-acre (0.84-hectare) project area.

1.2 Historic Preservation Regulatory Context

This AIS investigation was designed to comply with both Federal and Hawai‘i State environmental and historic preservation review legislation. Due to federal funding, this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act, and Section 4(f) of the Department of Transportation Act. The proposed project is also subject to Hawai‘i State environmental and historic preservation review legislation (Hawai‘i Revised Statutes [HRS] §343 and HRS §6E-8/Hawai‘i Administrative Rules [HAR] §13-275, respectively).
Figure 1. Portion of the 1996 Koloa USGS 7.5-minute topographic quadrangle showing the location of the project area
Figure 2. Tax Map Key (TMK) [4] 2-7-01 showing the location of the project area (Hawai‘i TMK Service 2012)
Figure 3. TMK: [4] 2-7-02 showing the location of the project area (Hawai‘i TMK Service 2012)
Figure 4. Aerial photograph showing the project area (Google Earth 2012)
In consultation with the State Historic Preservation Department (SHPD), this AIS investigation fulfills the requirements of HAR §13-13-276 and the Secretary of the Interior’s Standards for Archaeology and Historic Preservation. It was conducted to identify, document, and make National Register of Historic Places (National Register) and Hawai‘i Register of Historic Places (Hawai‘i Register) eligibility recommendations for any cultural resources/historic properties. This report is also intended to support any project-related historic preservation consultation with stakeholders such as State and County agencies and interested Native Hawaiian Organizations (NHOs) and community groups, if applicable.

A companion architectural study (Ruzicka 2015) is being conducted by Mason Architects, Inc. in conjunction with this AISR. When applicable, the information from the architectural study has been incorporated into the present AIS document.

The entire current project area has been previously subject to an AIS-level investigation. An AIS for an approximately 11.5-kilometer (km) long portion of Kaumuali‘i Highway including the majority of the Bridge 7E project area was completed by CSH (Hammatt and Chiogioji 1998) with no significant finds. Therefore, the study was termed an archaeological assessment. No cultural resources have been previously documented within the current project area.

Definitions of Cultural Resources and Historic Properties

As discussed in the following paragraphs, there are important distinctions between the Federal and Hawai‘i State definitions of historic properties. To eliminate any confusion these different definitions might cause, CSH has opted in this document to use the more generic term “cultural resources” as defined below in its discussion of the cultural remains within the current project area.

In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old (although there are exceptions) and include buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and in some instances, natural landscape features and/or geographic locations of cultural significance.

Historic properties, as defined under Federal historic preservation legislation (36 CFR 800.16), are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria. Determinations of eligibility are generally made by a federal agency official in consultation with the SHPD. Under Federal legislation, a project’s (undertaking’s) potential effect on historic properties must be evaluated and potentially mitigated. Under Hawai‘i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their historic/cultural significance under State law, and a project’s effect and potential mitigation measures are evaluated based on the project’s potential impact to “significant” historic properties (those historic properties assessed as significant under the five broad State of Hawai‘i significance criteria).
1.3 **Environmental Setting**

1.3.1 **Natural Environment**

The *ahupua‘a* (land division) of Kōloa extends as a fairly large land segment from Mt. Kāhili to the sea. It is bordered by Lāwa‘i Ahupua‘a to the west and Weliweli Ahupua‘a to the east. According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), soils within the project area include Kapaa silty clay, 3 to 8% slopes (KkB) and Halii gravelly silty clay, 3 to 8% slopes (HfB) (Figure 5).

Soils of the Kapaa Series are described as follows:

This series consists of well-drained soils on uplands on the islands of Kauai and Oahu. These soils developed in material weathered from basic igneous rock. They are gently sloping to extremely steep. Elevations range from 200 to 800 feet. The annual rainfall amounts to 80 to 120 inches. [Foote et al. 1972:61]

Soils of the Halii Series are described as follows:

This series consist of well drained and moderately well drained soils on uplands on the island of Kauai. These soils developed in material weathered from basic igneous rock, probably mixed with volcanic ash and ejecta. They are gently sloping to steep. Elevations range from 300 to 1,000 feet. The annual rainfall amounts to 100 to 200 inches. [Foote et al. 1972:34]

Vegetation observed within the project area includes exotic grasses, eucalyptus (*Eucalyptus* sp.), and albizia (*Albizia* sp.) trees.

1.3.2 **Built Environment**

The project area’s built environment includes a portion of Route 50 (Kaumuali‘i Highway) and Bridge 7E, the focus of the current project. Bridge 7E was constructed in 1933. The area surrounding the highway is understood to be agricultural land that was used for sugar cane cultivation, but is now cultivated with eucalyptus and albizia trees.
Figure 5. Aerial photograph (Google Earth 2012) showing the project area with an overlay of the USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972)
Section 2  Methods

2.1 Field Methods

CSH completed the fieldwork component of this AIS under archaeological permit number 14-04 (for 2014) and 15-03 (for 2015), issued by the SHPD pursuant to HAR §13-13-282. Fieldwork was conducted on 14 June and 15 June 2015 by CSH archaeologists Missy Kamai, B.A., Tom Martel, B.A., and Richard Stark, Ph.D. under the general supervision of principal investigator Hallett H. Hammatt, Ph.D. This work required approximately 4 person-days to complete.

In general, fieldwork included 100% pedestrian inspection of the project area, GPS data collection and subsurface testing.

2.1.1 Pedestrian Survey

A 100%-coverage pedestrian inspection of the project area was undertaken for the purpose of cultural resource identification and documentation. The pedestrian survey was accomplished through systematic sweeps spaced 5 m apart.

2.1.1 GPS Data Collection

Cultural resources were located using a Trimble Pro XH mapping grade GPS unit with a real-time differential correction. This unit provided sub-meter horizontal accuracy in the field. GPS field data was post-processed, yielding horizontal accuracy between 0.5 and 0.3 m. GPS location information was converted into GIS shape files using Trimble’s Pathfinder Office software, version 2.80, and graphically displayed using ESRI’s ArcGIS 9.1.

2.1.2 Subsurface Testing

The subsurface testing program involved six shovel test probes (STP-1 through STP-6). In general, STPs measuring approximately 50 centimeters (cm) long by 50 cm wide were excavated within the project area. The STPs were distributed throughout the project area along the shoulder of the highway. The sampling strategy was detailed in map and text to the SHPD in advance of the fieldwork (Yucha to Naone email of 4 June 2015).

A stratigraphic profile of each test excavation was drawn and photographed. The observed sediments were described using standard USDA soil description observations/terminology. Sediment descriptions included Munsell color; texture; consistence; structure; plasticity; cementation; origin of sediments; descriptions of any inclusions such as cultural material and/or roots; lower boundary distinctiveness and topography; and other general observations. Where stratigraphic anomalies or potential cultural deposits were exposed, these were carefully represented on test excavation profile maps.

2.2 Laboratory Methods

Materials collected during AIS fieldwork were identified and catalogued at CSH’s laboratory facilities on O‘ahu. Analysis of collected materials was undertaken using standard archaeological laboratory techniques. Artifacts were washed, sorted, measured, weighed, described, photographed, and catalogued. In general, artifact analysis focused on establishing, to the greatest extent possible, material type, function, cultural affiliation, and location and age of manufacture.
2.2.1 Traditional Hawaiian Artifacts

No traditional Hawaiian artifacts were identified during the AIS investigation.

2.2.2 Historic Artifacts

Historic artifacts will be identified using standard reference materials (e.g., Elliott and Gould 1988; Fike 1987; Kovel and Kovel 1986; Lehner 1988; Lindsey 2010; Lockhart 2004-2010; Toulouse 1971; Whitten 2009; and Zumwalt 1980) and resources available on the internet. Analyzed materials will be tabulated and a master catalogue will be presented within the AIS report. As noted above, the results of the historic artifact analysis will be used to better characterize the age, function, and potentially the cultural affiliation of the associated archaeological deposits and/or features.

2.3 Disposition of Materials

Materials collected during the current archaeological inventory survey will remain temporarily curated at the CSH storage facility in O‘ahu, Hawai‘i. CSH will make arrangements with the landowner regarding the disposition of this material. Should the landowner request archiving of material, an archive location will be determined in consultation with SHPD.

2.4 Research Methods

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina database (Waihona ‘Aina 2000).

This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of cultural resources in the project area.

2.5 Consultation Methods

The Bridge 7E Replacement project is a HDOT and FHWA/CFLHD partnership project, which includes numerous proposed bridge improvement and replacement projects in the State of Hawai‘i. Presently, National Historic Preservation Act Section 106 consultation with community, agency, and Native Hawaiian Organizations has been initiated and is on-going. Cultural consultation is also being conducted by CSH for a cultural impact assessment (CIA) for Bridge 7E (Liborio and Hammatt 2015). No cultural resources have been assessed as having traditional cultural significance to an ethnic group (HAR §13-275-6 Criterion “e”) within the project area.
Section 3  Background Research

3.1  Traditional and Historical Background

The project area is situated within the Kona District of the island of Kaua‘i. Few records exist that document traditional Hawaiian life in the *ahupua‘a* of Kōloa. While settlement by westerners with religious and commercial interests made the area a focus of documentation after the first quarter of the nineteenth century, the accounts generally emphasized the lives and concerns of the westerners themselves, with only anecdotal references to the Hawaiian population. Two nineteenth century documents, the *Boundary Commission Testimony* of 1874 and a Lahainaluna manuscript of 1885, however, provide insight into the history of Kōloa before the arrival of westerners.

A dispute over the northern boundary of Kōloa Ahupua‘a in 1874 led to a hearing before Duncan McBryde, the Commissioner of Boundaries for Kaua‘i. One native witness, Nao (who described himself as born in Kōloa but presently living in Ha‘ikū), in order to show that Hoaea (the area in dispute) was indeed at the northern boundary of Kōloa, testified: “At Hoaea, tea [sic] leaves were hung up to show that there were battles going on” (Boundary Commission, Kaua‘i, 1874:1:124). That there were traditional “warning systems” well-known to all natives suggests that Kōloa may well have been the scene of some serious conflicts. Throughout the early settlement history of Kōloa, conflicts must have occurred at intervals often enough and serious enough to warrant having to devise such a system.

Additional evidence of a rich history within Kōloa was offered in a Lahainaluna document produced 11 years later. This document appeared to have been based on an oral history project. On 7 September 1885, a student from Lahainaluna Schools interviewed Makea—“a native who is well acquainted with Kōloa”—and recorded “what she said about the well-known places in the olden times” (Lahainaluna Schools 1885). More than 64 years after the abolition of the *kapu* (taboo) system and almost as many years after contact with westerners, Makea was able to describe 14 *heiau* (religious structures) within the Kōloa area.

3.1.1 Mythological and Traditional Accounts

There are several place names within Kōloa that have legendary associations. The name Kōloa itself has several derivations. Kōloa is the name for the large, soft Hawaiian sugar cane (*Saccharum officinarum*) once grown by Hawaiians; Kōloa is also the name of a steep rock on the banks of Waikomo Stream, from whence the *ahupua‘a* got its name. This bank of the river was called Kōloa after the native Hawaiian duck (*Anas wyvilliana*) (Kikuchi 1963:46; Pukui et al. 1974:116).

Maulili (constant jealousy) is a deep pool in Waikomo Stream in the uplands of Kōloa. When the gods Kāne and Kanaloa first came to Kaua‘i, legends say they explored the island and came to the pool at Maulili at evening. They stretched out beside the pool for their night’s sleep on its eastern bank and left the impression of their forms within the rock, as can be seen in the ‘āpapa (a flat area). The Maulili Heiau was first built by Ka-pueo-maka-walu, the son of Kapu-lau-kī. It was a place of human sacrifice (Wichman 1998:12).

This *heiau* may be the Maulili Heiau described by Makea in the Lahainaluna document mentioned above. “The ‘āpapa in this vicinity is called an ‘Unu and a ‘Heiau,’ but was never
walled in, it is said. On the nights of Kāne, the drums are heard to beat there, also at the sacred rocks, or unu’s, of Opuokahaku and Kanemilohae, near the beach of Poipu” (Farley 1907).

Bernice Judd, writing in 1935, summarized most of what was known of the traditional Hawaiian life of Kōloa:

In the old days two large ‘auwai or ditches left the southern end of the Maulili pool to supply the taro patches to the east and west. On the kuāunas [embankments] the natives grew bananas and sugar cane for convenience in irrigating. Along the coast they had fish ponds and salt pans, ruins of which are still to be seen. Their dry land farming was done on the kula (dry land), where they raised sweet potatoes, of which both the tubers and the leaves were good to eat. The Hawaiians planted pia (arrowroot) as well as wauke (paper mulberry) in patches in the hills wherever they would grow naturally with but little cultivation. In the uplands they also gathered the leaves of the hala (screw pine) for mats and the nuts of the kukui (candlenut) for light. [Judd 1935:53]

Beginning possibly as early as 1450, the “Kōloa Field System” was planned and built on the shallow lava soils to the east and west of Waikomo Stream. The Kōloa Field System is characterized as a network of fields of both irrigated and dryland crops, built mainly upon one stream system. Waikomo Stream was adapted into an inverted tree model with smaller branches leading off larger branches. The associated dispersed housing and field shelters were located among the fields, particularly at junctions of the irrigation ditches (‘auwai). In this way, the whole of the field system was contained within the entire makai (seaward) portion of the ahupua’a of Kōloa, stretching east and west to the ahupua’a boundaries.

The field system, with associated clusters of permanent extended family habitations, was in place by the middle of the sixteenth century and was certainly expanded and intensified continuously from that time. Long ‘auwai were constructed along the tops of topographic high points formed by northeast to southwest oriented Kōloa lava flows, and extended all the way to the sea. Habitation sites, including small house platforms, enclosures and L-shaped shelters were built in rocky bluff areas which occupied high points in the landscape and were therefore close to ‘auwai, which typically ran along the side of these bluffs (Hammatt et al. 2004). From AD 1650-1795, the Hawaiian Islands were typified by the development of large communal residences, religious structures and an intensification of agriculture. Large heiau in Kōloa may date to this period.

The manufacture of salt was important for Native Hawaiians. Many of the larger salt pans on Kaua’i are located near Nōmilu, “where people came in the summer to gather salt when the winds blow the salt across the surface of the pond at the edge of the pond where it was carefully scooped out with the hands or with pieces of gourd shell and dried” (Wichman 1998:35). The importance of salt manufacture in the area was illustrated in the 1874 Boundary Commission determination for Kōloa, where the oral testimony of Pene Kalauau claimed he had come all the way “from Koolau to go to Koloa for salt” (Boundary Commission, Kaua’i, 1874, 1:124).
3.1.2 Early Historic Period

By the early 1800s, Kōloa Landing had become the principal port of Kaua‘i. Shipments of North American furs and pelts to the Orient depended on the provisioning of ships at Kōloa Landing, as well as other Hawaiian ports. As the fur trade grew, markets in China became aware of sandalwood (*Santalum* sp.) grown in the Hawaiian Islands. The shipment of most of Kaua‘i’s sandalwood to the Orient took place at Kōloa Landing, until the supply of the fragrant wood was exhausted around 1830.

Accounts by visitors and settlers at Kōloa focused on the early westerners’ own concerns—religious and commercial—as these concerns appeared within the historical record of Kōloa in the 1800s. However, scattered throughout the accounts are occasional references to the Hawaiians of Kōloa that give some insight into their lives.

The American Board of Commissioners for Foreign Missions (ABCFM) missionary Samuel Whitney described in a *Missionary Herald* article (June 1827:12) an 1826 visit to Kōloa with Kaikio‘ewa, the governor of Kaua‘i:

> The people of this place were collected in front of the house where the old chief lodged in order to hear his instructions. After a ceremony of shaking hands with men, women, and children they retired . . .

> Our company consisted of more than a hundred persons of all ranks. The wife of the chief, with her train of female attendants, went before. The governor, seated on a large white mule with a Spaniard to lead him, and myself by his side, followed next. A large company of *aipupu*, ['āʻīpuʻupuʻu] cooks, attendants came on in the rear. [[Missionary Herald June 1827:12]

Whitney’s account suggests something of the deference paid to the *ali‘i* (chiefs) by the local populations and the scale at which the *ali‘i* carried out their functions. An even grander view of that deference was provided in an account of a later visit by an *ali‘i* to Kōloa. John Townsend, a naturalist staying in Kōloa in 1834, described a visit by Kamehameha III:

> In the afternoon, the natives from all parts of the island began to flock to the king’s temporary residence. The petty chiefs, and head men of the villages, were mounted upon all sorts of horses from the high-headed and high-mettled California steed, to the shaggy and diminutive poney [sic] raised on their natives hills; men, women, and children were running on foot, laden with pigs, calabashes of Poe [sic], and every production of the soil; and though last certainly not least, in the evening there came the troops of the island, with fife and drum, and ‘tinkling cymbal’ to form a body guard for his majesty, the king. Little houses were put up all around the vicinity, and thatched in an incredibly short space of time, and when Mr. Nuttall, and myself visited the royal mansion, after nightfall, we found the whole neighborhood metamorphosed; a beautiful little village had sprung up as by magic, and the retired studio of the naturalists had been transformed into a royal banquet hall. [Palama and Stauder 1973:18]

On 31 December 1834, Peter Gulick and his family arrived in Kōloa. Apparently the first foreigners to settle in the *ahupua‘a*, they initiated the process of rapid change that would reshape the life of Kōloa in the nineteenth century. In 1835, a 30 by 60-ft grass house was erected as a
meeting-house and school near the Maulili Pond. Mr. Gulick cultivated sugar cane and collected a cattle herd for the Protestant Mission. In 1837, a 45 by 90-ft adobe church was built where Kōloa Church stands today, and the first mission doctor, Thomas Lafon, arrived to assist Mr. Gulick (Damon 1931:179, 187). The Kōloa mission station apparently flourished immediately. Navy Lieutenant Charles Wilkes, a member of the U.S. Exploring Expedition, during his visit to Kōloa in 1840 recorded the following:

The population in 1840, was one thousand three hundred and forty-eight. There is a church with one hundred and twenty-six members, but no schools. The teachers set apart for this service were employed by the chiefs, who frequently make use of them to keep their accounts, gather in their taxes &c. The population is here again increasing partly by immigration, whence it was difficult to ascertain its ratio. [Wilkes 1845:64]

Kōloa Village and Kōloa Landing, at the mouth of the Waikomo Stream, became flourishing commercial centers as trade with Americans and Europeans grew. An estimate in 1857 stated that “10,000 barrels of sweet potatoes were grown each year at Kōloa, and that the crop furnished nearly all the potatoes sent to California from Hawai‘i” (Judd 1935:326). Sugar and molasses were also chief articles of export. Whalers used the Kōloa “Roadstead” from 1830 to 1870, and took on provisions of squashes (pumpkins), salt beef, pigs, and cattle (Damon 1931:176). Hawaiians grew the pumpkins on the rocky land north of the landing. There were also numerous salt pans along the shore near the landing that were used to make the salt (Palama and Stauder 1973:20).

3.1.3 Mid-1800s and the Māhele

In the early post-Contact period, the ahupua‘a of Kōloa was controlled by the ruling chief of Kaua‘i and was administered by lesser chiefs appointed by him. When Ka-umu-ali-i, last of the ruling chiefs of the island, died in 1824, his lands (Kaua‘i and Ni‘ihau) were given to the lineal descendants of Kamehameha. Queen Ka‘ahumanu redistributed the lands among chiefs of other islands who had been loyal to the bloodline of Kamehameha. By the mid-nineteenth century, control of the ahupua‘a of Kōloa was divided between Kamehameha III and Moses Kekūāiwa, a brother of Kamehameha IV (Alexander 1937). The Māhele Award records indicate Kōloa Ahupua‘a, which totaled 8,620 acres, was granted by way of a Land Commission Award (LCA) to Moses Kekūāiwa, (the brother of Alexander Liholiho [Kamehameha IV]), Lot Kapuāiwa (Kamehameha V), and Victoria Kamāmalu (LCA 7714-B: Waihona ‘Aina 2000, OHA 2015).

Eighty-nine kuleana awards were given to individuals within Kōloa Ahupua‘a. The majority of these Land Commission Awards (LCAs) were located in and around Kōloa Town itself. No LCAs were granted within the vicinity of the project area.

The Koloa Sugar Company began commercial operation in the late 1840s with about 450 acres of Kōloa land under cultivation. Development of additional acreage continued gradually. An 1891 map of Kōloa by Monsarrat depicts a fence line extending through the current project area (Figure 6). The project area is depicted in an undeveloped area between the government road to the east and a trail to the west. A cane field is depicted approximately 1.0 km to the southwest.
Figure 6. Portion of the 1891 Monsarrat map of Kōloa showing the location of the project area
3.1.4 1900s

The Koloa Sugar Company had previously purchased the ahupua’a of Pāʻā southeast of Koloa Town, and a large parcel of it was unproductive. A new and much larger mill was built there in 1912 about a mile from Koloa. New railroad track was laid, and an asphalt road was built to connect the new mill with Koloa Landing. World War I caused a huge demand for sugar. By the end of hostilities in 1918, the Koloa Sugar Company was producing 9,000 tons of sugar each year, and adding additional acreage. A road alignment, later to become Kaumuali‘i Highway, is depicted in the 1910 Lihue USGS topographic map extending through the current project area (Figure 7). No other development is depicted in the vicinity of the project area.

Koloa Landing was phased out around 1925 when McBryde Sugar Company and the Koloa Sugar Company began shipping their product out of Port Allen Harbor at Hanapepē. The McBryde Plantation had been improving the facilities at Ele‘ele Landing since the turn of the century and a private company, the Kauai Terminal Limited Railway, had developed a modern bridge crossing the Hanapepē River. Soon after this, the Koloa Sugar Company ceased to use the makai Koloa fields, and much of the area was converted into cattle-grazing pasture by the Knudsen family. Most of the mauka areas of Koloa remained under sugar cane cultivation as late as the 1970s, when these cane lands were converted into pasture.

It was during the 1930s, when Federal funds became available to assist the Territory of Hawaii’s highway construction program, that development of the Kaumuali‘i Highway project accelerated. On 10 October 1933, Hawaiian Contracting Company, Ltd. was awarded a $354,355.63 contract for construction of a 5.066-mile long portion of the Kaua‘i Belt Road (i.e., the present Kaumuali‘i Highway) extending west from the junction with the road to Koloa. The project, identified as NRH 12-B, was funded by the National Recovery Highway Fund, the Federal Aid Fund, and a contribution by the County of Kaua‘i.

Following the merger of the plantation lands of the Koloa Sugar Company and Grove Farm Company in 1948, the combined lands under cultivation required new sources of irrigation water. In 1965, Grove Farm built a tunnel to bring the waters from Ku‘ia directly into the Waitā (Koloa) Reservoir. Grove Farm leased these cane lands to McBryde Sugar Company when it terminated sugar operations in 1974 (Wilcox 1996). The mill in Pāʻā was finally closed in 1996, and remains a landmark of the countryside.

3.1.5 Modern Land Use

By the late 1960s, the main town of Koloa experienced a type of reverse migration back to the shoreline. Although the town had established a Civic Center in 1977, the pace of tourism-driven development at the shoreline had been drawing construction and service jobs away from the town center. The Kīahuna Plantation Resort opened in 1967, followed by the construction of various condominiums throughout the 1970s and 1980s. Finally, the Hyatt Regency Resort, with its expansive golf course, opened in 1991.

The 1963 Koloa USGS topographic quadrangle depicts the modern alignment of Kaumuali‘i Highway extending through the project area (Figure 8). A drainage is shown extending perpendicular to and underneath the highway at the location of Bridge 7E. The drainage extends from a flume in the northwest to Mauka Reservoir located south of the project area.
Figure 7. Portion of the 1910 Lihue USGS topographic quadrangle showing the location of the project area
Figure 8. Portion of the 1963 Koloa USGS topographic quadrangle showing the location of the project area
By the early 1990s, the tourist industry had successfully attached the name “Po‘ipū Beach” to the entire coastline beginning at Kōloa Landing and continuing east to Makahū‘ena Ledge. With the development of the Po‘ipū Bay Resort Golf Course and the Hyatt Regency Kaua‘i Resort Hotel, the Po‘ipū Beach name became synonymous with all 2 miles of coastline fronting the Wai‘ohai, Kiahuna, and Sheraton developments, ending at Po‘ipū Beach Park (Donohugh 2001).

The 1978 Koloa USGS orthophotoquad aerial photograph depicts field of sugar cane in cultivation surrounding the project area (Figure 9). The drainage that extends through Bridge 7E is clearly visible. On September 1996, the last sugar crop was harvested ending 179 years of Koloa Plantation. Since then the area in and around the project area has remained the same. Remnants of sugar cane were visible until the late 1990s.

Future plans within the Kōloa District will place more demands on beachfront properties along the coastline. Over 1,000 acres of former sugar plantation lands are slated for hotel and condominium development surrounding both Lāwa‘i and Po‘ipū coastal resort areas (Donohugh 2001). Future development plans for the upland areas involve both large tracts of land, as well as regional redevelopment within Kōloa Town itself. The area within the current project is cultivated with eucalyptus and albizia trees for renewable energy projects. In 2008, the county Planning Commission approved use permits to allow a company, Green Energy Hawaii, to proceed with its plan to build a 7,100-kilowatt facility in Knudsen Gap.

### 3.2 Previous Archaeological Research

The majority of the previous archaeological investigations conducted within the ahupua‘a of Kōloa have been in conjunction with the burgeoning development of the areas located south of the project area. Only one modern systematic study has been conducted in the project area and no other archaeological studies have been conducted within a 0.8-km (0.5-mile) radius of the project area. The location of this previous archaeological study is shown in Figure 10 and described in Table 1.

Evidence of the importance of Kōloa to pre-Contact traditional Hawaiians is indicated in a Lahainaluna Schools document produced in 1885. This document appears to have been based on an oral history project utilizing information obtained from Makea—“a native who is well acquainted with Kōloa.” Makea was able to describe 14 heiau (religious structures) within the Kōloa area. Of the 14 heiau, five were associated with human and animal blood sacrifices (luakini and po‘okanaka), five with fishing, two medicinal, and one agricultural, with one of unknown function (Lahainaluna 1885).

Thomas Thrum was the next to document sites in the Kōloa area in his list of the heiau of Kaua‘i (Thrum 1907). He discussed six heiau in the district of Kōloa, which once extended from Hanapēpē to Māhā‘ulepū (Table 2).

The earliest systematic archaeological survey on Kaua‘i was conducted by Wendell Bennett in the late 1920s. Bennett examined and recorded 202 sites on the island. The following are sites recorded within Kōloa Ahupua‘a (see Bennett 1931:116-117, 120):

- **Site 72** Niu Kapukapu Heiau—on the top of Niu Kapukapu Hill on the east bluff of Lāwa‘i Valley.
- **Site 73** Stone work on the hill just in-land from Site 72
Figure 9. Portion of the 1978 Koloa USGS orthophotoquad aerial photograph showing the location of the project area
Figure 10. Aerial photograph depicting one previous archaeological study within a 0.8-km (0.5-mile) radius of the project area (Google Earth 2013)
Table 1. Previous Archaeological Investigations within a 0.8-km (0.5-mile) Radius of the Project Area

<table>
<thead>
<tr>
<th>Reference</th>
<th>Type of Investigation</th>
<th>Location</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammatt and Chiogioji 1998</td>
<td>Archaeological assessment</td>
<td>Approximately 11.5-km long portion of Kaumuali‘i Hwy</td>
<td>Four historic-era sites and areas of concern identified: Grove Farm office building in Puhi, Līhu‘e Mill Bridge, Ho‘omana Overpass Bridge, and Līhu‘e Public Cemetery</td>
</tr>
</tbody>
</table>

Table 2. Kōloa Heiau Documented by Thrum in 1907

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanakalauae</td>
<td>Māhā‘ulepū, Kōloa</td>
<td>Of large size, destroyed years ago by Fredenberg to erect cattle pens with its stones</td>
</tr>
<tr>
<td>Kanehaule</td>
<td>Kaunuiieie, Kōloa</td>
<td>Paved walled enclosure of large size, destroyed some time ago; a heiau where rites of circumcision were performed</td>
</tr>
<tr>
<td>Kihouna</td>
<td>Po‘ipū, Kōloa</td>
<td>Single walled heiau situated a short distance west of the above, 100 x 125 ft, enclosed on all sides by walls 4 to 6 ft high, with entryway near middle of mauka wall; makai wall 8 ft thick; a section of stones as of pavement shows nearly whole length near makai wall and in NE corner is section said to have been its altar stones</td>
</tr>
<tr>
<td>Kaneiolouma</td>
<td>Po‘ipū, Kōloa</td>
<td>Size 102 x 180 ft, lying nearly east and west along shore close to beach; of three terraces, with two prominent and other room divisions at east or inner end, west end open; side walls 3 to 5 ft high; seaward wall 9 ft thick; east end wall very crooked, 11 ft thick, 6 ft high; inner terrace stone paved, middle terrace partly so, with flat slabs of coral or limestone</td>
</tr>
<tr>
<td>Weliweli</td>
<td>Weliweli, Kōloa</td>
<td>Paved heiau of large size; Po‘okanaka class; walls 4 ft high; portions of same said to be still standing</td>
</tr>
<tr>
<td>Waiopili</td>
<td>Māhā‘ulepū, Kōloa</td>
<td>Oblong heiau of good size, walls still standing</td>
</tr>
<tr>
<td>Site 74</td>
<td>Fishing shelter on the shore near the mouth of Kukui‘ula valley.</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Site 75</td>
<td>Kūhiō Park, west of Waikomo Stream with taro patches, a small heiau, an oven, paved house platform, fish pond, game ground with seats and a fishing shrine.</td>
<td></td>
</tr>
<tr>
<td>Site 76</td>
<td>Salt pans east of Waikomo Stream</td>
<td></td>
</tr>
<tr>
<td>[Sites 77-84]</td>
<td>Located east of Kōloa Ahupua‘a</td>
<td></td>
</tr>
<tr>
<td>Site 85</td>
<td>Walls, enclosures and house sites in the cactus covered country around the Kōloa reservoir and extending to the sea.</td>
<td></td>
</tr>
<tr>
<td>Site 86</td>
<td>House site in the area described in Site 85</td>
<td></td>
</tr>
</tbody>
</table>

A photographic comparison of two photographs taken from nearly identical positions, one in 1998 (from Hammatt and Chiogioji 1998) and the other in 2014 (from the current archaeological reconnaissance), documents a significant change in vegetation across the landscape in the vicinity of the project area (Figure 11 and Figure 12).

### 3.3 Background Summary and Predictive Model

Although much of the seaward portion of Kōloa is a relatively dry area with approximately 30 inches of rain per year, the perennially flowing streams provided a resource for the development of a rather expansive agricultural system. Accounts of the early history of Kōloa (Farley 1907; Jarves 1844; Judd 1935; and Townsend 1839) describe the lands mauka of Kōloa Town as a seemingly continuous, well-maintained, agricultural complex of taro, yams, sweet potato, and sugar cane irrigated by an extensive ‘auwai system siphoned off Waikomo and Pō‘ele’ele streams. This system had a significant influence on later commercial endeavors in Kōloa.

Kōloa is the site of the first organized sugar plantation in Hawai‘i. Ladd and Company leased about 1,000 acres for the sole purpose of growing sugar cane (Palama and Stauder 1973). The commercialization of sugar cane in Kōloa had widespread social effects. The traditional view of the ‘āina being a responsibility of the ali‘i was transformed into one of capitalist opportunity.

Kōloa Town and Kōloa Landing, at the mouth of Waikomo Stream, became prominent commercial centers during the mid- to late 1800s, exporting a variety of products such as sweet potatoes, sugar, and molasses. Whalers also stopped for provisions of squash, salt, salt beef, pigs, and cattle (Palama and Stauder 1973:20). This heightened activity dramatically altered the social structure and landscape of Kōloa.

While most of the infrastructure supporting historic agriculture clearly lies well seaward of the present project area, during the later historic period the upper elevations of Kōloa became important collection areas for irrigation water. It is possible historic ditches, flumes, pipelines, and other features related to collection of irrigation water exist within or in the immediate vicinity of the project area.
Figure 11. Overview of Kaumuali‘i Highway and surrounding area, view to east (from Hammatt and Chiogioji 1998)

Figure 12. 2014 matching overview of Kaumuali‘i Highway and surrounding area from current archaeological reconnaissance, view to east
Section 4  Results of Fieldwork

Fieldwork conducted for the AIS includes a 100% pedestrian inspection and subsurface testing. A 100% pedestrian inspection of the project area included the identification and documentation of cultural resources within the project area and a description of the overall project area including ground visibility, modern use or disturbance, and vegetation. Subsurface testing consisted of six shovel test probes (STP). The STPs were designated STP-1 through STP-6. Fieldwork was conducted between 14 July 2015 and 15 July 2015 by CSH archaeologists Missy Kamai, B.A., Tom Martel, B.A., and Richard Stark, Ph.D. All fieldwork was conducted under the direction of the principal investigator Hallett H. Hammatt, Ph.D.

4.1 Pedestrian Inspection Results

The two cultural resources identified within the project area are Bridge 7E (SIHP # 50-30-10-2285) and an earthen ditch (SIHP # -2286) that extends perpendicular to Kaumuali‘i Highway and passes water through the culverts of Bridge 7E. The earthen ditch is a plantation water control feature that likely predates the installation of Bridge 7E in 1933. Complete descriptions of these cultural resources are provided in Section 6.

Vegetation observed within the project area included exotic grasses, eucalyptus, and albizia trees. The eucalyptus trees within the project area appear to be part of a tree farm that spans both sides of Kaumuali‘i Highway (see Figure 4 and Figure 13). Eucalyptus trees are commonly grown as a cash crop for pulpwood, which can be used to make a variety of paper products. The tall exotic grasses within the project area obscured ground visibility significantly during the pedestrian survey (Figure 14). These grasses are commonly found in areas of past sediment disturbance, including former agricultural fields.

4.2 Subsurface Testing Results

Six shovel test probes (STPs 1–6) were excavated along the shoulder of Kamuali‘i Highway (Figure 15). The STPs measured on average 50 cm in length by 50 cm in width and extended on average 82 cm below surface. The general stratigraphy observed includes three strata consisting of a clay loam A horizon (Stratum I), overlying a clay B horizon (Stratum II) that overlies a lateritic decomposing bedrock C horizon (Stratum III). As the depth increases, the mottling and compaction of the sediment increases.

Traditional Hawaiian cultural material was not observed during subsurface testing. Historic cultural material observed and collected from within the A horizon consisted of a porcelain fragment (Acc. # 1). No cultural resources were identified during the subsurface testing program.
Cultural Surveys Hawai‘i Job Code: KOLOA 66

Results of Fieldwork

AISR for Bridge 7E Project, Kōloa, Kaua‘i

TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por. Kaumuali‘i Highway Right-of-Way

Figure 13. Overview of the project area depicting eucalyptus trees and exotic grasses along both sides of Kaumuali‘i Highway, view to east

Figure 14. General view of exotic grasses within the project area that obscure ground visibility, view to northwest
Figure 15. Aerial photograph depicting the location of the six STP excavations within the project area (Google Earth 2013)
4.2.1 STP-1

STP-1 is located southeast of the bridge, on the south side of the highway, in the central portion of the project area (see Figure 15). STP-1 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 115 cm. The water table was not observed. The stratigraphy of STP-1 consists of a clay loam A horizon (Stratum I), overlying disturbed loam (Stratum II) and lateritic clay C horizon (Stratum III) (Figure 16, Figure 17, and Table 3).

No traditional Hawaiian cultural material was observed. Historic cultural material observed consists of one historic ceramic sherd (Acc. # 1). The sherd is an undecorated, porcelain, body fragment dating from early eighteenth century to twentieth century.

4.2.2 STP-2

STP-2 is located east of the bridge, on the south side of the highway, in the middle portion of the project area (see Figure 15). STP-2 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 80 cm. The water table was not observed. The stratigraphy of STP-2 consists of a clay loam A horizon (Stratum I) overlying clay B horizon (Stratum II) and a lateritic clay C horizon (Stratum III) (Figure 18, Figure 19, and Table 4). No traditional Hawaiian or historic cultural material was observed.

4.2.3 STP-3

STP-3 is located east of the bridge, on the north side of the highway, in the middle portion of the project area (see Figure 15). STP-3 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 60 cm. The water table was not observed. The stratigraphy of STP-3 consists of a sandy clay loam A horizon (Stratum I) overlying clay loam B horizon (Stratum II) and a lateritic clay C horizon (Stratum III) (Figure 20, Figure 21, and Table 5). No traditional Hawaiian or historic cultural material was observed.

4.2.4 STP-4

STP-4 is located east of the bridge, on the north side of the highway, in the east portion of the project area (see Figure 15). STP-4 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 44 cm. The water table was not observed. The stratigraphy of STP-4 consists of a clay loam A horizon (Stratum I) overlying a disturbed clay (Stratum II) and a lateritic clay C horizon (Stratum III) (Figure 22, Figure 23, and Table 6). No traditional Hawaiian or historic cultural material was observed.

4.2.5 STP-5

STP-5 is located west of the bridge, on the north side of the highway, in the central portion of the project area (see Figure 15). STP-5 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 110 cm. The water table was not observed. The stratigraphy of STP-5 consists of a clay loam A horizon (Stratum I) overlying a clay B horizon (Stratum II) and a lateritic clay C horizon (Stratum III) (Figure 24, Figure 25, and Table 7). No traditional Hawaiian or historic cultural material was observed.
Figure 16. STP-1 northeast wall profile view
Figure 17. STP-1, northeast wall, view to northeast

Table 3. Stratigraphic Description of STP-1 Northeast Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–16</td>
<td>A horizon; 10YR 3/4, dark yellowish brown; clay loam; weak, fine, crumb structure; moist, firm consistence; no cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary; common, fine, medium roots observed; current land surface; historic ceramic sherd (Acc. # 1) observed and collected</td>
</tr>
<tr>
<td>II</td>
<td>16–85</td>
<td>Disturbed natural; 10YR 4/4, dark yellowish brown; loam; weak, medium, crumb structure; moist, loose consistence; no cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary; few, fine, medium roots observed; 5 cm lens of angular basalt pebbles (40-45 cmbs), disturbed layer, likely related to agricultural use and/or highway construction</td>
</tr>
<tr>
<td>III</td>
<td>85–115 (BOE)</td>
<td>Natural; 5YR 3/4, dark reddish brown; clay; moderate, medium, crumb structure; moist, firm consistence; no cementation; plastic; terrigenous origin; lower boundary not visible; few fine roots observed; naturally deposited decomposing bedrock (laterite), compaction increases near BOE</td>
</tr>
</tbody>
</table>
Figure 18. STP-2, east wall profile
Figure 19. STP-2, east wall, view to east

Table 4. Stratigraphic Description of STP-2 East Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–15</td>
<td>A horizon; 10YR 3/3, dark brown; clay loam; moderate, medium, crumb structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; diffuse, wavy lower boundary; common, fine, medium roots observed; current land surface</td>
</tr>
<tr>
<td>II</td>
<td>15–55</td>
<td>B horizon, 5YR 4/4, reddish brown; clay; strong, medium, blocky structure; moist, firm consistence; no cementation; very plastic; terrigenous origin; diffuse, wavy lower boundary; no roots observed</td>
</tr>
<tr>
<td>III</td>
<td>55–80 (BOE)</td>
<td>C horizon, 2.5YR 4/4, reddish brown, containing 40%, medium mottles of 10R 4/6, red; clay; massive structure; moist, extremely firm consistence; no cementation; very plastic; terrigenous origin; lower boundary not visible; no roots observed; naturally deposited decomposing bedrock (laterite), mottling and compaction increases near BOE</td>
</tr>
</tbody>
</table>
Figure 20. STP-3, northeast wall profile
Cultural Surveys Hawai‘i Job Code: KOLOA 66
Results of Fieldwork

AISR for Bridge 7E Project, Kōloa, Kaua‘i

Figures: 21. STP-3, northeast wall, view to northeast

Table 5. Stratigraphic Description of STP-3 Northeast Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–10</td>
<td>A horizon; 10YR 3/3, dark brown; sandy clay loam; moderate, medium, crumb structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many, fine, medium roots observed; current land surface</td>
</tr>
<tr>
<td>II</td>
<td>10–40</td>
<td>B horizon, 5YR 4/6, yellowish red; clay loam; strong, medium, blocky structure; moist, firm consistence; no cementation; plastic; terrigenous origin; diffuse, wavy lower boundary; no roots observed</td>
</tr>
<tr>
<td>III</td>
<td>40–60 (BOE)</td>
<td>C horizon, 10YR 5/8, yellowish brown, containing 30%, medium mottles of 5YR 4/6, yellowish red; clay; massive structure; moist, extremely firm consistence; no cementation; very plastic; terrigenous origin; lower boundary not visible; no roots observed; naturally deposited decomposing bedrock (laterite), mottling and compaction increases near BOE</td>
</tr>
</tbody>
</table>
Figure 22. STP-4, west wall profile
Figure 23. STP-4, west wall, view to west

Table 6. Stratigraphic Description of STP-4 West Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–14</td>
<td>A horizon; 10YR 3/2, very dark grayish brown; clay loam; weak, medium, crumb structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; clear, smooth lower boundary; common, fine, medium, coarse roots observed; current land surface; compacted A horizon, small angular basalt cobbles</td>
</tr>
<tr>
<td>II</td>
<td>11–39</td>
<td>Disturbed natural, 10YR 3/3, dark brown, 10% mottles of 2.5YR 4/4; clay loam; moderate, medium, crumb structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; diffuse, wavy lower boundary; no roots observed; previously disturbed natural, likely due to road construction; mottles observed at upper boundary</td>
</tr>
<tr>
<td>III</td>
<td>39–44 (BOE)</td>
<td>C horizon; 2.5YR 4/4, reddish brown; clay; strong, medium to coarse, blocky structure; moist, firm consistence; no cementation; plastic; terrigenous origin; lower boundary not visible; no roots observed; angular and subangular basalt cobbles, collected small to large basalt/volcanic pebbles</td>
</tr>
</tbody>
</table>
Figure 24. STP-5, west wall profile
Figure 25. STP-5, west wall, view to west

Table 7. Stratigraphic Description of STP-5 West Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–5</td>
<td>A horizon; 5 YR 3/2, dark reddish brown; clay loam; weak, medium, crumb structure; dry, weakly coherent consistence; no cementation; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; common, medium, coarse roots observed; current land surface; weak A horizon</td>
</tr>
<tr>
<td>II</td>
<td>5–40</td>
<td>B horizon, 5YR 4/3, brown; clay; moderate, medium, crumb structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; few, medium roots observed</td>
</tr>
<tr>
<td>III</td>
<td>40–110 (BOE)</td>
<td>C horizon, 7.5YR 4/6, strong brown; clay; moderate, medium, crumb structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; lower boundary not visible; no roots observed; naturally deposited decomposing bedrock (laterite), compaction increases near BOE</td>
</tr>
</tbody>
</table>
4.2.6 STP-6

STP-6 is located west of the bridge, on the north side of the highway, in the western portion of the project area (see Figure 15). STP-6 measured 50 cm long by 50 cm wide. The base of excavation was determined to be approximately 80 cm. The water table was not observed. The stratigraphy of STP-6 consists of a sandy clay loam A horizon (Stratum I) overlying a clay loam B horizon (Stratum II) and a lateritic clay C horizon (Stratum III) (Figure 26, Figure 27, and Table 8). No traditional Hawaiian or historic cultural material was observed.
Figure 26. STP-6, east wall, view to east
Figure 27. STP-6, east wall, view to east

Table 8. Stratigraphic Description of STP-6 East Wall

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Depth (cmbs)</th>
<th>Description of Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0–35</td>
<td>A horizon; 10YR 3/4, dark yellowish brown; sandy clay loam; moderate, fine, crumb structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; abrupt, wavy lower boundary; common, fine, roots observed; current land surface</td>
</tr>
<tr>
<td>II</td>
<td>35–55</td>
<td>B horizon, 7.5YR 4/6, strong brown; clay loam; strong, fine, blocky structure; moist, very firm consistence; no cementation; plastic; terrigenous origin; diffuse, wavy lower boundary; no roots observed</td>
</tr>
<tr>
<td>III</td>
<td>55–80 (BOE)</td>
<td>C horizon, 7.5YR 4/6, strong brown, containing 30%, medium mottles of 5YR 4/6, yellowish red; clay; moderate, fine, blocky structure; moist, extremely firm consistence; no cementation; very plastic; terrigenous origin; lower boundary not observed; no roots observed; naturally deposited decomposing bedrock (laterite), motting and compaction increases near BOE</td>
</tr>
</tbody>
</table>
Section 5  Results of Laboratory Analysis

One historic artifact was recovered in STP-1 (Table 9). One porcelain body fragment was recovered from STP-1 (Figure 28). Porcelain was used by Euro-Americans as early as the eighteenth century and in Asian cultures starting as early as the first few centuries AD (Barber 1910). Often types of porcelain can be dated and attributed to a geographical area using the decoration techniques. However, the fragment recovered from the project area is very small in size and lacks decoration, therefore little can be said about it.

Table 9 Artifacts Observed and Collected During Subsurface Testing

<table>
<thead>
<tr>
<th>Acc. #</th>
<th>STP #</th>
<th>Stratum</th>
<th>Depth</th>
<th>Material</th>
<th>Type</th>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>1</td>
<td>I</td>
<td>0-16 (cmbs)</td>
<td>Ceramic</td>
<td>Tableware</td>
<td>porcelain body fragment, undecorated, transparent glaze on interior and exterior</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 28. Acc. # 1, porcelain body fragment
Section 6  Cultural Resource Descriptions

Two cultural resources were identified within the current project area during this AIS. They are summarized in Table 10 and are depicted on Figure 29 and Figure 30.

Table 10. Cultural Resources Identified within the Current Project Area

<table>
<thead>
<tr>
<th>SIHP #</th>
<th>Formal Type</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-30-10-2285</td>
<td>Bridge (Bridge 7E)</td>
<td>Transportation</td>
</tr>
<tr>
<td>50-30-10-2286</td>
<td>Earthen ditch</td>
<td>Water control</td>
</tr>
</tbody>
</table>
Figure 29. Portion of the 1996 Koloa USGS 7.5-minute topographic quadrangle showing the location of cultural resources within the project area
Figure 30. Aerial photograph showing the location of cultural resources within the project area (Google Earth 2012)
6.1 SIHP # 50-30-10-2285

<table>
<thead>
<tr>
<th>FORMAL TYPE:</th>
<th>Bridge (Bridge 7E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUNCTION:</td>
<td>Transportation</td>
</tr>
<tr>
<td>NUMBER OF FEATURES:</td>
<td>1</td>
</tr>
<tr>
<td>AGE:</td>
<td>Historic (1933)</td>
</tr>
<tr>
<td>TEST EXCAVATIONS:</td>
<td>None</td>
</tr>
<tr>
<td>TAX MAP KEY:</td>
<td>TMK: [4] 2-7-001 Kaumuali‘i Highway Right-of-Way</td>
</tr>
<tr>
<td>LAND JURISDICTION:</td>
<td>HDOT</td>
</tr>
</tbody>
</table>

SIHP # -2285 is Bridge 7E, located along Route 50 (Kaumuali‘i Highway) approximately 800 ft west of the Maluhia Road/Kaumuali‘i Highway intersection. Bridge 7E is identified as a concrete slab bridge constructed in 1933 composed of reinforced concrete consisting of two culvert cells with wing-wall abutments (Figure 31 and Figure 32). Bridge 7E was constructed as part of the second Federal aid highway project on Kaua‘i. W.R. Bartels designed the bridge. The bridge was built by Hawaiian Contracting Company, Ltd. (Spencer Mason Architects 1989:27–28). The bridge has a length of approximately 7.0 m (23 ft) and a width of approximately 9.8 m (32 ft). The bridge surface is paved with asphaltic concrete.

The 1989 State Historic Bridge Inventory Evaluation states that “although the bridge [Bridge 7E] design is an example of Depression-era bridges, it has no artistic value, it is not a unique entity or a diverse resource” and is therefore not eligible for historic status (Spencer Mason Architects 1989:27–28). Similarly, the 2013 State Historic Bridge Inventory Evaluation states, “This culvert does not have distinctive engineering or architectural features that depart from standard culvert design” (MKE Associates LLC/Fung Associates, Inc. 2013:3–6).

Architectural recordation conducted during the current project supports the previous evaluations (Ruzicka 2015). Bridge 7E was evaluated by Ruzicka (2015) as not significant and not eligible for the National Register or the Hawai‘i Register. This is based on the determination that the culvert does not appear to contribute significantly to an understanding of the development of the Kaumuali‘i Highway, and is not a particularly distinctive example of a box culvert; nor is it considered a significant achievement of its designer.
Figure 31. SIHP # -2285, Bridge 7E, view to east

Figure 32. SIHP # -2285, Bridge 7E, view to northeast
6.2 SIHP # 50-30-10-2286

<table>
<thead>
<tr>
<th><strong>FORMAL TYPE:</strong></th>
<th>Ditch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FUNCTION:</strong></td>
<td>Water control</td>
</tr>
<tr>
<td><strong>NUMBER OF FEATURES:</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>AGE:</strong></td>
<td>Historic (plantation)</td>
</tr>
<tr>
<td><strong>TEST EXCAVATIONS:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>LAND JURISDICTION:</strong></td>
<td>HDOT, Eric A. Knudsen Trust, private</td>
</tr>
<tr>
<td><strong>PREVIOUS DOCUMENTATION:</strong></td>
<td>None</td>
</tr>
</tbody>
</table>

SIHP # -2286 is an earthen ditch that extends north to south and perpendicular to Kaumuali‘i Highway, passing through the culverts of Bridge 7E. Water flows within the ditch from north to south and into Mauka Reservoir. The width and depth of the ditch is variable. On the south side of Bridge 7E, the ditch has a width of approximately 3.0 m (9.8 ft) with a depth of approximately 2.4 m (7.9 ft) (Figure 33). On the north side of Bridge 7E, the ditch is wider and measures approximately 4.6 m (15.1 ft) with a shallower depth of approximately 1.8 m (5.9 ft) (Figure 34). The portion of the earthen ditch within the project area measures 163.0 m (534.8 ft) long. SIHP # -2286 is depicted on the 1963 Koloa USGS topographic quadrangle extending to Mauka Reservoir (see Figure 8) and is also clearly visible on the 1978 Koloa USGS orthophotoquad extending through sugar cane fields (see Figure 9). While earlier historic maps do not depict the ditch, it is likely that the ditch was present in 1933 to warrant the installation of the Bridge 7E box culvert.

SIHP # -2286 is interpreted as an historic (plantation) earthen ditch used for water control. SIHP # -2286, an earthen ditch, is evaluated for significance under §13-275-6 Criterion “d” (Have yielded, or is likely to yield, information important for research on prehistory or history), however, the earthen ditch lacks integrity of design, materials, workmanship, feeling and association, and is therefore not eligible to the National Register or the Hawai‘i Register pursuant to 36 CFR 60.4 and HAR §13-198-8.
Figure 33. SIHP # -2286, earthen ditch south of Kaumuali‘i Highway, view to south

Figure 34. SIHP # -2286, earthen ditch north of Kaumuali‘i Highway, view to northeast
Section 7  Summary and Interpretation


Background research included various mythological and traditional accounts as well as early historic information from the Kona District of Kaua’i as there was little documentation specific to Kōloa Ahupua’a prior to the nineteenth century. Accounts of the early history of Kōloa (Farley 1907; Jarves 1844; Judd 1935; and Townsend 1839) describe the lands mauka of Kōloa Town a seemingly continuous, well-maintained, agricultural complex of taro, yams, sweet potato, and sugar cane irrigated by an extensive ‘auwai system siphoned off Waikomo and Pōʻelʻele streams.

Kōloa is the site of the first organized sugar plantation in Hawai‘i. Ladd and Company leased about 1,000 acres for the sole purpose of growing sugar cane (Palama and Stauder 1973:18). Kōloa Town and Kōloa Landing, at the mouth of Waikomo Stream, became prominent commercial centers during the mid- to late 1800s, exporting a variety of products such as sweet potatoes, sugar, and molasses. Commercial sugar production continued throughout much of the twentieth century in the vicinity of the project area. Most of the mauka areas of Kōloa remained under sugar cane cultivation as late as the 1970s, when these cane lands were converted into pasture.

Presently, the project area includes small portions of a eucalyptus tree farm that spans both sides of Kaumuali’i Highway. Eucalyptus trees are commonly grown as a cash crop for pulpwood, which can be used to make a variety of paper products.

A companion architectural study (Ruzicka 2015) is being conducted by Mason Architects, Inc. in conjunction with this AISR. When applicable, the information from the architectural study has been incorporated into the present AIS document.

The entire current project area has been previously subject to an AIS-level investigation. An AIS for an approximately 11.5-km long portion of Kaumuali’i Highway including the majority of the Bridge 7E project area was completed by CSH (Hammatt and Chiogioji 1998) with no significant finds. Therefore, the study was termed an archaeological assessment. However, the study did note the location of four cultural resources in the vicinity of the study area including Grove Farm office building in Puhi, Līhuʻe Mill Bridge, Hoʻomana Overpass Bridge, and Līhuʻe Public Cemetery. None of these cultural resources are located in the vicinity of the current project area.

During the current AIS, two cultural resources were identified within the project area. The two cultural resources are Bridge 7E (SIHP # -2285) and an earthen ditch (SIHP # -2286) that extends perpendicular to Kaumuali’i Highway and passes water through the culverts of Bridge 7E. The earthen ditch is a plantation water control feature that likely predates the installation of Bridge 7E in 1933. The findings of the AIS are consistent with historical background research, which predicted the likely occurrence of plantation water control infrastructure within the project area.
Section 8  Significance Assessments

As discussed in Section 1.2, cultural resources, are generally at least 50 years old (although there are exceptions) and include buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance. The current investigation was tasked with the identification of archaeological cultural resources, however, this report also includes, where appropriate, the architectural cultural resources documented and evaluated in the companion architectural survey conducted by Mason Architects, Inc. (Ruzicka 2015).

For a cultural resource to be significant under HAR §13-275-6, the cultural resource should possess integrity of location, design, setting, materials, workmanship, feeling, and/or association, and meet one or more of the following criterion:

“a” Be associated with events that have made an important contribution to the broad patterns of our history;

“b” Be associated with the lives of persons important in our past;

“c” Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;

“d” Have yielded, or is likely to yield, information important for research on prehistory or history; or

“e” Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

Cultural resource significance was evaluated and expressed by Ruzicka (2015) as eligibility for listing on the National Register (pursuant to 36 CFR 60.4) and/or the Hawai‘i Register (pursuant to HAR §13-198-8). To be considered eligible for listing on the National and/or Hawai‘i Register, a cultural resource should possess integrity as described above, and meet one or more of the following broad significance criteria:

“A” that are associated with events that have made a significant contribution to the broad patterns of our history;

“B” that are associated with the lives of persons significant in our past;

“C” that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;

“D” that have yielded, or may be likely to yield, information important in prehistory or history;
SIHP # -2285 has been evaluated in the 1989 State Historic Bridge Inventory Evaluation as not eligible for historic status (Spencer Mason Architects 1989:27–28). Similarly, the 2013 State Historic Bridge Inventory Evaluation states, “This culvert does not have distinctive engineering or architectural features that depart from standard culvert design” (MKE Associates LLC/Fung Associates, Inc. 2013:3–6). Architectural recordation conducted during the current project supports the previous evaluations (Ruzicka 2015). Bridge 7E was evaluated by Ruzicka (2015) as not significant and not eligible for the National Register or the Hawai‘i Register. This is based on the determination that the culvert does not appear to contribute significantly to an understanding of the development of the Kaumuali‘i Highway, and is not a particularly distinctive example of a box culvert; nor is it considered a significant achievement of its designer.

SIHP # -2286, an earthen ditch, is evaluated for significance under §13-275-6 Criterion “d” (Have yielded, or is likely to yield, information important for research on prehistory or history), however, the earthen ditch lacks integrity of design, materials, workmanship, feeling and association, and is therefore not eligible to the National Register or the Hawai‘i Register pursuant to 36 CFR 60.4 and HAR §13-198-8.
## Section 9  Project Effect and Mitigation Recommendations

### 9.1 Project Effect

In accordance with Federal regulations (36 CFR 800.5), CSH’s project-specific effect recommendation is “no adverse effect.” Under Hawai‘i State historic preservation review legislation, the project’s effect recommendation is “no historic properties affected” (in accordance with HAR §13-13-275-7). This is based on the lack of significant cultural resources within the project area and APE, based on the eligibility criteria for the National and/or Hawai‘i Registers (36 CFR 60.4 and HAR §13-198-8, respectively).

### 9.2 Mitigation Recommendations

No further archaeological fieldwork is recommended for the current project.
Section 10  References Cited

Alexander, Arthur, C.

Barber, Edwin Atlee

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Boundary Commission

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Farley, J.K.

Fike, R.E.

Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens

Google Earth

Hammatt, Hallett H. and Rodney Chiogioji
Hammatt, Hallett H., David W. Shideler, Constance R. O’Hare, Dominique Cordy, and William H. Folk  

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Lindsey, Bill  

Lockhart, Bill  

Missionary Herald  

MKE Associates LLC / Fung Associates, Inc.  
2013    State Historic Bridge Inventory Evaluation. MKE Associates LLC, Aiea, Hawai‘i.

Monsarrat, M.D.  
OHA (Office of Hawaiian Affairs)  

Palama, Stephen L. and Catherine Stauder  

Pukui, Mary Kawena, Samuel H. Elbert, and Ester T. Mookini  

Ruzicka, Dee  
2015 SHPD Historic Recourse Inventory Form – Reconnaissance Level for Bridge 7E. Mason Architects, Inc., Honolulu.

Spencer Mason Architects  
1989 Historic Bridge Inventory: Island of Kaua‘i. Spencer Mason Architects, Honolulu.

Thrum, Thomas G.  
1907 Heiaus and Heiau Sites Throughout the Hawaiian Islands. In Hawaiian Almanac and Annual for 1908. Thos. G. Thrum, Honolulu.

Toulouse, Julian Harrison  

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1839 Narrative of a Journey Across the Rocky Mountains . . . and a Visit to the Sandwich Islands and Chile . . . H. Perkins and Marvin, Boston, Massachusetts.

U.S. Department of Agriculture  

USGS (U.S. Geological Survey)  
1910 Lihue USGS Survey 7.5-Minute Series Topographic Quadrangle. USGS Information Services, Denver, Colorado.

1963 Koloa USGS Survey 7.5-Minute Series Topographic Quadrangle. USGS Information Services, Denver, Colorado.


1996 Koloa USGS Survey 7.5-Minute Series Topographic Quadrangle. USGS Information Services, Denver, Colorado.

Waihona ‘Aina  

References Cited
Whitten, David

Wichman, Frederick B.

Wilcox, Carol

Wilkes, Charles, Commander U.S.N.
1845 Narrative of the United States Exploring Expedition During the Years . . . Lea and Blanchard, Philadelphia, Pennsylvania.

Zumwalt, Betty
HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM – Reconnaissance Level

FOR SHPD USE ONLY:

Site #

TMK #

GENERAL INFORMATION

Common / Present Name: Bridge 7E
Historic Name: Bridge 7E

Address: Kaumualii Highway (Rt. 50) at mile marker 7
City/ Town/ Location: 1100' west of Rt. 50 intersection with Rt. 520
County: Kauai

TMK [(X)-X-X-XXX:XXX]: (4)-2-7-001: 999
Subdivision/Neighborhood: n/a
Latitude: 21d-56m-54.20s  N
Longitude: 159d-28m-10.26s  W

Original Use: Vehicular bridge
Current Use: Vehicular bridge

Date of Construction (if known): 1933

LOCATION MAP
Alterations (additions, etc.) if known: Ca. 1953 the 5 mile section of roadway that was built under NRH 12-B was widened under Federal Aid Project (FAP) F12 (19). In most areas, the original 18' wide roadway was widened by 3' at each side to give a total roadway width of 24'. On curves and tangents, the 6' increase was added to one side only. This work did not affect Bridge 7E directly, as it was originally built at 30' wide. However, the roadway over the bridge was likely resurfaced at this time. Drawings for FAP F12 (19) were produced by the Territorial Highway Department, dated April 2, 1952 and signed by Robert Belt, who was then the Territorial Highway Engineer. It is uncertain who designed FAP F12 (19), as the extant drawings are not initialed. The metal guardrails were added at an unknown date.

Original Location, if moved: _____
Reason for move (if known): _____

Condition:

- Excellent
- Good
- Fair
- Deteriorated

Condition Explanation: Some impact damage of concrete at parapets

Eligibility (select all that apply):

- National Register of Historic Places
- State Register of Historic Places
- Not Eligible

2-4
HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM – Reconnaissance Level

FOR SHPD USE ONLY: Site # Click here to enter text. TMK # Click here to enter text.

- Eligible
- Listed
- Contributing to Historic District: Name of District: Unknown

Criteria of Significance (select all that apply)
- A: Associated with Events
  Event:
- B: Associated with Significant Person(s)
  Person(s):
- C: Distinctive characteristics of a type, period or method of construction; work of a master; possess high artistic values (Architecture, Engineering, Design)
- D: Have yielded or may be likely to yield information important to history or prehistory. Explain:

DESCRIPTION

Materials (please check those materials that are visible):

Height
- Stories:
- N/A
- Below Ground
- Other: bridge

Exterior Walls (siding):
- Aluminum Siding
- Asbestos
- Brick
- Ceramic
- Concrete
- Horizontal Wood Siding
- Other:

- Log
- Metal
- Shingles-Asphalt
- Shingles-Wood
- Stone
- Stucco
- Vertical Wood Siding
- Other:

Roof:
- Asphalt, shingle
- Asphalt, roll
- Other:

- Metal
- Slate
- Built Up
- Ceramic Tile
- Wood Shingle
- None

Foundation:
- Brick
- Concrete Block
- Concrete Slab
- Other:

- None – on earth
- Poured Concrete
- Raised/Pile
- Stone
- Other:

Structural Support:
- Baled Hay
- Concrete Block
- Concrete Framed
- Other:

- Concrete Poured
- Frame-wood
- Frame-metal/steel
- Brick-load bearing
- Stone-load bearing
- Puddled Clay

Bridge 7E, view facing southwest

3-4
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<tr>
<td>□ Stuccoed Masonry</td>
<td>□ Siding</td>
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Narrative Description:

Bridge 7E (Feature MAI A) is a concrete, double box culvert that carries two lanes of Kaumualii Highway (Route 50) over an unnamed intermittent stream at mile marker 7, east of Lihue, Kauai. The bridge is 30' wide between the parapets with a total span of about 21' for both cells of the culvert.

The setting of the bridge is rural, along a gently curving section of the highway with a sight distance of about 900' to the east and about 1800' to the west, with no buildings that are in sight of the bridge. Thick vegetation is growing in the stream bed and covering the low banks, and tall trees line the road in both directions. Bridge 7E is about 1100' west of the intersection of Maluhia Road.

The 24'-6" long, low, solid concrete parapets of the bridge are 10" thick and about 1'-6" high above the asphalt roadway surface. The top corners of each parapet that are presented to oncoming traffic have a 10" chamfer. W-beam guardrails are mounted to the top surface of each parapet by short, vertical sections of galvanized steel I-beam. The parapets and headwalls of the underside of the bridge show the horizontal impressions of the forming boards used during construction.

Each of the two cells of the culvert are about 10' high and 10' wide and are separated by a 10" wide concrete wall that forms a vertical support at the middle of the 21' total span of the bridge. The four concrete wing walls each extend straight out about 12' from the concrete abutments. Along this 12' length, the top edge of each wing wall slopes downward about 8'.

Throughout the historic period until approximately 1989, the area surrounding Bridge 7E was sugar cane fields. The tall trees that line the road have grown since 1989.

Bridge 7E is bridge number 007000500300700 in the National Bridge Inventory database. It was last inspected on October 23, 2012 by the State of Hawaii, Department of Transportation, Highways Division.

Integrity:

Bridge 7E retains sufficient integrity to enable NA listing. Integrity of location is retained. Integrity of setting is partially retained, the area surrounding the bridge that is now forested was formerly sugar cane. Integrity of design, materials, and workmanship are retained, although somewhat impacted by the alterations. Integrity of feeling and association are retained.

Nearby Resources:

Within the Area of Potential Effect (APE) an additional resource was identified:

Feature MAI D: Earth ditch. Location: Passes under Kaumualii Highway through the [culvert] Bridge 7E. Description and evaluation: This unlined, earth ditch is typically about 8' to 10' wide in the vicinity of Bridge 7E,
with banks about 6' high. As shown on topographic maps, it extends several thousand feet to carry water from an area near the confluence of the Paohia Stream and the Waiahi-Kuia Aqueduct down to the Mauka Reservoir south of the highway. This ditch is one of four that supply water to the Mauka Reservoir. This ditch is evaluated as not eligible for the National Register of Historic Places. It lacks significance associated with engineering distinction and has no known association with an important historic person or event.

During the field inspection of Kaumualii Highway for a distance of approximately ½ mile on either side of the Bridge 7E the following features were noted which are outside the APE.

Feature MAI B: Reinforced concrete bridge. Location: Kaumualii Highway about 750' east of Bridge 7E. Description and evaluation: This approximately 22' long bridge has concrete parapets with narrow arched openings and curved-plan end stanchions. This bridge appears as Bridge 7F on original 1933 construction drawings (drawing # 4298.3) for this section of Kaumualii Highway. This bridge is included in the 2013 Hawaii State Historic Bridge Inventory, Waihohonu Stream Bridge. This 2013 inventory evaluated it as eligible for the National Register under Criterion A and C for its association with the development of Kauai's Belt Road system, as a good example of a 1930s concrete bridge, and as an example of Federal Aid bridges constructed by the Territory in the 1930s. This bridge is outside the APE and was not evaluated in this report for eligibility for the National Register of Historic Places.

Feature MAI C: Concrete box culvert. Location: Kaumualii Highway about 540' west of Bridge 7E. Description and evaluation: This small culvert has concrete headwalls that project up about 1'-6" above the level of the roadway. These are topped by a W-beam guardrail fixed to posts on the top surface of the projecting headwall. This culvert appears as "3 x 6 concrete box culvert" on original construction drawings (drawing # 4298.3) for this section of Kaumualii Highway. This culvert is outside the APE and was not evaluated for eligibility for the National Register of Historic Places.
Bridge 7E Survey Area

LIMITS OF SURVEY: 0.5 MILE FROM BRIDGE

MAI B BRIDGE 7F

MAI A BRIDGE 7E

MAI C CONCRETE BOX CULVERT

MAI D EARTH DITCH

LIMITS OF SURVEY: 0.5 MILE FROM BRIDGE

APE
Survey Area

0 0.05 0.1 0.2 Miles
Bridge 7E APE
Historic Resources within the APE
HISTORICAL CONTEXT:

Bridge 7E was part of the ca. 1933 National Recovery Highway Project (NRH) No. 12-B which built what would become Route 50 along an approximate five mile section beginning near the present day junction with Route 520 and extending west to Kalaheo. Prior to this project the existing road followed a twisting route with frequent abrupt turns along the contour of the land and was unpaved in places. The 1933 project built a straighter road that was cut and filled through the terrain to provide a gentler grade. Much of the older road was destroyed as NRH 12-B cut through it, other sections that extended farther from the path of the 1933 project were abandoned.

Drawings for Project NRH 12-B were produced by the Hawaii Territorial Highway Department. They are signed by the Territorial Highway Engineer, Lyman H. Bigelow, and are dated October 2, 1933. The individual drawings for Bridge 7E are dated July 1933 and show that the designer of the bridge was William R. Bartels.

Bartels was a bridge engineer for the Hawaii Territorial Highway Department. He received his education and training in Germany and immigrated to Hawaii in 1932 when he commenced working with the Highway Department. He continued his career there until his retirement in 1958. During that period he was a prolific designer, responsible for large and sophisticated bridge construction projects in Hawaii, including many tee-beam and rigid-frame concrete bridges.

The National Recovery Highway project was a depression-era public works program undertaken by the Roosevelt administration. The roadway of NRH 12-B bypassed Koloa. The bridge was built by Hawaiian Contracting Co. LTD and construction was supervised by Robert Belt, who was the Resident Engineer on Kauai for the Territorial Highway Department.

SIGNIFICANCE STATEMENT:

Bridge 7E is included in the November 2013 Hawaii State Historic Bridge Inventory and Evaluation by MKE Associates, LLC, and Fung Associates, Inc. This inventory describes 7E as not eligible (page 3-6), with no distinctive features that depart from standard design. The bridge is included in the 1989 Kauai Bridge Inventory. The 1989 inventory states that the bridge is also known as Hoinakaunalehua Bridge. However, this name is assigned to a 1950 culvert that is located on Rt. 50 about 2 miles east of Bridge 7E. It is more likely that the alternate name in the 1989 bridge inventory is in error due to a confusion between the two bridges. The 1989 evaluation for Bridge 7E is not eligible due to a lack of distinguishing engineering or artistic characteristics.

Bridge 7E is evaluated in this report as not eligible for the Hawaii or National Register of Historic Places. The culvert does not appear to contribute significantly to an understanding of the development of the Kaumualii...
Highway. It is not a particularly distinctive example of a box culvert; nor is considered a significant achievement of its designer. As such the 7E culvert does not appear to be eligible for listing on the NRHP.

References

Drawings:

Historic drawings are available at the Hawaii Department of Transportation, Highway Design Section database as electronic scans. These include:

- Project NRH 12-B, 53 sheets. Dated 1933.
- Project FAP F12 (19), 15 sheets. Dated 1952.

Sources:

September 21, 2015

J. Michael Will, P.E., Project Manager
U.S. Department of Transportation, Federal Highways Administration
12300 West Dakota Avenue, Suite 380
Lakewood, CO 80228

Re: Request for Consultation Under NHPA Section 106 and Hawai‘i Revised Statutes Chapter 6E for the Replacement of Bridge No. 7E
Kōloa Ahupua’a, Kona Moku, Kaua‘i Mokupuni
Tax map key (4) 2-7-002:001 (por.), 004 (por.), and (4) 2-7-001

Aloha Mr. Will:

The Office of Hawaiian Affairs (OHA) is in receipt of your August 26, 2015 letter requesting information on cultural, historic, and archaeological sites within the area of potential effect. The United States Department of Transportation, Federal Highway Administration is proposing the replacement of Bridge 7E on Kaumuali‘i Highway.

OHA would like to suggest that the following entities and individuals be contacted:

- Royal Order of Kamehameha I, Kamualii Chapter
  - Warren Perry
- Aha Moku Kaua‘i Island, Kona Moku
  - Billy Kaohelauli‘i (terrichayes@gmail.com)
- Ka‘ahumanu Society
  - Julie Souza
- Lopaka Bukoski
Mahalo for the opportunity to consult. Should you have any questions, please contact Jeannin Jeremiah at 594-1790 or by email at jeanninj@oha.org.

‘O wau iho nō me ka ‘oia ‘i‘o,

Kamana‘opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:jj

C: Kaliko Santos – OHA Community Outreach Coordinator, Kaua‘i Island

*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
MEMORANDUM

DATE: October 28, 2015

TO: J. Michael Will, P.E.
Program Engineering Manager
Federal Highway Administration
Central Federal Lands Highways Div.
12300 West Dakota Avenue, Suite 380
Lakewood, CO 80228

FROM: Kauai Historic Preservation Review Commission

SUBJECT: Letter (8/25/15) from J. Michael Will, P.E., Program Engineering Manager,
US Department of Transportation, Federal Highway Administration
requesting to be placed on the Kaua‘i Historic Preservation Review
Commission agenda to discuss and review the Wainiha Bridges No. 1, 2, 3;
Bridge 7 E; Kapa‘a Stream Bridge; and Hanapēpē River Bridge.

This is to inform you that the Kauai Historic Preservation Review Commission (KHPRC) met on
October 1, 2015 to discuss and review the proposed bridge projects submitted in accordance with
the Section 106 Consultation.

The KHPRC appreciated the opportunity to comment on the project and received the
documentation on the subject bridges. The comments offered by the KHPRC are contained in
the attached minutes of the KHPRC meeting of October 1, 2015.
Please feel free to contact us should you have any questions regarding this matter.

Mahalo.

cc: State Historic Preservation Division

attachment
KAUAI COUNTY HISTORIC PRESERVATION REVIEW COMMISSION
Lihu’e Civic Center, Mo‘ikeha Building, Meeting Room 2A/2B

MINUTES

A regular meeting of the Kauai County Historic Preservation Commission (KHPRC) was held on October 1, 2015 in the Lihu‘e Civic Center, Mo‘ikeha Building, Meeting Room 2A/2B.

The following Commissioners were present: Chairperson Pat Griffin, Anne Schneider, Stephen Long, Charlotte Hoomanawanui, Victoria Wichman, and Larry Chaffin Jr.

The following Commissioners were absent: Althea Arinaga, David Helder, and Kuuleialoha Santos.

The following staff members were present: Planning Department – Kaaina Hull, Shanlee Jimenez; Deputy County Attorney Jodi Higuchi-Sayegusa; Office of Boards and Commissions – Administrator Jay Furfaro, Support Clerk Darcie Agaran.

CALL TO ORDER

The meeting was called to order at 3:00 p.m.

APPROVAL OF THE AGENDA

Ms. Griffin: If there are no objections as we move to approve the agenda, I would like to place items C.2., C.3., and C.4. at the end of the business today, rather than where they appear now. With that, may I have a motion to approve the agenda?

Ms. Schneider: I make a motion that we approve the agenda.

Mr. Chaffin Jr.: Second.

Ms. Griffin: Thank you. Ms. Schneider moved and Mr. Chaffin seconded the motion. All in favor? (Unanimous voice vote) Opposed? Hearing none, the motion carries 6:0.

APPROVAL OF THE AUGUST 6, 2015 MEETING MINUTES

Ms. Griffin: The Approval of the August 6, 2015 Meeting Minutes. Are there any corrections?

Hearing none. May I have a motion to approve?

Ms. Wichman: Move to approve.
Ms. Schneider: I second the motion.

Ms. Griffin: Ms. Wichman moved and Ms. Schneider seconded the motion. All in favor? (Unanimous voice vote) Opposed? Hearing none, we accept the minutes as written. Motion carries 6:0.

COMMUNICATIONS

Re: Letter (9/8/15) from Ronald A. Sato, AICP, Senior Associate, HHF Planners Regarding Environmental Reviews for Federally-Subsidized Public Hearing Projects (County of Kaua‘i); Section 106 Consultation – No Effect Determination – Hale Hoolulu (Eld), TMK: 5-2-08:56; Hale Hoonanea (Eld), TMK: 2-1-03:17; Hale Nani Kai O‘Kea (Eld), TMK: 4-6-14:105; Home Nani (Eld), TMK: 1-6-07:31; Kawaihau (Federal), TMK: 2-6-04:58; Kekaha Haaheo, TMK: 1-3-08:20 & 26.

Ms. Griffin: Item B.1., a letter from Ronald Sato regarding environmental review for Federally-Subsidized Public Housing Projects; Section 106 Consultation.

Mr. Chaffin Jr.: Where is that?

Ms. Griffin: It’s at the end of the minutes, so it’s...let’s call it half an inch in.

Is there anyone in the public who is here to testify on the Federally-Subsidized Public Housing renovations? No. If there aren’t comments at this point, may I have a motion to receive the communication?

Ms. Schneider: I make a motion that we receive the communication.

Ms. Griffin: Ms. Schneider has moved and Ms. Wichman has seconded the motion to receive the communication.

Mr. Chaffin Jr.: From HHF Planners?


UNFINISHED BUSINESS

Re: Letter (7/17/15) from Kimi Yuen, Senior Associate, PBR Hawai‘i & Associates, Inc. informing the KHPRC of the Draft Environmental Impact Statement (EIS) for the Hā‘ena State Park Master Plan that has been prepared pursuant to Chapter 343 of the Hawai‘i Revised Statutes and Administrative Rules, Title 11, Chapter 200.
Ms. Griffin: Item C.1., Unfinished Business. The letter from Kimi Yuen, Senior Associate at PBR Hawai‘i & Associates informing the KHPRC of the Draft Environmental Impact Statement for the Hā‘ena State Park Master Plan. There is a memorandum in our packet, immediately after the HHF Planners letter. Kaaina, would you like to tell us about this, please?

Deputy Director Kaaina Hull: Yes, just real briefly. During the last KHPRC meeting, essentially the Hā‘ena State Master Plan, the draft EIS, was being presented to you folks for your review and comment. The ultimate summary that happened at the meeting was there were some concerns, there were some statements, but overall there was a concern of having time to review the draft EIS in which the Commission wanted additional time to review it on their own and submit comments to the Department to essentially synthesize, and then get back to you folks for your review and action.

So the comments that you have before you now are what the Department received. The Department is in agreement with these comments and would recommend passage of, or adoption of those comments to be sent to OEQC for their inclusion in these communications for the draft EIS.

Ms. Griffin: And that’s Office of Environmental Quality Control.

Mr. Hull: Correct. Sorry about that.

Ms. Griffin: Thank you. There is the two-page response. Is there a motion to adopt?

Ms. Schneider: I make a motion that we adopt the comments as Kaaina has stated them.

Ms. Griffin: Second? Larry Chaffin seconded. Anne Schneider made the motion. Discussion?

Mr. Long: This is about the Hā‘ena Beach Park?

Ms. Griffin: It’s the State Park Plan, yes.

Mr. Long: Right. I have some comments.

Ms. Griffin: About the draft of the memo?

Mr. Long: Not about the memo; about the plan itself.

Ms. Griffin: Okay.

Mr. Long: Is now an appropriate time for that?

Ms. Griffin: The motion has been made to adopt the comments as they were sent in to the Planning Department from any of us who sent them in, and to adopt them as written. So we should deal
with whether or not to adopt these; that’s the motion. And then I will ask if there are other comments.

If there are no comments, the motion has been made to adopt this memorandum as written. All in favor? (Unanimous voice vote) Opposed? Hearing none, they are adopted. Motion carries 6:0.

Along with the letter, are there other issues? Stephen?

**Mr. Long:** Oh, thank you. I did have some additional thoughts or questions or comments regarding the Hā‘ena Beach Park Plan. Is there a representative from the consultant or the State here?

**Alan Carpenter:** Yes.

**Ms. Griffin:** Mr. Carpenter, please identify yourself as well.

**Mr. Carpenter:** Hi. Good afternoon, Commissioners. I’m Alan Carpenter, Division of State Parks. So not to step backward, but if I may kind of give you a brief update on things that have happened from our side since the last time we met.

We were under the understanding that you folks were going to compile your comments and get it to us by the deadline, which was September 8th. We held a public meeting on August 19th. It was very well attended in Hanalei; over three hundred (300) people. It was a little contentious, and many people at that time asked for additional time to digest the plan because it is a very intimidating document as there is a lot in there and it’s very complex. Subsequently we also received a number of written comments asking for an extension. We have, in fact, granted that extension to the public and we have a new date of October 9th to accept formal public comments. However, subsequent to that, we also met again with our Master Plan Advisory Committee and the consensus after that meeting was there’s enough dissention and confusion in the community about the plan that the amount of time that we had given to digest it and the amount of time we spent presenting the plan in a public forum was not adequate. We agreed collectively that was, in fact, the case and that we would rather get this done right than get it done quickly. So we have internally, we’re not putting a halt to the OEQC process, but we are going to take more time to engage with the community, have additional public outreach led by the Master Plan Advisory Committee who feel…they’ve invested so much in the plan that it’s really their responsibility to take it out, obviously with State Parks support. We envision that process is probably going to allow for another six (6) months of discourse prior to taking the plan to the DLNR Board for finalization, so there is time. I’m not saying hey, give yourselves six (6) more months and get back to us, but we will continue to accept comments, particularly from agencies because of the complexity and the length of the plan, and our own, sort of, misstep in taking it out at such a late time. There was a lot of public interaction, but it was very early on and this has been like an eight-year process, so we feel that it’s only fair to the community to extend it at this time.

**Ms. Griffin:** Well thank you. You will be getting a memorandum from the Historic Preservation Review Commission with our comments as it stands now. There are additional questions I think that you have.
Mr. Long: Yes, thank you. At our last meeting with you, and thank you very much for being here, I also understand that our responsibility is towards historical nature of comments, so I'm going to keep myself to that subject.

Mr. Carpenter: Thank you.

Mr. Long: I had a question about the resources that were mauka of the highway. How are those going to be handled and access to those?

Mr. Carpenter: That's a complicated issue because we have identified rock fall danger immediately of the cliffs, which includes the highway and a little bit makai of the highway. To back up a little bit, we originally envisioned taking jurisdiction of the highway from DOT, turning it into an interpretive pedestrian corridor, which would highlight the caves and the other sites mauka of the highway, as well as the lo‘i to the makai side. We have pretty much committed, through a collaborative process with the community, to moving people away from the rock fall hazard, which is where that boardwalk trail comes in, in the plan, right. That trail is situated so that it's beyond the 0% rock fall hazard line; that was not originally part of our intent. So there will be no directed public access along the highway, which gives you the most direct views of, in particular, the two (2) wet caves. However, those caves will be interpreted from this trail, so there will be an interpretive waypoint along the way. In fact, there are a couple of advantages to the boardwalk, and this was something proposed by the folks who are working the lo‘i; not by us. They direct people and they keep people in a single, sort of, file corridor away from the hazard zone, but also you are kind of immersed...this is both a plus and a minus...you're immersed in the lo‘i system. You are walking right through it, so you get the best view of that cultural landscape because you're in the middle of it. But you also get a view of Makana, which is a very important cultural peak that is over lined at the whole park with tremendous significance; a view that you don't get when you're right up against the base of the cliffs and you're walking on that road. You can't see it. So it's another thing, you get to see a little bit more of Hāʻena's cultural landscape as you move. Now, we are not going to physically barrier anybody from walking down the road, but you will have to do so at your own risk. I think due to our primary mission of keeping people safe, we're not going to invite people to those caves.

Mr. Long: There are two (2) caves, the dry and the wet cave, down on the highway.

Mr. Carpenter: They are both wet; one (1) is higher than the other.

Mr. Long: Okay. And then up above, for decades we'd take the kids and go up, and there's this cave up there where you can go into.

Mr. Carpenter: Right. Okay, yes, the dry cave is back at the County Park.

Mr. Long: About 35, 40 feet up. So that's the cave we'd take our kids to; put lifejackets on them, take them through various caverns, which was fun.
Mr. Carpenter: Yes. It is and a lot of people do it. Technically, it’s not allowed, right; swimming in the waters is not allowed, and we’ll probably keep it that way. Again, that is right smack dab in the middle of the rock fall hazard zone, so we are not going to invite people to go up there. You know, it’s a double-edged sword. You can go back and look at what we had to do with Kaliuwa‘a, Sacred Falls on O‘ahu, which is a very culturally important place to a lot of people, but the danger is so great that we felt that we had a duty to literally keep people out, so nobody can go there today. I don’t know if it will come to that. I don’t know if the risk in this area is of that magnitude. I know the engineers who do the study; I think they do good work. I haven’t read the rock fall danger report cover to cover, and some of its just probability, so I can’t say how great that risk is.

I know that when I go to places, I have a very, sort of, keen awareness of hazards now when I visit places. I see things differently now that I’ve seen all of these hazards in our own parks. I always use, sort of, the barometer of well, would I take my kids there? And I think I would. I would probably take my kids up there. But that’s not a...you can’t use my measure, right, so we have to go with what the report says, and if it says there’s a high risk of somebody being injured or killed, we either have to mitigate that risk or move people out of the way. And that’s, you know, we are going to move them out of the way and simply not invite them in. There’s not going to be people chasing you up there and telling you to get out most likely, but staffing’s a whole other issue.

I see you had a concern in here that the cost involved in implementing this is an issue. I think the first one was, is this ever going to happen? Will this Master Plan ever be completed? The Master Plan will be completed. Will it be fully implemented? I doubt it will ever be 100% implemented. It will be implemented in phases as funding allows, and I think little things hopefully will help the community realize that these are small changes that are for the good. We like to think that the whole process is going to be a community-based adaptive management strategy. So the community has been driving this from the beginning, but we have to accept it and we have to accept the liability that our decisions bring. Anyway, I hope...has that answered your question at all?

Mr. Long: Yes, thank you.

Mr. Carpenter: Alright.

Mr. Long: During your last presentation to us, you mentioned something about no restrictions for traditional gathering rights. I take that to mean if somebody in the neighborhood wants to go fishing, they got their fishing pole, they can walk down the highway and go fishing. So what kind of mechanisms are going to be in place to allow that to happen?

Mr. Carpenter: My guess is...I think the easiest way for us to implement that would be to have a Special Use Permit that people could get, probably annually. You come in, you give your reasoning behind your cultural attachment, your reason to get there, and that would be your pass for that year to get in. It wouldn’t cost anything.

Mr. Long: Okay. I know that you are going to have to restrict the number of people by about half. We don’t have the site plan up here, so what happens when somebody drives down to the end of
the road, and at what point are they told to turn around? I mean, is there a sign like the “Closed Bridge” barrier that says “Kē‘ē Beach now full for the day”?

Mr. Carpenter: I think there are a number of ways that could happen, and I don’t think we have the answer. This is largely dependent... the notion of setting a visitor limit, which is really breaking new ground, not just here, but anywhere. I mean, there’s no National Park that does that, currently. We don’t have a model to go on. All we know is there’s too many people there now; too many cars and too many people. And it’s having a detrimental effect on the resource and visitor experience. There are so many things that have to come together before we can even think about implementing that. So we have to have the issue of enforcement outside of the park. A shuttle is almost mandatory to be in operation if we are going to cut down the number of cars dramatically. To answer your question, I don’t know exactly how it will work. Whether it would be you have to purchase an advanced ticket for any given day, or whether it would be all manifested right there by a control point and staff in the park; probably a combination thereof. There’s a lot of scenarios envisioned in that plan, and I think that’s part of the reason people are very concerned about it because it looks like we’re just throwing out all of these things to confuse people, but we are really throwing out all of these things because we are not sure which one is going to work. We want to be able to implement and adapt as we go to make sure that if we mitigate all of the impacts in the park, but create a whole bunch outside, that’s not a success, right? So, we don’t know, but it probably will start with limited parking and no visitor limit; that will be the first step. And we may implement a visitor limit without enforcement, and see how that works. I’m guessing it won’t. Actually, out-of-state visitors might comply; I don’t think locals will. There’s a big question of local access, and we are hearing a ton about that. If we implement a visitor limit and we don’t have the ability to discriminate between local and visitor, there will be times when locals will not be able to go. They will be turned around, too. We haven’t figured that out yet. Although one thing we’re pretty sure we’ll do is there will be a peak period during the day when this limit will apply. Very early in the morning and late in the afternoon it won’t, which means those who want to go there early to fish, those who want to run down the trail, go surf at Hanakāpī’ai, those who want to come and watch the sunset at 6:45 will be able to come in, as long as there’s parking place available.

But again, to get back to your question, we don’t have the perfect answer yet, but it’s going to take experimentation, and hopefully a solution can be reached.

Ms. Griffin: Do you have a date for the next public meeting?

Mr. Carpenter: We don’t. We do not yet.

Mr. Long: My final thought...and we don’t have the site plan up here...

Mr. Carpenter: Do you want one?

Mr. Long: No.

Mr. Carpenter: Okay.
Mr. Long: But my consideration is that there ought to be some kind of a turnaround in the site plan; not a hammerhead, so people get there then it’s the easy (inaudible).

Mr. Carpenter: There is a turnaround. There’s a turnaround before you even enter the parking lot.

Mr. Long: Okay, that’s all. Thank you.

Mr. Carpenter: Okay.

Ms. Griffin: Thank you so much. As the conversation and the plan potentially evolves, I assume you’ll come back and see us, and we may well generate a second memorandum to you.

Mr. Carpenter: We would be glad to. We want to keep you folks involved. A lot of people think this plan was a done deal. I mean, one of the things was just the semantics for the fact that it was called a “Final Draft”, but I mean, it’s still a draft. We’re still very open to modifying the plan, and I think we’ve already made some concessions. The plan that you see, it’ll change. Most likely the development will be lessened. I can almost certainly say that, but we are going to hear more from the public before we make the final decisions.

Ms. Griffin: Great. Thank you so much.

Mr. Carpenter: Okay, thank you.

NEW BUSINESS

Re: Class IV Zoning Permit Z-IV-2015-41, Use Permit U-2015-40 and Variance Permit V-2015-6 to allow installation and height variance for a 53 feet high stealth telecommunications structure and associated equipment on a parcel located in Lihu‘e, situated at the Tip Top Motel/Café and Bakery site, further identified as 3173 Akahi Street, Tax Map Key 3-6-006:073, Lihu‘e, Kaua‘i.

Ms. Griffin: So moving into New Business. Item D.1., Class IV Zoning Permit and Use Permit and Variance Permit to allow installation and height variance for a 53-foot high stealth telecommunications structure and associated equipment on a parcel located in Lihu‘e, situated at the Tip Top Motel/Café and Bakery site, further identified as 3173 Akahi Street.

Mr. Hull.

Mr. Hull: Okay. Thanks Pat. For the Commission, this is a unique review for you folks. The structure itself is a new structure where it’s going onto the Tip Top Café and Motel is actually not a historic structure. It’s close to it; it is forty-seven (47) years old. In a few years it will be part of our inventory, but as of currently, it is not. To give you guys some background on why it is here before you folks for your review, the application was before the Planning Commission back in August. What Verizon was proposing to do is put a telecommunication tower there with the
antennas to meet customer demands, essentially. To take a few steps even further back, over the past several years, there have been an increasingly large amount of applications concerning telecommunication facilities. The vast majority of them have come to Kaua‘i and the ones that have received approval are in the Agricultural Zoning District. One of the biggest issues that generally arises concerning these sites, because they are often high...they average generally at 70 to 100 feet, some of them go up to 150/160 feet...is the ability to stealth them because the telecommunications tower can have this fairly industrial look, and it also breaches into the horizon as impacts on the view plain. Over the past decade, the telecommunication industry has gotten very used to the fact that on Kaua‘i, stealthing of these sites is very important. I’d say roughly 90% of the sites have some type of stealth capability. Because the majority of them are in the Agricultural Zoning District, they are actually turned into what make them look like pine trees, essentially. A handful has come into the urban area, and those that have generally stealth themselves by going on an existing building of the necessary height and making like a full wall around the antennas that does not interrupt the transmission of radio frequency (inaudible). As demand for these sites increase, in particular because of data and the iPhone craze now, the telecommunication companies are increasing the amount of sites that they need in the urban area. When Verizon came with this application in Tip Top, the original proposal that they came with was, and I believe Shan handed it out to you guys, it’s one of the paper ones that we just handed out today.

Ms. Schneider: The monopole?

Mr. Hull: Well actually the monopole is not what they originally proposed. I actually asked them to provide that to see essentially what it would look like with a monopole at that site. Ten (10), fifteen (15) years ago I think most applications that’s what the Applicant would have proposed. But the telecommunication industry, like I said, has gotten very used to the fact that on Kaua‘i, you have to kind of stealth in order to get review by Planning Commission. So they automatically came in with a stealth proposal, which is the other handout you folks have, in which it kind of just is that 55-foot high tower essentially.

Ms. Schneider: Steeple?

Mr. Hull: Yes. When the Department saw that in the preliminary review with them, we had actually informed them that they can submit that application, but given the protrusion in the horizon, the impact of what the Department deemed as somewhat monolithic, the Department would probably be recommending denial on that application. So in looking at other strategies that have been utilized in the urban form on the mainland, per se, is the use of either a water tank or a clock tower is a fairly common strategy to stealth telecommunication facilities. In looking at that, we kind of had asked what a clock tower would look like, and they came back with a rendering, which you guys got in the original packet that was submitted to you guys last week. With that proposal, the Department did feel that did, in fact, blend with the urban form of the Līhu‘e Town Core. It also served somewhat of a functional aesthetic in the sense that the clock would be functioning. We took it to the Planning Commission with a recommendation of approval. The Planning Commission, on August 25th, approved the site for telecommunication; however, they had concerns about the design. So ultimately, the Applicant has to return to them with a design
proposal that they feel is appropriate. Aesthetics is a very tricky subject to get into. If you have seven (7) Commissioners, you are probably going to have seven (7) different opinions on what’s aesthetically appropriate. The Planning Commission actually referred this application to you folks to see what your design review would be of the site within a historical context, keep in mind, but that is why, essentially, you have been handed this application. It’s not officially a historic site, but the Planning Commission is requesting that you review the site and do a design evaluation and possibly if you have a recommendation on one (1) of the options that the Applicant has given. So essentially you have three (3) options that the Applicant has given to you folks, which is...technically you guys have five (5) options, actually. You’ve got the three (3) that were previously transmitted to you; one (1) was...

Ms. Griffin: The clock tower, the silo, and the water tank.

Mr. Hull: The water tower. And then you also have these options, which were the original proposal, as well as just straight going telecommunication tower. The Department still holds by its recommendation to the Planning Commission that the clock tower is the most aesthetically appropriate for this area. However, it’s here for your review and your comment, essentially.

Ms. Griffin: Thank you very much. Are there questions of Kaaina? Is the Applicant here?

Mr. Hull: She is.

Kathy O’Connor-Phelps: Good afternoon, Madam Chair and the rest of the Commission. I’m Kathy O’Connor-Phelps. I’m a consultant for Verizon Wireless who will be the carrier at this project. We are eager to get your input. We are willing to basically do any design to get it going and get it approved. I will say that the owner’s preference is the clock tower. He’s not crazy about the water tank and it’s not good for co-location if you want to have another carrier utilize that site as well. I think, Mr. Hull, didn’t you say that it was called the Times Square? He had looked in some documents from way back when and it called it the Times Square of Lihu‘e, so I think the clock tower fits in just great with that. But if you have any questions, comments, kind of guide the Commission, otherwise you are going to end up with a pineapple. (Laughter in background)

Mr. Hull: She says that jokingly, but there was a request, essentially, to entertain looking at a possible pineapple design; a 50-foot pineapple.

Ms. O’Connor-Phelps: Yes. The landlord freaked.

Mr. Hull: To the Applicant’s credit, she actually had their engineers take a look and see if that was even feasible.

Ms. O’Connor-Phelps: We did. It was basically going to look like the water tank with the crown on top of it, so it would not look right.

Ms. Griffin: Thank you. Are there questions of the Applicant? Larry?
Mr. Chaffin Jr.: We have two (2) packets of drawings. Which one are you talking about?

Ms. O'Connor-Phelps: The clock tower was the one that we revised based on Planning’s comments, so that they would support the project; that’s what went before Planning Commission in August. Planning Commission said hey, can you try a water tank, can you try maybe like a farm silo, something like that? We said absolutely, we can adjust those, so you should have the silo, I think we have a smokestack, which is basically the silo without a top, and then the water tank. If you need copies, I have extra.

Ms. Wichman: There’s just the one that’s just bare, with just the antennas.

Ms. O’Connor-Phelps: Is that the...? Yes. We are just showing a comparison. That’s what a monopole, like Mr. Hull said, that’s you know a fifteen-year ago design, but that’s what they used to look like so they’ve come a long way. We are spending a lot of money to stealth the tower.

Ms. Schneider: Is this the final version of the tower?

Ms. O’Connor-Phelps: The clock tower?

Ms. Schneider: Yes.

Ms. O’Connor-Phelps: Yes. I mean, unless you guys have further comments and want something added to it.

Ms. Schneider: I think a little more overhang on the roof might make it a little more aesthetic.

Ms. O’Connor-Phelps: A little more overhang?

Ms. Schneider: Yes.

Ms. O’Connor-Phelps: Okay.

Ms. Griffin: What are the dimensions? We did get some plans, but they were reduced down to 8 1/2 by 11, which is always a challenge.

Ms. O’Connor-Phelps: Oh, okay. If you want a bigger one, I have one (1). I can pass it around, but I can give you dimensions.

Ms. Griffin: Thank you.

Ms. O’Connor-Phelps: It is 12 by 12. So essentially it’ll be a 12 by 12. It’s not going to be all the way down to the ground. It’ll have the four (4) posts, so he can still put his trash...he has a trash thing underneath there, so he can still utilize that space. And then the antennas at the top, behind, basically what it is, is a fiberglass that can shoot the signal through.
Ms. Griffin: Other questions of the Applicant?

Mr. Long: I have a comment. Since I have an iPhone, I'm in favor of more (inaudible) and stealing them. (Laughter in background) My comments, aesthetically, are I support Anne's comment on more of an overhang.

Ms. O'Connor-Phelps: Okay.

Mr. Long: I wonder if you even want to do a horizontal soffit with a split pitch.

Ms. O'Connor-Phelps: Horizontal soffit.

Mr. Long: Horizontal soffit with a split pitch.

Ms. O'Connor-Phelps: Okay.

Mr. Long: Your guts of your equipment is all at the top.

Ms. O'Connor-Phelps: Right.

Mr. Long: So you really want a flattest roof as possible. So instead of coming down like this, one could have a horizontal soffit and/or split pitch if possible within that same volume.

Ms. O'Connor-Phelps: Okay.

Mr. Long: And the second thing is, in the interest of reducing the mass, since the guts of the equipment are at the top, and there probably needs to be some circulation ladder going up the pole.

Ms. O'Connor-Phelps: Yes, between antennas, has to maintain a certain space.

Mr. Long: I believe that, design-wise, one could reduce the mass by keeping the top 12 by 12, which you need to house the equipment, but then you could reduce the base supporting that to something like 8 by 8, which has precedence in other watch towers historically. They'll come up and they'll have a little build out up at the top. So those are my comments.

Ms. O'Connor-Phelps: The only concern I have with the 8 by 8, and certainly we would do it, is that if AT&T came in later on, they may be before you again to go back out because they have to fit their antennas in, and I'm not sure what their configuration would be.

Mr. Hull: To give some background for that, so what you see with these sites, and particularly because...not just because they're costly, but because they can be unsightly, the State of Hawai'i has an official policy, as well as the County, when they are able to do so that they allow for co-location of their competitors on the same pole. So Verizon puts a pole up, they are required to make it available for their competitors to put antennas at a lower level, as opposed to every single competitor having their own sites, and therefore, reducing the amount of poles that are on Kaua'i
or throughout the State. The only issue...I don’t think that...that could be part of the aesthetic concern and that’s essentially what we are looking at here today. The part of the concern that the Commission may have with it is, you are no longer able to co-locate competitors on that pole. And I say that in a very neutral manner in the sense that if that’s what it takes to get this 50-foot tower aesthetically sited, then that’s what it takes.

Mr. Long: If that doesn’t work because of leasing considerations, one can reduce the mass by additional horizontal bands or a difference in material where you had something at the base and then something above; board and batten, and then stucco. I’m not asking to do any great architecture, just...you can break up the mass with different elements.

Ms. O’Connor-Phelps: Okay.

Mr. Hull: I think one (1) way that’s possible, if say this body decides to move on the clock tower and recommend it, that in going back to the design review with the Planning Commission, perhaps the Applicant can have different variations, like you are saying Commissioner, one in which you have additional horizontal lines or ones in which you actually are shrinking the mass to 8 feet where appropriate.

Ms. Griffin: Are there other questions of the Applicant? I know that there are several different types of receivers. The one presented here, is that the only one that’s available for this particular placement?

Ms. O’Connor-Phelps: You mean, did we go to other owners?

Ms. Griffin: I’m sorry?

Ms. O’Connor-Phelps: Did we go to other property owners? Is that what you mean?

Ms. Griffin: No. I’m talking about what it looks like on top. There used to be different types of transmitters, different sizes, and different looks.

Ms. O’Connor-Phelps: Yeah, I mean, what’s inside is typical of what it is today. They are 8-foot antennas; they are rather large.

Ms. Griffin: Okay.

Ms. O’Connor-Phelps: And then what we call “remote radio units” gives it a boost in signal, and then surge suppressors, just in case there is a power surge.

Ms. Griffin: Any other comments? Is there anyone in the public who would like to testify?

Yes, come up Palmer.
Palmer Hafdahl: If I may, I'm Palmer Hafdahl. I'm just sitting here as an interested community member at the moment. The Līhū'e Town Core Plan has in it allowances for pedestrian access from the neighborhoods on Elua Street and Akahi Street to the highway. It included options, one (1) central on Elua Street and then heads up to two (2) connectors from Akahi to the highway. In visiting the site, it was clear that this alignment through the center of Tip Top property happens to line up with the Elua pedestrian pathway suggested. Because of another interest I have, I didn't want to see the possibility of a pedestrian connection, at that point, being missed. Maybe not this Board in terms of how it looks, but in terms of placement, maybe the suggestion that we allow that it be placed so that at a term when there is a willing landowner on both sides that a connection can be accomplished there; just looking forward from the planning standpoint. I appreciate hearing that it actually is elevated above grade and it potentially allows greater access beneath them, but it's just something that I'd like to encourage you to look at when it comes to the aesthetics. Maybe not bringing it down to the ground is a good point, and the possibility of providing that connection. It turns out that it may be a real principal place to make that much needed connection. Thank you.

Ms. Griffin: Thank you. Our Commission is always cautioned to be guided by the laws and standards of historic preservation, and not our own personal taste. So I wanted to say that even though Tip Top is not quite fifty (50) years old, Akahi and Elua Street are certainly eligible to be historic districts. Our Town Core plan, which was adopted as an ordinance in 2010, I believe, talks real specifically about mass and scale. All of these structures, including the clock tower, when you talk about 12 by 12, that's probably about the...this much table, and that's really big. I have some pictures. This one you probably can’t see, but this is a historic building. This is the first part of the Civic Center that became historic almost a year ago. This is a historic building, the Kaua’i Museum, and that utility pole has got to be 50 feet tall. Here’s another, the light post in front. The round building won’t become historic for another two (2) years. This is the post that’s directly across the street from Tip Top; it's 50 feet. So I’m not convinced that the, let’s be honest here’s a cell tower, isn’t the best approach. That it’s just what it is because I think when people go down Akahi Street, they don’t see these poles. They see the houses, they see the offices, and the same is true if any of you who parked up on this side with the real tall lights. The Kaua’i Museum sees this because they’ve always wondered why the lights go back across in front of their property and then cross the street again, but again, we tend to see the museum; we don’t see the utility poles. So for me, looking at this district eligible street that seems like the least intrusive; the actual cell tower itself, rather than these very large things. Also, it is a variance from the 30-foot height limit that is listed on Akahi and Elua Street. I did not attend that Planning Commission meeting and I haven’t seen the transcript of the discussion, but it does look to me like that’s the least aggressive kind of approach. I don’t know. Any other comments?

Mr. Long: Yes. I’m picking up on what Pat is saying. There’s another option that isn’t presented here, which is the cell tower with some fake metal branches; like up on Princeville, Hoku Heiau, which is what you’re talking about. I mean, you’re just talking about the utilitarian bare pole, but if it’s really...you don’t see the telephone poles because you drive kind of like right by them and you don’t look out your window up 50 feet. This is a little bit more in the distance, so you are seeing more of the silhouette, which is rectangular. Maybe there is another option, which is not to hide it in a non-existing bell tower. In the city, they hide them in existing church steeple and that kind of thing, which it already exists; it’s hollow, that makes sense. Here you are building a really
large object to disguise something that’s really small. So in picking up on what Pat’s saying, maybe if we just disguise the silhouette of it, in the distance, make it kind of like a tree, or not like a big watch tower.

Ms. Schneider: Or paint it blue like the sky. (Laughter in background)

Mr. Long: That’s a thought. Personally, aesthetically I’d have to take a look at both of them, but I think they are both really valid; both are reasonable solutions.

Mr. Hull: If I could interject, too. These are discussions the Department has had with applicants for at least the past fifteen (15) years now, as the person who has been in charge of telecoms for the past several years. First and foremost, concerning the massing, I can understand the Chair’s concern with the fact that the clock tower...all of the other options have far more massing than the pole as presented. What I think you guys also need to take in to consideration is the pole as presented is more than likely not what the pole will morph into once co-location happens. The reason the massing is that large is because the antenna massing is that large, so ultimately what you could have here, because of co-location is you can see the top has all of those panel antennas which are roughly going to be about 12 feet in diameter. They are going to have their walls right around those antennas. There are going to be more coming down, and it’s just going to have a feel of a very large, massive antenna pole after co-location happens, so that’s one (1) of our concerns. And even above and beyond, I mean, the fight that we had with telecommunication carriers in the beginning to get them to realize that they should be stealthing these sites was the sense, and we would generally make the position that there’s utility poles galore all around. They are exempted from our review, but why should the utility poles be allowed to not have to stealth, and they are. Our response is, what always has been and will remain to be, those utility poles do impact the view plain. They have become, somewhat, background noise to the passenger in the car or the pedestrian, but they kind of just fold into the landscape because we’ve just accepted them. But when you do actually look at them individually, they do impact the view plain. And because there’s one (1) say unaesthetic structure does not legitimize you having the ability to now also put something that’s going to have an impact on the view plain. So that’s generally where we stood with these sites.

Concerning the monopine, because that has been, I’d say, the number one strategy for telecommunication carriers on the island, and that’s because the bulk of the sites are in the Agricultural District and the monopine blends in with the agricultural area. The trees help mask it and it becomes camouflage with the trees in and around it. A tree pole in an urban environment would stand out a bit like a sore thumb; they really do. I mean, do they look like trees when you’re zipping by on the highway, yes, but when you actually stop and actually look at these things, they’re not quite the magnificent piece of artwork that one may think is going into these because they do stand out. The only reason they don’t stand out is because they’ve got generally fifty (50) or sixty (60) trees around them. So that’s just what I’ll put in as the Department’s two cents on the review.

Ms. Griffin: Thank you. Okay, so we have some choices. We can choose not to comment on the aesthetics, we can make a choice with one (1) of the presented options, or we can potentially ask
for another refined option, but we are responding to the Planning Commission’s inability to decide on the options that they were given.

Ms. Schneider: Kaaina, either way they’re coming for a height variance?

Mr. Hull: Yes, they came in for the height variance. Essentially, the Planning Commission approved the variance and approved the site. However, they wanted further input on the actual design of the structure.

Ms. Schneider: So could we ask them to come back with some refinement of the clock version?

Mr. Hull: Given the Applicant’s timeline, it’ll ultimately be if you can come back, Kathy, is essentially what I think they’re asking.

Ms. O’Connor-Phelps: When do you...you meet again in...what are we in...

Ms. Griffin: First Thursday of each month.

Ms. O’Connor-Phelps: So of November? I mean, if that’s what it’s going to take to get you guys to let us move forward, then certainly. I mean, would we like to go to Planning Commission and be done and ready to submit it to Building Permits this year? Yes, we would obviously like that option better, but...

Ms. Griffin: Well if I can have a motion then we can discuss and then come to a vote.

Ms. Schneider: I make a motion that we ask the Applicant to come back with some refinements to the clock tower version.

Ms. Griffin: Is there a second? Hearing no second, that motion dies. May I have another motion?

Mr. Chaffin Jr.: I have a question. You mentioned trees surrounding this. Are these trees that you have planted or do they just happen to be there?

Ms. O’Connor-Phelps: We’ve done both. We’ve done it where there’s been trees that have been existing, and then especially on the mainland in Southern California, a lot of palm trees. We do a lot of monopals, and we are told to plant trees around it. This property is way too small. We would never be able to fit any landscaping. We’re pretty tight as it is in there, and there’s no...we actually thought about a monopine knowing that Kaua’i liked monopines, and like Mr. Hull said, I think it’ll stick out too much. We’d love to do that; it’s cheaper. (Laughter in background) My client would be very happy if it was a monopole even, but like Mr. Hull said, the photo sim is not showing what could potentially be co-locators on that pole.

Ms. Griffin: If we cannot get a motion to go forward, then essentially we are not going to make a comment. We will defer to whatever the Planning Commission decides. Is that the choice of the Commissioners?
Mr. Long: I’ll make a motion. I move that we support the owner’s inclination to support the stealthing of the cell tower in a clock tower construction, and that the mitigating elements on the clock tower proposal as submitted would be to revise the roof profile, perhaps a split-pitch and/or additional overhang, as well as reducing the mass of the tower with materials and other aesthetic elements, and that the Applicant come back before us and present those revisions.

Ms. Griffin: Is there a second?

Ms. Schneider: I’ll second the motion.

Ms. Griffin: Alright. It’s been moved and seconded that we support the owner by accepting the stealth of the cell tower in the clock tower, mitigating the design to revise the roof profile, perhaps with a double-pitch and longer overhang, and possibly reducing the mass on the post section itself. Thank you.

Is there further discussion? Larry.

Mr. Chaffin Jr.: I would like to propose that we not tell them exactly what to do, but come back to us with various proposals, so that they’re not just limited to this one (1) discussion.

Ms. Griffin: Great, and it did say “possibly” with those suggestions. Is there other discussion?

Ms. Wichman: Yes. I’d like to mention that I think the point that Paul brought up about the walkway that’s part of the Līhuʻe Town Core Plan, I think that needs to be addressed so that it’s not excluded since that already is part of the 2010 plan, right?

Ms. Griffin: Would you like to amend the motion?

Ms. Wichman: I’d like to amend that. That the pedestrian connection should be included within this plan.

Ms. Griffin: So Victoria is moving to amend the primary motion by incorporating the Town Core Plan’s pedestrian connection in the concept.

Mr. Hull: I’ll just interject real briefly on that. I think you’re within the purview of the Commission to say it should be considered. However, also knowing the fact that (1) the Planning Commission has already given approval to the site for a telecommunication facility and the actual requirements say of an access way would be considered an exaction, which Jodi would have to weigh in on, as far as whether you can do that after approval has been given, and then (2) that actual corridor requires, not only the Tip Top landowner giving approval to say an easement or handing the property over to the County, but as well as the abutting property owner as well, who is not part of this application. I’m not saying that the sentiment shouldn’t be in the motion, but just to caution, as far as to keep it in the consideration realm.
Ms. Wichman: Okay, so maybe I misunderstood. Was the corridor or the pedestrian connection part of the plan?

Mr. Hull: It is part of the plan, but it also requires, essentially, either the willing landowners convey that land to the County, or establish an easement, or that the County go in there and condemn the lands for that corridor. It’s a recommended connection to have, but in order for that connection to be established, it takes one (1) of those three (3) scenarios.

Ms. Wichman: Okay, I understand. So it hasn’t been approved?

Mr. Hull: Yes.

Ms. Griffin: Would you like to withdraw your motion? Or...

Ms. Wichman: I was under the assumption that the pedestrian corridor was already part of it, so I’d still like to see that happen. Consideration?

Ms. Griffin: Would you restate the motion, please?

Ms. Wichman: My part of the motion? I would like to see consideration of a pedestrian connection that goes through the Tip Top properties as planned in the Līhu‘e Town Core Plan of 2010.

Ms. Griffin: Is there a second?

Ms. Schneider: I second the motion.

Ms. Griffin: It’s seconded by Anne Schneider. So the amendment to the primary motion is that consideration be given to future possibility of the pedestrian path crossing the property as shown in the Līhu‘e Town Core Urban Design Plan adopted in 2010.

Ms. Wichman: Yes, thank you.

Ms. Griffin: Further discussion on the amendment? All in favor? (Unanimous voice vote) Opposed? Hearing none. Motion carries 6:0.

Going back to the primary motion, is there further discussion? All in favor? (Unanimous voice vote) Opposed? Hearing none, that motion carries 6:0 as well.

Ms. O’Connor-Phelps: Thank you.

Ms. Griffin: Thank you so much, Ms. O’Connor-Phelps.

Re: Garden Island Service Station (Aloha Petroleum Ltd.)
TMK: 3-6-06:89, Līhu‘e, Kaua‘i
Zoning Permit Z-98-16 for the Proposed Demolition of the Existing Shell Service Station.

Ms. Griffin: Under New Business, Item D.2., Garden Island Service Station (Aloha Petroleum Ltd.), Zoning Permit for the proposed demolition of the existing Shell Service Station.

Staff?

Mr. Hull: Good afternoon, again, Commissioners. Concerning the demolition of the subject service station, the Department has received the demolition application for the Shell Service Station. The site is not on the National or State Historic Registry; however, it is a historic site, as well as on the County of Kaua‘i inventory. The profile that we gave to you folks is actually inaccurate, and I’ll hand out the accurate profile. I believe the profile we handed to you stated 1942, when in fact it’s actually 1930, when the structure was constructed. It has proven through our research to be one (1) of the prime architectural features here on Kaua‘i concerning the roof in particular, as well as the overall site, but the roof, in particular, has proven to have significant historical and architectural significance. Actually, it was under consideration, I know, by this body, as far as recommending movement on nominating it to the State Historic Register. Ultimately, this is an application for you folks to begin discussions on. I think at this point, more than likely the Department, at the end of those discussions, will be recommending a deferral. And that is because it is a fairly complex process, and this is a very important building in the Department’s eyes. With that, I’ll turn it over to Pat because I know she has definite insight to the particular structure.

Ms. Griffin: Thank you. Are there questions of Kaaina?

Ms. Schneider: Kaaina, is there any way we can induce them to keep this building? Since it is iconic.

Mr. Hull: Yes. There are two (2) options, essentially, when you’re looking at regulations, right? I mean, you’re either going to use the stick or the carrot. The carrot being tax incentives and encouragement from this Commission or from other bodies to encourage the landowner to realize that they essentially have a gem within a rough right here that can be utilized for an array of different things. If that doesn’t work, to use the regulatory powers essentially is as to how far you can actually deny a demolition, would lead to an interesting legal and philosophical debate, let’s say, but it’s not that the Department is going to not necessarily go that far. The Department itself feels that it is a very significant structure and is currently in the process... I have a draft letter that we are sending to the landowner; basically to highlight the site and say what a gem this place really is. Do you realize you have this site? Its significance in Hawai‘i’s history, and perhaps you may have other plans for it.

Ms. Schneider: Because we were thinking of having this walking tour on an app for Līhu‘e, and that would certainly be one (1) of the highlights.

Mr. Hull: Definitely.
Ms. Schneider: I mean, it’s like a Route 66 element that is here on Kaua‘i.

Ms. Griffin: Is the Applicant here?

Mr. Hull: There’s an interesting situation going on with that. Palmer Hafðahl has been working with the Applicant, but actually isn’t authorized currently. He doesn’t have an actual legal authorization to give official representation to this body, or any other body, on behalf of the Applicant. I’m not sure if he might be willing to testify as a member of the public that has insight to this application; he may or may not. But officially, there is no applicant present at the meeting today.

Ms. Griffin: Okay. Well, the next item is whether or not there is anyone in the public who would like to come up and testify.

Mr. Hafðahl: Aloha. I’m Palmer Hafðahl and I just want to say I have worked with this applicant. I submitted the application for them. I’m kind of their representative here on the island, and I met with them this week and have had ongoing conversations with them. At this point, my last meeting with them is they are happy enough to defer this a bit until they can get their ducks in a row as well, but they’d certainly like to hear the impressions and concerns of the Kaua‘i Historic Preservation Review Committee and I’ll take those notes back to them.

Ms. Griffin: Thank you.

Mr. Hafðahl: Oh, I did submit the historic review for them as well, so I understand the history of it. On a personal note, my first trade was plastering and I always admired this building’s roof as it is done with what you call a scratch coat and plaster. It’s the first (inaudible) you take at a three-coat plaster job. It’s a unique application. Whether it’s historically significant for that, I don’t know. It’s significant to one plasterer’s son, but that’s all. (Laughter in background)

Ms. Griffin: Thank you, Palmer. You all had in your packets, and I’m sure you’ve read the information. There was a wealth of information about the history of the building, the exceedingly important architect, and a little bit in absence, but the ownership. Does anyone have comments?

Mr. Long: I have a question. I noted that there’s a demolition permit applied for, so has there been any development plans submitted?

Mr. Hull: No. It just looks like, currently, it’s just a straight demolition of the building. Our understanding is that they are essentially having some maintenance issues with the building and there isn’t really any plan to necessarily replace the building, per se.

Ms. Griffin: Excuse me, but the letter from Palms Hawai‘i does say that the demolished structure will be replaced by an iconic service station canopy and pumps assembly.

Mr. Hull: Yes, but as far as the canopy that is referenced in the letter, as well as the pumps, they still plan to maintain, as we understand it, still maintain the site as a fuel station; however, an actual
enclosed structure, as we understand it, has not been proposed, nor have we even seen the plans or received official plans and application for the new fueling station.

Ms. Schneider: Is there a deadline for you on the demolition permit? Or can you hold that until...?

Mr. Hull: Demolition permits are done via the Building Permit route, which do not have timeline requirements.

Ms. Griffin: Other questions/comments?

Mr. Chaffin Jr.: I'm very concerned that we don't get into trying to design a project that we are not qualified for. We don't have all of the information.

Ms. Griffin: Thank you. Other comments or questions?

Well Kaaina's right. I do have some things to say about this, and it relates to our kuleana; the history of the place and our place. The State Historic Preservation Division. Have we heard from them?

Mr. Hull: No, they haven't commented at this point. It has been referred to them, but they have not commented yet.

Ms. Griffin: Okay. As part of the Architectural Division of SHPD, they say, in Hawai'i, historic places play an important role of tangibly linking the diverse modern population with Hawai'i's unique history. They simultaneously serve as places of memory for those who have always lived here, while educating newcomers about the island's collective history. Preservation is important; not only is it a means to remember our past, but to inspire our future.

In what we do, we talk about places being historically significant. (1) If the building is historically or architecturally significant in terms of its period, style, method of building, construction, or use of indigenous materials. I'd like to suggest that this building absolutely fits that category. In the late 20's and early 30's, as the automobile age, the automobile era, was really coming into its own. Places around the Country really exhibited their own special locations by these service stations. This particular station, the owner, who was the big political boss here at the time, Senator Charles Rice, Charles Atwood Rice, Charlie Rice, and he owned that and they were looking at what we now call plantation-style, double-pitch roof, the old Dickey roof that we know. The architect, Guy Rothwell, who was one (1) of the designers of Honolulu City Hall, Honolulu Hale, and did a lot of other buildings, thousands of them in Hawai'i in his time, he said no, our heritage is Hawaiian. This roof, looking like a thatched roof, is a way to represent that, and using moss rock. At the time it was known as Kōloa moss rock. They actually dyed the roof a yellow to look like straw, and the island for the pumps, red pumps, they painted green. Some of you may remember Al Duvall, and they hired him to actually do the landscaping with native palm trees, native vines, and things. It's an architecturally significant building; there is not another one like it in the universe. (2) The building is a significant reminder of the cultural or architectural history of the City, State, or Nation. Yes. (3) The building is associated with the significant local state or national event, or
the building is associated with one (1) or more significant historic persons or events, or with the broad architectural, cultural, political, economic, or social history of the City, State, or Nation. And definitely, this service station talks about the significance that was starting to happen with transportation, which was the first thing. The automobile era is what got us out of our separate kingdoms at the different plantations. This building represented that in our own local style. (4) The building is one (1) of the few remaining examples of its period, style, or method of construction. Yep. (5) The building is identified with the person who significantly contributed to development of the City, State, or Nation. It was actually a territory then, but Senator Charles Rice was absolutely significant in taking Kaua'i and Hawai'i for all the time he was in the Senate, and his work on the Statehood Commission twice, and what he was doing, so yes. (6) The building is identified as the work of a master builder, designer, or architect whose individual work has influenced the development of the City, State, or Nation. I told you a little about Guy Rothwell, and Palmer Hafdahl has nicely included information, or SHPD, the State Historic Preservation Division. (7) The building value is recognized for the quality of its architecture and it retains sufficient elements showing its architectural significance. Yes. When we go past, there's that unsightly, yellow, 18-inch high belt around the roof that really mitigates the view of it, but it's still there. The fact that there's been a malign neglect of upkeep and maintenance does not take away from that fact. (8) The building character is in a geographically definable area possessing a significant concentration or continuity buildings united in past events or aesthetically by planner physical development. That block, when you start right across here where you have the old Garden Island Motors that we call it western, but commercial vernacular in Hawai'i that faults front is there you go up with the Garden Island Newspaper that's now Kaua'i Pasta, that's from the 20's, and then the service station. Next to it, the year after, was built that Spanish mission-style exuberant Li'ihu'e Theater, which was, at the time, really special; 800 seats they put in in 1930. The place is really special and it is special that the choice was to represent our Hawaiian culture; not simply the dominant plantation era. The National Parks, there's a preservation brief on the preservation and reuse of historic gas stations. It says that historic features that contribute to the character of a gas station should be preserved. A gas station structural form is of central importance. The outward appearance of a historic gas station; its size, shape, massing, and scale often reflected a particular locale. It gives the historic property its identity and contributes today to a public understanding of when and why it was constructed. The roof's configuration pitch and covering are also important, and it goes on. I mention all of that because we have a very historic building in a historic neighborhood in Li'ihu'e, the County seat and heart of Kaua'i as we call it. We also have the Li'ihu'e Town Core Urban Design Plan that stresses that the architectural and building design guidelines serve to respect and reinforce the historic context of this neighborhood, and they are talking about the Kūhiō Highway neighborhood. They are intended to protect the various architectural styles and character of existing buildings; that new buildings should be designed to relate to the larger communities, streetscape, and neighborhood by striving to be contextually integrated within the community. Under “Roofs,” in this section, it says, new construction or major renovation shall utilize roof shapes, materials, and colors which are compatible with the existing traditional and historic architectural character of the area. I would like to know, from you, if this building is destroyed, is it within the possible use to...because the Town Core Plan says that a Use Permit has to be granted for gas stations. So if this building is destroyed, will any new place be non-conforming with...if it's purposely demolished, will it be non-conforming with the plan and our ordinance?
Mr. Hull: Under Chapter 8, which is the previous zoning ordinance for this area, if it’s voluntarily demolished, then I believe no. They would, therefore, have to obtain a Use Permit. But the Town Core Plan overrides Chapter 8 on this, so there is a possibility that actually a Use Permit would be required for any further development, or I should say, any further use of the site after it’s been removed from use during that time of demolition. There is a possibility that could go through the Use Permit process; would be required I should say, but we would have to look into that further and particularly, we would have to work with Jodi to get a legal analysis of the non-conforming use being able to continue without a Use Permit. Or the flip side of that, the non-conforming use being required to therefore have to get a Use Permit after demolition.

Ms. Schneider: It wouldn’t be grandfathered in?

Mr. Hull: And that’s what I’m saying. We have to check on that.

Ms. Schneider: Yes, because if they rebuild it within a year, usually it would be grandfathered.

Ms. Griffin: But they’re not talking about rebuilding. They’re talking about doing something else.

Mr. Hull: And that one (1) provision year you’re speaking to, Commissioner Schneider, is concerning acts of God, essentially. If the structure is destroyed by a storm, they have one (1) year to construct it, but if they voluntarily raze the building, under that particular Code Section, they cannot build it. But because the Town Core Plan is much more of a recent adoption, we would have to clarify that, really.

Ms. Griffin: In that case, I suggest that we do defer until next month when we will have more information; both about the possibilities for this site. Hopefully some possibilities for maintaining this tremendously historic structure and possibly the Applicant here as well. If you agree, I would entertain a motion to that effect.

Ms. Schneider: I make a motion that we defer until we hear something back from the Applicant and make some pitch to try to get them to keep the building.

Ms. Wichman: I second.

Ms. Griffin: It’s been moved and seconded that we defer until we hear something back from the Applicant and can discuss with them the possibilities of keeping the building. Discussion?

Mr. Chaffin Jr.: Yes. I’m concerned that the owner... that we’re putting criteria on the owner that may not be financially in his or her favor.

Ms. Griffin: Other discussion?

Ms. Schneider: Is that in our kuleana?

Ms. Griffin: No. We are here for historic preservation, not cost, but it’s always important.
Mr. Chaffin Jr.: I think you have to consider that.

Ms. Griffin: Thank you. Other discussion? Hearing none.

Mr. Hull: If I could clarify for Commissioner Chaffin, too. Ultimately what goes on with review at the Historic Preservation Commission is the KHPRC serves in an advisory capacity, and would serve in an advisory capacity to either the Planning Director if we’re reviewing a Class I or over-the-counter permit, or to the Planning Commission if we’re reviewing a Use Permit or Class IV Zoning Permit. That analysis does get taken into place particularly with some reviews at the Planning Commission level where they do take into discretion, as long as it’s not a variance that you’re talking about, but as far as exactions or requirements made upon applicants and the potential over-exacting, if you will, on a particular application. So that type of review is done, but I’ll also defer to what Chair Griffin pointed out is that the purview of this Commission is really to look at the historic qualities and the historical resources and whether or not things like preservation or adaptation can be utilized. So I wouldn’t worry too much about the financial side of it being that there will be another review of it, be it at the Planning Commission level or be it at the Planning Director’s level, that you don’t necessary have to worry about at this point. Just to, somewhat, unlay that concern.

Ms. Griffin: Thank you for that explanation. Is there other discussion? Hearing none. All in favor? (Unanimous voice vote) Opposed? (None) The motion carries 6:0. Thank you, and we’ll look forward to your report next month.

Re: Letter (8/25/15) from J. Michael Will, P.E., Program Engineering Manager, US Department of Transportation, Federal Highway Administration requesting to be placed on the Kaua‘i Historic Preservation Review Commission agenda to discuss and review the Wainiha Bridges No. 1, 2, 3; Bridge 7 E; Kapa‘a Stream Bridge; and Hanapēpē River Bridge.

Ms. Griffin: Okay. Item D.3., New Business, letter from Michael Will, P.E., Program Engineering Manager, US Department of Transportation, to discuss and review Wainiha Bridges No. 1, 2, and 3; Bridge 7 E; Kapa‘a Stream Bridge; and Hanapēpē River Bridge.

Staff, is there any…?

Mr. Hull: We don’t have a report on these particular ones. I think they are not actually coming for any zoning permits. This is disclosure before you for their 6E Review Process.

Ms. Griffin: Thank you. Applicants?

Nicole Winterton: Hi. I’m Nicole Winterton. I’m the Environmental Manager from Federal Highway Administration, Central Federal Lands. We planned to come before you last month, so we have had some updated project planning, so we did update some presentations for you. We figured you would appreciate the latest and greatest information, so we’ll pass that out.

Ms. Griffin: Terrific.
Ms. Winterton: I'll just go ahead and get started, if that’s okay, while he’s handing that out.

Ms. Griffin: Please.

Ms. Winterton: Like I said, I’m with the Federal Highway Administration, Central Federal Lands. We are a division of Federal Highways that does planning, environmental compliance, design, engineering, and construction management oversight of transportation projects. We typically work in the Federal lands, within or access to Federal lands, such as National Parks and National Fish and Wildlife Service Refuges. We’ve developed a partnership with the Hawai‘i Department of Transportation. Over several years, we’ve partnered up on some infrastructure jobs here in Hawai‘i, and have worked closely and developed a good relationship with HDOT; I’ll abbreviate. We’ve developed into a five-year Memorandum of Agreement to deliver a program of projects with HDOT to help them deliver some critical infrastructure jobs, and also enter in a Peer-to-Peer Partnership with both agencies learning from one another the delivery, programming of jobs, and construction management of jobs. We have several projects on several different islands, but what we are here to talk about are the projects that we have here on this island.

So the project that I thought that I’d start with, if it’s okay with you all, is the Wainiha Bridges Project. As part of this partnership, we have four (4) projects on this island. We’ve also partnered with an A&E, Architectural and Engineering firm, to support us on delivery on a lot of the projects. The Wainiha Bridges Project is a little bit unique, so I’ll primarily talk about that project. CH2M Hill is helping support the engineering and compliance for the other bridges on the island, so I’ll hand it over to Kathleen Chu, with CH2M Hill, after we talk about the Wainiha Bridges. We also have representatives from Mason Architects and Cultural Surveys Hawai‘i, who are providing support from the historic architecture side of things and the archaeological side of things, so if questions come up, they are here to help (inaudible) their purview.

Ms. Griffin: Before you start, just so I’ll know whether we can go through or not, is there anybody that’s in the public that’s going to want to testify on any of these bridges?

Okay, then we’ll just go through one to the other. Thank you.

Ms. Winterton: Okay, great. So I think going through the Wainiha Bridges Project, if you want to just kind of run through the slides with me, I think I pretty much covered the role of FHWA in this project. I really wanted to talk about that because I think you probably seen or heard from projects that are federally funded and worked with the division where in those roles, traditionally, HDOT is more the delivery agent for that project and FHWA acts as a Federal agency for the 106. In this project, we are doing the actual design engineering, so we are the lead agency for Federal. These are federally funded jobs, so they are subject to Federal compliance, so Section 106. They are also State projects on the State route, so they’re also, you know, with compliance for the State laws as well.

A little bit of project background for the Wainiha Bridges. They have a pretty long background; these are the bridges. We’ve actually been on this part of the island talking about it here tonight, so Wainiha Bridges 1, 2, and 3, which are the last one-lane bridges on your way to Hä‘ena on
Kūhiō Highway, the north shore section. The original Bridges 1 and 3 were constructed in 1904. The stream channel kind of carved a new path, and in 1931 we had a new bridge added. Tidal storms damaged the bridges in '46 and '47, so then we had a new period of significance with new bridges added in this timeframe between the 50's. Bridges 1 and 2 were replaced, and then we had...oh, I'm sorry, we had all of the bridges replaced, and then in '66 we had the east span of Bridge 3 replaced. So just a little bit of background. We have, kind of, two (2) periods of significance with these bridges that were in this location. In 2004, the Bridge 2...so they go in order, Bridge 1 is the eastern most bridge, and then 2 and 3 are two (2) bridges that operate essentially as one (1) single-lane bridge, so just a little bit of background on that. These bridges suffered damage from storms in 2004, and Bridge 2 was replaced. Under inspection in 2007, they were in a pretty bad state of disrepair, so there was an emergency proclamation for the Governor to replace the bridges. HABS (Historic American Buildings Survey)/HAER (Historic American Engineering Record) was done at that time, and new prefabricated modular steel structures that we refer to as Acrow bridges are in there now. That was placed as a temporary measure to secure funding for the permanent replacement, and also to get through the compliance and engineering of that.

If we go to the next slide, just a little bit of reference, this is Bridge 3. In the lower right-hand corner, that’s the existing bridge that’s there now; that’s the Acrow Bridge that we refer to. In the upper left-hand corner, that’s the 1950’s structure, the historic bridge that was present before that removal in the 2000’s.

Central Federal Lands came into this project and there was a lot of background on it. What we really tried to do is seek to understand. There’s very strong interest in this project. We have a significant road; the north shore section of Kūhiō Highway is listed on the National Register, and also on the State Register. Also, we knew coming into this that it was important to come up with a context sensitive design, so Central Federal Lands really spent time meeting with the community on the north shore, as well as the Hanalei Roads Committee to really understand what was important, as far as the aesthetic, the natural, the cultural features, so that we could try and develop the goals for the project. Through that process, and I think in the old presentation from last month, I really kind of went through the issues that we've heard from the public. If you’re interested, I’d be happy to expand. But we heard a lot of different feedback on how the bridges are operating, and developed a purpose and need for the project. The primary purpose is essentially to provide permanent replacement bridges for the temporary Acrow bridges that are out there. We also identified opportunities to improve operations, manage the maintenance requirements, and also to balance project improvements with the character of the historic roadway corridor. There are issues with sight distance and visibility crossing the bridges. We heard that the rail spacing of the steel bridges is difficult, and I've experienced it, too. It's difficult to see through and across. There are maintenance concerns with vegetation overgrowth affecting site distance. When they had to put those temporary bridges in, they also had to raise the grade of the road a little bit. So all different factors that we identified. We identified a lot of opportunities. One (1) other important thing that we also identified was the significance of the roadway, so it became a balancing act of evaluating what our project transportation goals were, with also the context of the roadway, but also just the aesthetic and natural values that are really important to the community. In kind of reviewing the historic significance and some of those project goals and improvements, we really tried to step
forward a process, and this is where we really would like the Commission’s feedback, and this is what we presented. We had our most recent public meeting on September 15th. We’ve stepped through an alternative evaluation process, and we’re preparing an environmental assessment for the project, and identified alternatives based on what we heard. We don’t think that we are going to carry forward for analysis and we’d like the Commission’s feedback on that. And also on the flip side, alternatives that we’d like to really move forward with analysis, so preliminary design feedback as we move forward with that process.

Moving forward, we identified a lot of opportunities for developing of the alternatives based really on the feedback that we heard and some of the engineering evaluation, which was the sight distance, traffic calming considerations. We heard interest in narrow bridges to help slow the traffic, accommodation of vehicle loads and navigation of emergency vehicles across and between the bridges; we heard feedback on that. Maintenance requirements, the aesthetics compared to historic roadway, historic alignment of the roadway, and then other design criteria and guidelines. Whenever we build new infrastructure or work on infrastructure, we have to document anything that we’re doing that deviates from standards and guidelines.

Some of the opportunities, and this is through past coordination with HDOT before we were involved with the Hanalei Roads Committee, was replacement of those Acrow bridges, lowering of the roadway and bridge profiles to improve the sight distance to get it back to a little bit more like it was before, incorporating bridge rails that are shorter and more open than those on the temporary Acrow bridges to address some of that sight distance problem, and then a very minor alignment improvement between Bridges 2 and 3.

On the flip side, moving forward to the next slide, we did hear feedback on the challenges crossing those one-lane bridges, so there were recommendations on replacing the Acrow bridges with two-lane bridges so that you don’t have that stop controlled traffic situation. We also looked at this because this is the standard design recommendation that if you were coming at a project today somewhere else in the world, this would be the recommended alternative for the type of roadway we have and the traffic number. However, considering the historic context and the current roadway operating and safety conditions, we’re able to apply design exception to eliminate having to create two-lane bridges. Currently, that’s being evaluated as an alternative to dismiss from further analysis, so we would certainly like feedback on that.

Ms. Schneider left the meeting at 4:37 p.m.

Ms. Winterton: Another option considered, which is always a consideration on a bridge project because you’re crossing a stream is to replace the bridges with one-lane bridges on a new alignment. So that allows you the opportunity to build your new bridge, maintain traffic on your existing bridge, and then switch the traffic and take out the bridge. Basically, it shortens your construction period. We looked at that and it might provide some cost savings and time savings, but it didn’t really outweigh some of the other disadvantages from the alignment change, and it didn’t really offer design advantages. It’s not like it was the ultimate improvement to make everyone see across and between the bridges. At this point, we anticipate dismissing that alternative from further evaluation.
So really where we're left is replacing the Acrow bridges with new one-lane bridges on a similar alignment, so that's closely matching the historic alignment with just a slight minor improvement on the tweak and curve between Bridges 2 and 3. As I mentioned before, we will have to have a design exception because typically one-lane bridges are usually only considered on very low-volume roads, but based on the conditions, the engineering team felt that could be justified. And as I mentioned before, lowering the profile of the road and the bridges to get it back more to the historic conditions. Then, as part of the National Environmental Policy Act process, we do need to carry forward the no action and no build alternative.

A lot of the feedback from the community was interest in width and design considerations, so we looked at a lot of different factors, such as the Design Controlling Criteria; what recommendations are for lane width, shoulder width. We considered functionality; how vehicles can get across the bridges and between the bridges. Potential maintenance considerations for whichever bridges are out there. Pedestrian and bicycle safety; we heard was important. Driver perception and expectation; how they are able to operate on the roadway. And also the historic alignment considerations. They were all kind of factors, and advantages and disadvantages of different varying widths.

Ms. Schneider returned to the meeting at 4:39 p.m.

Ms. Winterton: What you see before you, and what I provided ahead of time with some of the layouts provided for each of the three (3) bridges is, where our team is looking at, as far as reviewing of DOT and Federal standards, what some of the conditions are out there, and that is essentially a 14-foot clear width. It's a precast concrete girder bridge. On the slide, I have some of the lengths. So essentially you have, similar to the historic conditions, a single-span bridge for Bridge 1, approximately 50 feet, single-span for Bridge 2, and then three-span approximately 178 feet for Bridge 3. There are the historic piers in the water, but they are not actually functioning right now. The Acrow Bridge actually spans them, so for permanent replacement bridges, we would need piers to support that length of bridge.

Ms. Griffin: So you'd leave the old pier, but construct new ones? Is that what you're...?

Ms. Winterton: Actually, the recommendation is to... because what we need to do is match the hydraulics and the hydraulic opening with lowering the bridge, so the recommendation is to have a three-span structure with two (2) piers in the water similar to how the historic bridges were, but to put the new piers in and to remove the historic piers. So where exactly they would line up is still being evaluated because obviously they can't put it right where the old ones are.

Ms. Schneider: What is the timeline for this? When would you be doing this?

Ms. Winterton: We aim to get through the environmental compliance process winter/early spring, and then move towards completion of the design and securing the permits. It depends a lot on funding priorities with the State, but we find that as soon as we get everything done and ready to go, the money tends to appear.
Ms. Schneider: What’s the duration for doing this?

Ms. Winterton: Okay, so I include that a little bit later, but I should add that...and I didn’t include...our memorandum agreement with all of these projects with HDOT is essentially to do the full delivery and construction, and turn the facility back over to HDOT by 2018. So our goal is to get all of the projects that we are working with completed in 2018. The construction approach is a challenge on these projects, and I’ll talk a little bit about that later, but the anticipated timeframe, to be conservative, was two (2) years.

Ms. Schneider: And you’re going to improve the sight lines for entry and exit of the bridge? Because that’s really the problem now.

Ms. Winterton: Yes. So that’s the goal, to improve that, but I clarified to the extent possible because there are constraints in this location, and that goes to that balancing act of improvements while maintaining consistency with historic. Are there any questions on that?

On the following two (2) slides, I have a photo of the existing Bridges 2 and 3, and a rendering of what we were thinking about for Bridges 2 and 3. Some of the feedback that we’ve heard, and I would love the Commission’s feedback as well, you know, is really the community has grown to appreciate those 1950’s bridges. From an engineering perspective, when you look at the type of the rail spacing and some of the challenges with the sight distance, it actually does provide opportunities for improvements with that type of rail design. With consideration of the design standards, we always like to have crash-tested rail when we do improvements. So we have identified a crash-tested rail that sort of plays off a little bit of the historic rail. It’s a structural steel tube rail, and this rail here it’s called the Wisconsin Type. We went back and forth on vehicle rail only versus vehicle combo rail, and landed on a vehicle rail, which is a little bit lower and part of that is opportunities for that improvement to the sight distance. It’s top-mounted, and max post spacing is 6’-6”, which is that max amount that you would want to put it towards to still meet the crash-test standards. We’d probably seek to get close to that again because that visibility through the bridge is problematic.

Construction strategies. As I mentioned, the anticipated duration of construction is two (2) years, and it’s depending on funding. Because these are bridges crossing the streams, it is a little bit hard, so we are talking about evaluating site conditions and how we can maintain traffic, and it’s shifting the existing Acrow bridges, using them for construction, and shifting them makai to build the new bridges on alignment, and accommodating emergency access through construction. But there would have to be delays and very short-term closures for different milestones, such as moving the bridges. Another challenge for construction is leading up to these bridges, the three (3) original historic bridges crossing different streams, these are the Waiohi, Waikoko, and Waipa Bridges, these are load restricted, and construction vehicles and equipment tend to be heavy. So we have evaluated this as a construction challenge, and the current recommendation is...because we do not want to affect the historic integrity of those original bridges, is to provide temporary bridges adjacent to or over so as to not touch the original bridges.
I have here, the second to last slide here, Waioli...the approach is evaluating the site conditions, utilities, right-of-way, and opportunities of where these bridges could be placed under temporary conditions would be...Waioli, mauka of the existing; Waipa, makai of the existing; and Waikoko is a very short structure right on the coastline, and there we have an opportunity to actually go up and over the existing bridge, so building behind on each side and going up and over because we really don’t want to negatively impact any historic structures.

The next steps are...we really want to get feedback, continue the design process, and refine engineering through different coordination with you all, the public, we’re getting feedback from the public, SHPD, and other interested parties, and prepare the analyses and the reports, and prepare an Environmental Assessment.

Any questions? Comments?

Mr. Chaffin Jr.: Yes. I would appreciate getting this package in advance. You reviewing it in front of us is difficult for me.

Ms. Winterton: Okay. I apologize for that. I did provide a presentation in advance for the last meeting; a lot of the information is similar. And we provided the drawings for each of the bridges. So we actually...in preparation for the public meeting, really took an extra step. We’ve done a lot of coordination with HDOT to get to a comfort level. There is a pretty big deviation from what is typically the recommended design approach, and so we were seeking to get feedback from the public as well, and I just wanted to give the latest and greatest information. Feel free to absorb this information. We’ll take comments through the process, really.

Ms. Schneider: I appreciate that you’ve taken into consideration what those bridges looked like originally.

Ms. Griffin: Other comments? Thank you. In a general way, it’s for those of us who have dealt with roads and bridges for twenty (20) years or more. Having context sensitive solutions roll right off your tongue, you know, is music. To be talking about protecting the historic bridges, rather than all of the reasons why it’s too expensive, it can’t be done, the people are going to fall through, you know, height limitations, materials, but hearing the “can do” aspects is really a pleasure. I must say that with the Hanalei Roads Committee that they are consulting and in agreement is a really important component to this historical review. They know about the roads up there, and bridges. Thank you.

So moving along to Hanapēpē.

Kathleen Chu: Hello. Good evening, Madam Chair and Commissioners. I’m Kathleen Chu with CH2M Hill, and if you can switch to your next presentation packet. I’m going to talk about three (3) bridges this evening; the Hanapēpē River Bridge, the Kapa’a Stream Bridge, and Bridge No. 7E. I’ll stop between each one so you guys can provide your comments on it.

Ms. Griffin: Thank you.
Ms. Chu: Again, thank you for allowing us to share this information with you and getting your feedback. Moving on to Slide 2, the Hanapēpē River Bridge is located on Kaumuali‘i Highway. It’s State Route 50 at Mile Post 16.5 in Hanapēpē. This bridge crosses Hanapēpē River and it’s located between Hanapēpē Road to the east and Puolo Road to the west.

On Slide 3, this is a map showing the areas of potential effect for this project. I believe you received this in advance as well.

Again, just to share with you some of the project background on Slide 4, the existing bridge was built in 1938, and it’s a three-span reinforced concrete bridge. It measures 275 feet from the backface-to-backface of the abutments, and has an out-to-out bridge width of 38 feet. Right now it doesn’t meet current roadway or bridge design standards. It does not meet any live load or seismic requirements as well. The existing bridge is classified as structurally deficient and functionally obsolete. In addition to the substandard load carrying criteria, it also has been identified as scour critical. Recently, and I guess in the past, too, there’s been inspection of the existing timber piles. I’ll go into more on the timber piles on Slide 5.

There’s been inspection. The DOT does inspection on the bridges every two (2) years. In 2007 and 2008, the existing pier and abutment foundations were...inspection was performed by Nagamine Okawa Engineers. In this inspection, this is where they first, I believe, noticed the undermining at both of the pier foundations and one (1) of the abutment foundations. Just in those two (2) years in 2009, they really noticed that some of the scour at these foundations has increased. Also, one (1) of the remaining unseen timber piles...there’s been a lot of rot or marine infestation. They are not sure of the exact cause, but the timber piles, their load carrying capacity has diminished greatly. More recently, the DOT asked KAI Hawai‘i structural engineers to go out there after a heavy storm in 2012. They noticed that one (1) of the timber piles has completely been disconnected with the concrete cap, and another one of the piles, 80% of its circumference was gone. The timber piles that are below ground, the structure capacity of those cannot be accessed because they are underwater and in the ground. Right now, the DOT does monitor the top of the pier elevations just to keep an eye on the bridge. Secondly, the bridge rail has deteriorated and it does not meet current bridge standards. You can see from some of the pictures that it is decaying. Okay?

So on Slide 6, I wanted to share with you some of the alternatives that are being considered; one (1) is rehabilitation. As I mentioned earlier, the bridge is structurally deficient, and is scour critical, and the timber piles are decaying, so it needs a new substructure. The bridge needs a new foundation. There is no way we can maintain the existing foundation, so it does need a new substructure. In regards to the superstructure of the bridge, it does need a new deck. The bridge needs new bridge rails. It does need to be widened and it needs to be upgraded in regards to seismic and load carrying capacity. So that’s a pretty extensive rehabilitation. It’s practically all new bridge parts. The replacement is also one (1) of the options. And as Nicole mentioned, no build is also a requirement, just through the NEPA process.

I’m going to expand a little bit more on the replacement option, which is on Page 7. This is the alternative that the project team is leaning towards, just based on the information I shared with you.
on the rehab option. One (1) of the goals is to design with as little change as possible. With the bridge structure, we are looking at two (2) different types of, kind of, aesthetic alternatives. The new substructure would be drilled shafts. It would have new pier foundations. It would be 308 feet long and 52 feet wide, so the 52 feet width allows for two (2) 12-foot lanes, two (2) 8-foot shoulders, and the two (2) 5-foot sidewalks. We would match the existing alignment and the profile as much as possible. We are not planning any vertical changes. We are going to continue to meet the 35 mile per hour posted speed limit, and there is no change in the 100-year storm event, so hydraulically it’s still good. Right now there is an existing 12-inch waterline, a 12-inch sewer line, and existing electrical and telecommunication lines on the bridge. Those would be maintained as well. The construction strategy for the new bridge would be to place a temporary bridge on the mauka side. The temporary bridge would be 28 feet wide to maintain two-way traffic. We do know this is a very important route and it’s important to maintain the two-way traffic.

The next few slides show you just some visualizations and some pictures. The first on Slide 8, this is a picture of the existing bridge. Then on Slide 9, this alternative shows a bridge that most closely resembles the existing bridge. It has an arch fascia that resembles the arch on the bridge now. Then Slide 10 shows the more traditional bridge structure that’s also being considered, and this is a straight girder. Okay.

We did have a public meeting on September 17th. About thirty-five (35) members from the public attended. The questions that they asked were primarily ensuring that the temporary bridge could maintain access for their loads because there is a lot of concern with access to the landfill, and also access to the Pacific Missile Range. They were in favor of a new structure that would address any load carrying concerns as well.

In regards to the bridge rails and the end post, on Slide 11, on the west side of the bridge it appears that the bridge end post has been rehabilitated in the past. The ends were altered by the installation of a flushed concrete barrier which transitions into your traditional metal guardrails. On the east side, one (1) of the end posts has also been rehabilitated, but on the south east end, the end post on the makai side, the existing post there has been maintained; existing radius cavetto molding is still there.

Slide 13 shows a rendering of our proposed bridge rail. Again, we had to look for a bridge rail that would meet Federal Highways and the DOT crash-test standards, so this one here is a Texas Balustrade. It would be 42 inches high to meet bridge rail standard height for bicyclists. It is the same bridge rail that’s out there on the Lihue Mill Bridge. This rendering here just shows you how the end post transitions would look as well.

I’m here to answer any questions or get any of your feedback.

Ms. Griffin: Commissioners, questions?

Mr. Chaffin Jr.: On the alternate drawings you have, are there any estimated costs?
Ms. Chu: Well the arch fascia is more expensive. I don’t know the exact cost. There is another handout, an 11 by 17, which shows you the Alternative 1 and the Alternative 2. Also, another 8 ½ by 11, which shows how the fascia would be put in place.

Ms. Griffin: Other questions? I have one (1) question. What is the current width of the bridge did you say?

Ms. Chu: The current width is 38 feet, so I believe its two (2) 11-foot lanes and the 5-foot sidewalks, that’s existing.

Ms. Griffin: I know in Kaua‘i’s Land Transportation Plan there was a view to eventually expand Kaumuali‘i Highway all the way out. I’m wondering if this 52 feet wide…tell me what the 16 feet of shoulders is for, and additional 10 feet of sidewalks.

Ms. Chu: Well the 5-foot sidewalk…there’s an existing 5-foot sidewalk on both sides of the bridge today, so we’re putting back the existing sidewalk. The shoulder, it is primarily a safety. It’s for if vehicles get stuck, for vehicles to pull over. There is no intention with this project for this to become an expansion of the two (2) lanes. I don’t think the extension of a four-lane highway extended that far west.

Ms. Griffin: Yet. (Laughter in background)

Ms. Chu: At least in the 20-year long range plan. (Laughter in background)

Ms. Griffin: Okay. Also, on the railings, the existing bridge has a very interesting…I don’t remember seeing another with this profile on Kaua‘i; it’s very 30’s, deco-ish. It was not possible to do anything similar to this that would still meet Federal Highway standards?

Ms. Chu: You know, we did work closely with Federal Highways to find a bridge railing that had gone through crash testing that would most closely resemble the existing bridge rail. The Texas Balustrade was the closest that we could find with an opening. I know the opening is not quite the same.

Ms. Griffin: Yes. It’s an arched opening rather than this...

Ms. Chu: Right, it’s kind of a cross, yes. If we were to develop a new…this project would not be able to develop a new bridge standard and have it go through all of the crash testing that’s necessary. So the Texas Balustrade is the one that most closely resembles this.

Ms. Griffin: Other questions?

Mr. Long: Well I have a comment about that response. On a number of our bridge projects, we’ve been working with DOT. Is it Mike?

Ms. Griffin: Most likely it’s Donald Smith.
Mr. Long: Yes. So we’ve asked them to replicate various bridge railings, and they’ve been able to do that. It appears to me that we have one (1) existing bridge railing and you went through some books to try to get as close as possible because you wanted to find something that has already been crash-tested; yet, wouldn’t it be possible to take a look at the design so that we could get something that replicated the existing?

Ms. Chu: I believe the bridge rails that the DOT have installed in place have been crash-tested; I mean, that would be a requirement. They would not be able to install a bridge rail that had not been...well definitely none with Federal funding. It probably is one that they were able to find that is extremely similar to the existing rail.

Mr. Long: But not...sort of similar, but not really like it.

Ms. Chu: Right, I understand.

Mr. Long: So I would like to ask that DOT come back to us with a design of a railing that’s identical to the existing; a replication of the historical railing within the certain guidelines, which we have been able to do in the past, rather than look in a book for a railing that has been crash-tested that sort of looks like it.

Deputy County Attorney Higuchi-Sayegusa: I think these folks are here kind of to...through the process under the Federal laws, under requirements, reviewing cultural and historic resources. I would suggest that you folks make your comments, and then I’m not sure if...requiring the return...I’m not sure how that’s going to affect your folks’ processes or...I mean, if that could be accommodated.

Ms. Chu: Our primary goal tonight is to receive consultation and receive feedback. Some of the next steps are...we are in the midst of doing our environmental documents. There is a goal to have the environmental documents completed by the end of the year. There has been some preliminary engineering that’s been advanced; primarily just to determine what any impacts would be. We hope to have a draft EA out by the end, but we are also consulting with SHPD, so I think the process is going to...

Ms. Winterton: Yes. I mean, I can’t speak to what it takes to create a totally new rail. I could bring this, this is great input, and bring it back to our structural engineers to go and revisit, but I know they went through a pretty robust exercise to evaluate crash-tested available rails. It is a unique rail, and that’s why it’s hard to land on that close exact match. We can, again, revisit that, and I don’t know if it’s an opportunity to create a brand new rail though because of the robust process to get crash testing. With the infrastructure that we’re providing and the speeds, I mean, that’s the goal to have something that meets the standards. So I think the exercise was pretty robust, but we could definitely take that input, take it back, evaluate, and look at that. It sounds to me like the feedback that I’m hearing is that aesthetics related to the existing rail is extremely important to the Commission.
Mr. Long: As I look at it, you're designing a whole bridge, and we're just talking about the railing; I mean, you have to design everything about that bridge. So to design a railing that passes crash-test ought to be part of your exercise in as the way I look at it.

Ms. Nicole: Yes. I mean, I think that it's more complicated than that to go through... I mean, they go through years and years and years of crash testing through the National Highway Traffic Safety Administration. So I think there are certain parameters that they can, maybe, tweak when it still meets the standards like I was talking about Wainiha and the spacing and stuff like that, so we could take that feedback and provide it to the structural engineers and see what's possible.

Mr. Long: Yes. I mean, on a design level, art deco is rectilinear and this railing has an arch in it, so you're actually taking away part of the cross section of the railing by introducing an arch. So maybe there are certain parameters of railing and steel and volume that your designers could take a look at?

Ms. Nicole: Okay, yes. That's good feedback.

Ms. Griffin: Other comments?

Okay, moving right along.

Ms. Chu: Okay. So the Kapa'a Stream Bridge on Slide 14. This one is located at Mile Post 9.8 on Kūhiō Highway, State Route 56. It's on the east side of Kaua'i. This project also includes improvements at Kūhiō Highway and Mailihuna Road intersection, which is located approximately 550 feet south of the bridge.

The next slide, Slide 15, shows the area of potential effect for this project.

On Slide 16, some of the project background. Kūhiō Highway is a two-lane undivided highway with existing lane widths of 12 feet and shoulders on either side of the bridge range between 4 to 8 feet. There is an existing deficient two-span bridge that was built in 1953. It's also classified as being functionally obsolete. This one also has substandard load carrying capacity, and it doesn't meet current seismic requirements. This bridge has also been identified as scour critical. On this bridge, the condition and the capacity of the existing timber piles is unknown because it's completely underground. This existing bridge is approximately 150 feet long and it is 38.5 feet from out-to-out. Again, it doesn't meet the current width requirements, and the bridge railings and approaches don't meet current crash test requirements. And the Kūhiō Highway and Mailihuna Road intersection is a three-legged stop control on Mailihuna Road. There is also this private driveway that accesses it to the northwest. Just a little bit more about the intersection, which is probably less of a focus for this Commission, but it does experience a lot of delay, and pedestrians currently are not accommodated. In the past, there has been seven (7) accidents within the project limits; none of them were fatal, but six (6) of them occurred directly from the people trying to make the left turn movement from Mailihuna Road onto Kūhiō Highway.
So for the bridge, on Slide 17, the three (3) primary alternatives that are being considered are the rehabilitation, the replacement, and the no build. Again, the existing deficient two-span bridge was built in 1953 starting with the substructure. The current condition and capacity of the timber piles that support the abutments and the center pier are unknown, so right now we just don’t know what the adequacy of the existing foundation is. To rehab it, we would have to do a pretty extensive retrofit to the existing foundation to make this a viable option. For the superstructure, to rehabilitate the existing bridge, we would need to widen it, we would need to take down the bridge rails, and this would, again, be an extensive process to strengthen the girders and make it meet seismic requirements, as well as the load carrying requirements. Again, we discuss the no build option as it being a requirement, and then there’s the replacement of the existing bridge.

Also on this bridge, with initial consultation with the State Historic Preservation Division, we had met with Architectural Historian Jessica Puff and she recommended that no survey work was needed for Kapa‘a Stream Bridge. The bridge is not eligible for listing on the National or the Hawai‘i Registers of Historic Places, but the final determination will be made by Federal Highways.

On Slide 18, we share with you what is being proposed. Again, the replacement is where the project team is heading. The new bridge structure would be a single-span concrete bridge, so we would remove the need of a center pier, and this would help hydraulically with flow conditions in the future. The new bridge would be 190 feet long with a deck width of 42.5 feet. This bridge…we’re not putting back the sidewalk, we’re putting back two (2) 12-foot lanes and two (2) 8-foot shoulders, so the bridge would be widened a total of 4 feet; that’s 2 feet on each side. Basically, the bridge railing would be 2 feet, 8 inches high. It would have a 10-inch high metal railing for bike safety, so that would bring it to a total of 42 inches. This also most closely resembles the existing bridge rail. Again, the utilities would be maintained on the existing bridge. In order to construct it, we would place a temporary bridge on the makai side, so this would be between the existing bridge and the shared use path bridge.

Slide 19 is kind of the visual simulations of “Before” and “After” of what the bridge would look like. We did have a public meeting on this bridge on September 18th. As you can imagine, most of the focus was really on the intersection. We didn’t have too many comments on the bridge.

Again, I’ll just quickly go through the intersection. In relation to the intersection, on Slide 20, it is to improve the traffic operations by trying to help reduce delays and improve pedestrian safety at this intersection. For Mailihuna Road, the traffic does back up so it does have a level of service of F.

Alternative 1 is a roundabout alternative, which would be a single-lane roundabout with a truck apron. It would have splinter islands and marked sidewalks on each approach. The single-lane would be 18 feet wide with an inscribed circle diameter of 130 feet. This roundabout would alleviate congestion and reduce delay on Mailihuna Road, and it would also provide a yield control on all legs. It does have a much larger footprint than the existing intersection, so this alternative would require a lot more grading. It would require more retaining walls, and there would be more encroachment in the undeveloped coastal area.
The next alternative, on Slide 22, is your more traditional intersection with full traffic and pedestrian signals, and crosswalks. This alternative would provide a new northbound left-turn lane on Kūhiō Highway for those going onto Mailihuna Road, and a southbound right-turn lane as well. The northbound left-turn lane would provide 180 feet of storage, and then the southbound right-turn lane would provide 150 feet. So this alternative would include, again, the signal of the marked crosswalks and lighting to improve conditions for your non-motorized modes.

That’s it for Kapaʻa Stream Bridge, and the Kūhiō Highway and Mailihuna Road intersection. Do you guys have any comments? Questions?

None? Okay.

Mr. Long: I have a comment.

Ms. Chu: Oh, okay.

Mr. Long: Where the new proposed railing for Hanapēpē is similar to the existing, this one has no resemblance to the existing at all, in my opinion; it’s like nobody even tried. The existing is somewhat art deco with bi-partake rectangular columns and a different rhythm in the railing, so I don’t see any similarity between “Before” and “After”, at all. It doesn’t look like it was picked out of a book; it looks like it was just poured concrete, the new railing. So it wasn’t like somebody said “oh gee, let’s pick a railing that’s similar to the existing”, they just designed a straight pour.

Ms. Chu: Okay.

Mr. Long: So it’s the same comment.

Ms. Winterton: Okay. I think that’s good feedback, and I can take it back, again, to our structural engineers. I don’t know if...I think with this bridge it didn’t have as much...not to say that we moved more towards that with Hanapēpē, but Hanapēpē was a more historically significant structure, and I think that effort was very robust whereas I think the aesthetics were integrated into this, so I can bring that feedback back, but I don’t think resembling or matching was identified as a goal, so if that’s feedback that you think should be considered.

Mr. Long: I’d like to identify it as a goal.

Ms. Winterton: Okay.

Ms. Schneider: Keeping the same rhythm as the old bridge.

Mr. Long: Yes.

Ms. Schneider: As opposed to this very even spacing that you have on the new bridge.

Mr. Long: I mean, you have historical architects in your group, yes?
Ms. Winterton: Yes.

Mr. Long: So could you have that architect talk to that engineer? (Laughter in background) Because this is clearly designed by that engineer.

Ms. Winterton: Yes, I mean, well we have Barbara here who can speak, so really we have the meeting and the minds that come together.

Mr. Long: Are you the architect or the engineer?

Ms. Winterton: So I mean, I think it's that balance of when we have that historically significant structure, there's the balance of striving to maintain or play off of the aesthetics, but we are not trying to recreate history. I don't know if that was the primary goal on this job. I think it's more of a sensitivity towards the community, and the appreciation for the structure that they are seeing.

Mr. Long: Well, the structure that you see when you drive across the bridge is the railing.

Ms. Winterton: Okay.

Mr. Long: That's all you see. You don't see the girders, you don't see the...

Ms. Winterton: We didn't get a whole lot of feedback on the rail itself, except for the visibility out while you're driving.

Ms. Chu: Right, was to keep the bridge rail...to not make the bridge rail too high as to maintain some of the visual plains; the makai/mauka.

Mr. Long: Yes, I understand that. I would say that it's an architecturally significant feature on this bridge. When was this built?

Ms. Winterton: Preliminary coordination is that it is built in 1952 or '53; Barbara could chime in.

Mr. Long: Okay, so it was built in the 50's.

Ms. Winterton: It's not viewed as eligible for the State, nor the National Register.

Mr. Long: I'm not talking about that. I'm talking about it being architecturally and aesthetically significant.

Barbara Shideler: If you believe it's architecturally...

Ms. Griffin: Can you identify yourself?

Ms. Shideler: Barbara Shideler with Mason Architects. It may very well be architecturally significant to the community. In defense of the engineers and CFL, when we consulted with State
Historic Preservation Division, they said that they did not believe it was historically significant, and in fact, it was removed from our scope of work. It’s a common bridge type. It was identified as not of historic consideration. I mean, that’s why we’ve come to the local community, to consult with you and get another voice on that. We hear that and it’s something to take into consideration as we go forward.

Mr. Long: Thank you.

Ms. Winterton: We can have the meeting of minds reassessed, and connect on the architecture and the safety.

Mr. Long: Yes, because SHPD has their standards, and historically significant is different than aesthetically significant. So I’m interested in the aesthetically significant aspect. Thank you.

Ms. Winterton: Okay, that’s good feedback. Thank you.

Ms. Chu: Any other comments on the Kapa’a Stream Bridge?

Mr. Long left the meeting at 5:23 p.m.

Ms. Chu: So the last one is Bridge No. 7E. It’s located on Kaumuali‘i Highway on Route 50. This one is near Mile Post 7. The route is classified as Rural Minor Arterial, and it’s the primary route from Līhu‘e to the Kōloa District. This bridge is just west of Maluhia Road.

Slide 24 shows, again, the area of potential effect for this project.

On Slide 25, just some of the project background. The purpose of this project is to improve Bridge 7E to maintain Kaumuali‘i Highway’s crossing of an unnamed stream and to, again, continue to provide a safe and functional component of the regional transportation system. The existing bridge was built in 1933 and again, the structure doesn’t meet current live load, seismic, roadway widths, railings, or other requirements. This bridge is a reinforced concrete box that has two (2) culvert cells with wing wall abutments, and again, is structurally deficient. The bridge is 22 feet long and the width is 32 feet wide. Through this bridge, the existing highway is 10 feet. There are two (2) lanes that are 10 feet with 2-foot shoulders on each side, and the posted speed limit is 50 miles per hour.

Again, the project team looked at the rehabilitation, the replacement, and the no build alternatives. Right now, the top slab of the box culvert does not meet the current live load requirements. The bridge has also been paved over in the past. This would need to be strengthened, so if they strengthen the top slab, they need to increase the slab thickness and they would have to put in increasing reinforcement on the sides of the box, which may also affect the hydraulic capacity of the box and overstress the existing piles. So again, rehabilitation can be very complex, and again, the capacity of the existing piles is unknown as well. The project team moved forward into looking at the replacement option, and then there is the no build option that also needs to be considered.
Mr. Long returned to the meeting at 5:25 p.m.

On Slide 27, the proposed bridge is 24 feet long. We are looking at a single-cell box culvert, so it’ll be just a one (1) box culvert cell, versus two (2) cells. This will improve the hydraulic capacity. It will be 44 feet wide, so this would allow for your two (2) 12-foot lanes and 8-foot shoulders, and room for the bridge rails as well. We will put in crash-tested bridge rails. The intent is to match the existing profile and alignment of the roadway, so there will be no changes vertically or horizontally. We’ll maintain the existing electrical and telecommunication lines.

The next slide shows you the “Before” and “After” of what it would look like. Right now, most people don’t realize they are going over a bridge. There is just guardrail and the bridge has been paved over. So in the future, you will see your standard concrete barrier.

Any comments?

Ms. Griffin: Comments? I noticed on all of these the area of potential effect includes under the bridges and some land. I know we have archaeology represented here, and none of that has been discussed, but I’m wondering if there are areas in any of these bridges that we’ve discussed, cultural archaeological sites that would have any kind of adverse effect.

Gerald Ida: Gerald Ida, Cultural Surveys Hawai’i. Just speaking generally, no, there’s nothing really. At this point, we’ve done work on each of these bridges and we have submitted reports to SHPD, but they haven’t been totally reviewed yet; they are still in draft form. We have had a meeting with SHPD to discuss the findings. We have done subsurface testing, as well as surface surveys of the surrounding areas of the bridges. It’s been my experience when you do things like these bridges, because I’ve done a lot of bridges including Wailua, a lot of these places are pretty messed up where there is an existing bridge. I would have not expected to find anything and indeed we found very little. What cultural material, historical, and pre-contact artifacts we found are not associated with any kind of intact cultural layer or historical layer; they are just messed up. There are some artifactual material in there, but nothing you can really do any kind of analysis on.

Ms. Wichman: So mostly backfill? Is what it looks like?

Mr. Ida: Yes, because they messed the place up big time once they put in the abutments.

Ms. Griffin: So for the purpose of this Commission, we don’t need to be concerned about that aspect of the projects as they’ve been described.

Mr. Ida: Like I said, the ball is in SHPD’s court right now. I can see where they might require us to do potentially maybe just a little bit more subsurface work, but…and there are some actual sites in these areas, but they are really kind of marginal stuff like historic culverts and stuff like that.

Ms. Griffin: Culverts may become a big discussion at some point in the not too distant future.

Mr. Ida: I know. Hopefully I will be retired by then. (Laughter in background)
Ms. Griffin: Thank you. Other questions of Gerald? I appreciate that. Thank you.

Other general questions for Kathleen or Nicole? No. We casually gave you comments as we went along, so if there are no other questions, then may I have a motion to receive this information and documentation as we have it?

Ms. Schneider: I make a motion that we receive this documentation as presented.

Mr. Chaffin Jr.: Second.

Ms. Griffin: Second, thank you. It’s been moved and seconded that we receive the documentation on the bridges. Discussion? All in favor? (Unanimous voice vote) Opposed? None. The motion carries 6:0. Thank you all very much for waiting so long, for being together with the presentation.

Ms. Winterton: Thank you.

Ms. Chu: Thank you. Thank you for your time.

ANNOUNCEMENTS AND GENERAL BUSINESS MATTERS

Ms. Griffin: We skipped a couple of pieces, and they are short. The first is the Announcements and General Business Matters. There is an announcement about the SHA Conference.

Victoria, do you want to tell us about...?

Ms. Wichman: I do. I’m one (1) of the co-Chairs for the Society for Hawaiian Archaeology Annual Conference that’s coming up October 9th, 10th, and 11th. We have invited the Planning Department to come free of charge, so everybody here is invited. Mr. Furfaro, you are more than welcome to come, please. Friday evening, starting at 5 o’clock, 5:00 until 8:00, we’ll have the Kaua‘i Museum for the first hour; we’ll have it all to ourselves. We are having a stewardship award, Naki‘ikeaho Stewardship Award, which will be presented to Hui Makaainana o Makana out in Hā‘ena. Our keynote speaker will be Mayor Carvalho, and he’ll be speaking on his preservation efforts on this island, which I thought that was very appropriate.

Ms. Griffin: So we need to listen to that.

Ms. Wichman: Please come. It’s open to the public here at the Kaua‘i Museum next Friday night actually, and then on Saturday and Sunday at the Wailua...at Smith’s Family Tropical Paradise Luau Grounds, we’ll be having our conference; it starts at 8 o’clock in the morning. We have many papers. I know Saturday is kind of a bad time for Kaua‘i because it’s the same day as the Queen Emmalani up in Kokee, but we do have a lot of interesting papers going on, on that day. We also have conference papers going on, on Sunday, the 11th, and I tried to put most of our Kaua‘i papers on that morning, so the Kaua‘i people that might’ve went up to the Queen Emmalani would have an opportunity to hear papers from Kaua‘i. As I mentioned, it’s free for the County to come;
anybody in the County is welcome to come as our complimentary guest. We anticipate about a hundred (100) archaeologists showing up for this. Very interesting papers; there are several papers on Nuʻalolo Kai. There are papers on Kauaʻi Nui Kuapapa, which is the ahupuaʻa and moku signage project here on the island; interesting papers. I could send to Shan our schedule-at-a-glance. Mary Jane Naone and I are the organizers. We are still in the process of doing the last minute T’s and I’s on our program, so that won’t be ready until the conference, but I do have the schedule-at-a-glance which we can pass around or email.

Ms. Griffin: It’s online, isn’t it?

Ms. Wichman: It is online. Our site is hawaiianarchaeology.org.

Ms. Griffin: Did everybody get this 2015 conference…? So at the bottom of it, it shows the hawaiianarchaeology.org.

Ms. Wichman: Yes, it should have the website on there. So that should have all of the updated schedules as well. Food is included, so it’s all good. There’s a luau on Saturday night. You are all welcome to come to that as well.

Mr. Hull: Commissioner Wichman, just for clarification, do say KHPRC members that want to attend, do they just show up and they’ll be comped? Or should they contact…?

Ms. Wichman: It would be nice if people would let me know, if they would RSVP because I need a headcount for the food. So it’s always good for me to know, and then I can have name tags that show who your affiliation is as well. It’s a really good opportunity for networking with archaeologists. These are archaeologists that are from across the State of Hawai‘i, plus from New Zealand, California, Ohio, New York, and Alaska, several different states as well. We also have a workshop on Sunday afternoon on microfossils. It’s kind of interesting. We have a professor from New Zealand who’s coming up to give a paper, and since he came we thought we’d ask him to do one on microfossils and phytoliths, which has to do with plants, so it should be quite interesting.

Ms. Griffin: Thank you so much. And thanks to you and our SHPD archaeologist, Mary Jane Naone, they have really, from what I understand, have put this thing together and it should be a really fine conference that all of us should be able to take advantage of. Thank you.

Ms. Wichman: We’re looking forward to it. Thank you. And specifically, I’d really like to invite you to the Mayor’s keynote address on Friday night, and to honor Hui Maka‘ainana o Makana. I think they are very worthy of honoring at this time. The Mayor is such a dynamic speaker that I think…he’s so enthusiastic about his preservation efforts that I’m looking forward to hearing him.

Ms. Griffin: Thank you.

Ms. Wichman: Thank you.
Ms. Griffin: Any other announcements and general business matters?

UNFINISHED BUSINESS (Continued)

Re: Report from investigative committee members (Permitted Interaction Group) to discuss and explore strategies on informing the public and land owners on the State and National Register of Historic Places Nomination Process and Incentives for placing historic structures on to the National and State Register of Historic Places.

Ms. Griffin: Going on to C.2., the report from the PIG to discuss and explore strategies on informing the public. There is a printed report here at this point. One (1) of the two (2) possibilities that was on the report that we made last month was the possibility of putting the Shell Station on the National Register, so I just wanted to mention that.

There was also, and we read in the minutes, I think that we had been suggesting our little mini education for this or next month, and that’s why I was a little short, Larry, when you talked about cost because one (1) of the opportunities we have...there are tax incentives. Buildings built before 1936 that are on the National Register can get a 20% tax credit on rehabilitation. There are things like that that if we know about, we will be able to discuss with applicants, people who come before us, and to be able to get the information out. I’m hoping that, Mr. Hull, if you can arrange perhaps if Ian Jung will come back and educate us on his time. Or we have some other expert who could give us that training next month; I think would be beneficial for us all.

Was there anything else from our PIG that...?

Re: Report from investigative committee (Permitted Interaction Group) to discuss and explore creating a Smart Phone Application to identify and highlight Historic properties on Kaua‘i.

Ms. Griffin: Then on C.3., report from the Permitted Interaction Group to discuss the Smart Phone App.

Ms. Wichman: Nothing has been done, so I’d like to defer that. Kuulei and I have not gotten together. We were supposed to be talking with the Kaua‘i Nui Kuapapa, and that hasn’t happened as well.

Ms. Griffin: Okay, great.

Ms. Wichman: So defer it, please.

Ms. Griffin: If we can just continue that on the agenda for next month.

Re: Discussion on the status of the Certified Local Government.
Ms. Griffin: And then the status of the Certified Local Government, C.4. I guess the most important question is, when are the applications due for the next round of Certified Local Government funds?

Mr. Hull: It usually happens, I believe, in March. We’ll double-check on that.

Ms. Griffin: So perhaps if you can have in your tickler file to put in maybe our December or January agenda to start discussing possible projects. Inventory always comes up, but we do have the possibility of National Register nominations that our PIG has discussed.

Mr. Hull: And on that topic, to use that as an agenda item to segue into the fact that concerning the current inventory that we have or don’t have, it’s ultimately, and I think the Commission, you are going to have to start wrestling with whether or not they want to do this, but ultimately there are issues that both the Department and SHPD have with the inventory that was produced, and perhaps that needs to be, essentially, pared down. Essentially what it looks like could be a possibility for you guys to put on the back burner and start thinking about is that, to utilize this body, essentially, to go through the list and establish an acceptable inventory, essentially. There is a fair amount of work associated with that, and meetings could be a bit longer, but the inventory list is one (1) of the most critical resources for this body and for the County, in terms of preservation and that is probably the only avenue because it lends itself to public discourse and transparency that would be acceptable, really.

Ms. Griffin: That’s great. I think that if we can establish another PIG so that three (3) or four (4) of us can do it, and then we can bring it back to the Commission and get it more efficient. So if you will remind us or have it as an agenda item next month.

Anything else on the CLG? In that case, our next meeting will be next month, November 5th, and hope to see you...yes?

Mr. Long: I have a question and a thought.

Ms. Griffin: Yes.

Mr. Long: We came up with these four (4) neighborhoods to do a historic survey of. We came up with four (4) because that seemed like a reasonable amount of work for them, but we don’t know if Pākalā will be included in that group because it’s privately owned. My guess is that we likely will not receive permission from the owner to do that survey there. In my discussions with some of the Planning Staff, there was a concern that we didn’t have enough neighborhoods on this list. So my consideration is, do we want to put Hanapēpē and Waimea, which were the other two (2) communities that we discussed that we were going to be doing as a tier 2, phase 2, next year. Do we want to put those on this list so that we don’t end up with less work than we possibly could have?

Ms. Griffin: Thank you. And that was in my anxiousness to get everybody out of here, I didn’t give enough attention to that part of the CLG. It was my understanding that Staff was going to
compile the list of the several different areas that we discussed. Did that happen? Or did it just go down to…?

Mr. Hull: As I understand, it just went to the four (4), but I have to double-check with Myles on that.

Ms. Griffin: Okay.

Mr. Hull: But we should make a note to bring that back at the next KHPRC meeting.

Ms. Griffin: Okay. Yes, Myles did send a message saying that they are going to start doing their field surveys in October and November, but we don’t really know… And they will have students as interns doing the inventorying and so forth, and the field surveys, and that they will let the Planning Department know when they have a real schedule for here.

Mr. Long: In my conversation with Myles, he said that they are going to be relying on in-house Staff, students, and volunteers to do this survey work. I’m a member of the public; I would like to volunteer to be part of that team in that process.

Ms. Griffin: They specifically said that members of KHPRC are welcome to participate.

Mr. Hull: Okay. We’ll have to look at that. I think having you as a volunteer would be wonderful, but then we’d also have to look at your ability to actually vote on that item though. Inadvertently you push yourself out of the decision-making process because you may have to recuse yourself, but Jodi can look into that.

Ms. Griffin: Thank you. Anything else on that agenda item?

**SELECTION OF NEXT MEETING DATE AND AGENDA TOPICS (11/5/2015)**

Ms. Griffin: Okay. Then the next meeting is set for November 5th, first Thursday. Is there a motion to adjourn?

Ms. Schneider: I make a motion.

Mr. Chaffin Jr.: Second.

Ms. Griffin: Thank you. All in favor? (Unanimous voice vote) Thank you. Thank you all for taking the time.

**ADJOURNMENT**

The meeting was adjourned at 5:45 p.m.
Respectfully Submitted,

Darcie Agaran
Commission Support Clerk

Date: 10/20/15
Central Federal Lands Highway Division
12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3647
Fax: 720-963-3596
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:
HFPM-16

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

ATTN: SUZANNE CASE
STATE HISTORIC PRESERVATION OFFICER

FROM: J. MICHAEL WILL, P.E.
PROJECT MANAGER

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 AND HAWAII REVISED STATUTES, CHAPTER 6E CONSULTATION
BRIDGE NO. 7E REPLACEMENT PROJECT
KOLOA DISTRICT, KAUAI ISLAND, KOLOA AHUPUAA
PROJECT NO. HI STP SR50(2)
TAX MAP KEY: (4)2-7-002:001 (POR.), (4)2-7-001:004 (POR.), AND (4)2-7-001 KAUMUALII HIGHWAY RIGHT-OF-WAY

Dear Ms. Case:

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in partnership with the State of Hawaii Department of Transportation (HDOT), is proposing to replace Bridge Number (No.) 7E on Kaumualii State Highway 50 (HI-50), located at Mile Post (MP) 6.95 (see attached Area of Potential Effects USGS Map for project location). The proposed project is considered a federal action and undertaking, and will comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006), as well as Hawaii Revised Statutes (HRS) Chapter 6E. This letter is to initiate consultation with the State Historic Preservation Division (SHPD) under Section 106 in accordance with Title 36 of the Code of Federal Regulations (CFR), Section 800.3, and in accordance with HRS Chapter 6E-8.

Overview of the Undertaking
The proposed project would replace the existing Bridge No. 7E and its roadway approaches to maintain the crossing over the unnamed intermittent waterway on HI-50 as a safe and functional component of the regional transportation system for highway users. The bridge is located at milepost 7.0 on Kaumualii Highway, approximately 800 feet west of its intersection with Maluhia Road. The existing structure, which is a double box culvert, would be demolished and replaced with a single-cell box culvert.

The proposed new bridge structure would be approximately 30 feet long and 44 feet wide, to accommodate two 12-foot travel lanes with 8-foot shoulders and guardrails on both sides. The
roadway approaches to the bridges would be widened, which would require extending embankment slopes.

During construction, Bridge No. 7E would be closed to traffic, and a temporary bypass road would be constructed to maintain traffic over the stream. A temporary stream crossing upstream of the existing bridge would be provided.

The proposed improvements would occur within the existing HDOT right-of-way and would extend approximately 20 to 50 feet into adjacent private property. Construction parcels (temporary easements) would be needed from the privately owned parcel mauka of the bridge. Permanent easements would be acquired on the makai side for maintenance of grading and drainage improvements. Archaeological monitoring will be conducted for all initial ground disturbance and excavation activities during construction.

Area of Potential Effects
The archaeological and historic architectural Areas of Potential Effects (APE) are illustrated in the attached APE Aerial Imagery map, and include both temporary and permanent impact areas. The APE comprises 2.1 acres and includes the following TMKs: (4)2-7-002:001 (por.), (4)2-7-001:004 (por.), and (4)2-7-001 Kaumualii Highway right-of-way.

Determination of Eligibility
Pursuant to NHPA Section 106 and HRS Chapter 6E, a cultural resources investigation was performed within a field survey area that included the project’s APE. The cultural resources investigation comprised an archival literature review, an architectural reconnaissance survey, and an archaeological inventory survey. The surveys identified two cultural resources within the APE: Bridge No. 7E (SIHP #50-30-10-2285) and a historic earthen ditch (SIHP #50-30-10-2286). The surveys did not identify any archaeological resources within the APE. FHWA believes all historic properties with potential to be affected by the undertaking have been identified.

Bridge No. 7E is not a distinctive example of a box culvert or considered a significant achievement by its designer and is evaluated by Mason Architects as not eligible for listing on the NRHP or HRHP. Bridge No. 7E was also included in the 2013 Hawaii Historic Bridge Inventory and Evaluation prepared by MKE Associates, LLC and Fung Associates, Inc. as not eligible for the NRHP or HRHP. The historic earthen ditch lacks integrity and is also evaluated by Mason Architects as not eligible for the NRHP or HRHP.

FHWA is in agreement with the recommendations of Mason Architects and the findings of the 2013 Hawaii Historic Bridge Inventory and Evaluation and has therefore determined that Bridge No. 7E (SIHP #50-30-10-2285) is not eligible for the NRHP or HRHP. In addition, the historic earthen ditch lacks integrity and is also determined to be not eligible for the NRHP or HRHP.

Detailed information on the cultural, archaeological, and historical settings of the project area and the determination of eligibility are provided in two studies prepared for this project, included on the enclosed CD:

1. Draft Archaeological Inventory Survey Report for the Bridge 7E Replacement Project, Koloa Ahupuaa, Koloa District, Kauai
2. Hawaii SHPD Historic Resource Inventory Form (Reconnaissance Level) for Bridge 7E

**Determination of Effects**

FHWA has determined that the undertaking will result in a *No Historic Properties Affected* finding in accordance with Federal regulations (36 CFR 800.5) and in a *No Effect* finding in accordance with HAR §13-13-275-7, because no resources are eligible for the NRHP or HRHP.

**Consultations**

Section 106 notice/advertisement was published in The Garden Island on August 29 2015. 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 asked to provide a response within 30 days of notification.

Section 106 consultation letters were sent to the following organizations as potential consulting parties:

- Office of Hawaiian Affairs
- Kauai Historic Preservation Review Commission
- Kauai-Nihiu Island Burial Council
- Queen Deborah Kapule Hawaiian Civic Club
- Hookipa Network
- Historic Hawaii Foundation

The Kauai Historic Preservation Review Commission (HPRC) met on October 1, 2015 to discuss the project and provided comments (in form of meeting minutes) on October 28, 2015. No substantive comments were received on the Bridge 7E project. General questions were asked regarding the presence of archaeological sites, and Cultural Surveys Hawaii, Inc., the archaeological consultant for the project, discussed the surveys performed and lack of resources identified in the project areas and the ongoing consultation with SHPD.

We received communication from the Office of Hawaiian Affairs suggesting that the following organizations and individual be contacted in regard to the project:

- Royal Order of Kamehameha I, Kamualii Chapter
- Aha Moku Kauai Island, Kona Moku
- Kaahumanu Society
- Lopaka Bukoski

In response to the request from the Office of Hawaiian Affairs, letters were sent to three of these parties on November 11, 2015. No responses have been received. No contact information was available for Aha Moku Kauai Island, Kona Moku.

**Request for Concurrence**

We request your concurrence with the Area of Potential Effects and Determinations of Eligibility and Effects. We would appreciate a written response within 30 days from date of receipt, by email at Michael.will@dot.gov or by US Postal Service to 12300 West Dakota Avenue, Suite 380A, Lakewood, CO 80228-2583.
Please feel free to contact Nicole Winterton, Environmental Protection Specialist, at (720) 963-3689, email: nicole.winterton@dot.gov, if you have any questions. We look forward to working with the SHPO on these needed improvements.

Sincerely yours,

Nicole Winterton

J. Michael Will, P.E.
Project Manager

Enclosures:
- Area of Potential Effects (USGS Map)
- Area of Potential Effects (Aerial Imagery)
- Kauai HPRC Comments (October 28, 2015 meeting minutes of October 1, 2015 meeting)
- On CD: Draft Archaeological Inventory Survey Report for the Bridge 7E Replacement Project, Koloa Ahupuaa, Koloa District, Kauai
- On CD: Hawaii SHPD Historic Resource Inventory Form (Reconnaissance Level) for Bridge 7E

cc (with enclosures on CD):
Christine Yamasaki, HDOT
Todd Nishioka, HDOT
Jessica Puff, SHPD
Susan Lebo, SHPD
Mary Jane Naone, SHPD
Draft


Prepared for
CH2M HILL
and on behalf of the
Federal Highway Administration (FHWA)
Central Federal Lands Highway Division (CFLHD)

Prepared by
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Cultural Surveys Hawai‘i, Inc.
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(Job Code: KOLOA 67)

December 2015

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# Reference

# Date
December 2015

# Project Number(s)
- FHWA/CFLHD Contract Code: DTFH68-13-R-00027
- CH2MHILL Project Task ID: 499069.10SU.CS
- Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: KOLOA 67

# Agencies
FHWA/CFLHD, SHPD

# Land Jurisdiction
State Department of Transportation (HDOT)

# Project Proponent
FHWA/CFLHD, HDOT

# Project Funding
FHWA/CFLHD

# Project Location
The proposed project is located along Kaumuali‘i Highway, Route 50, approximately 800 feet (ft) west of the Maluhia Road/Kaumuali‘i Highway intersection within Kōloa Ahupua‘a, Kōloa District, Kaua‘i. The study area is depicted on a portion of the 1996 Koloa U.S. Geological Survey (USGS) topographic quadrangle.

# Project Description
The purpose of the project is to replace the existing deficient bridge to meet current design standards for roadway width, load capacity, bridge railings, and transitions. The existing bridge was constructed in 1933 and is composed of reinforced concrete consisting of two culvert cells with wing-wall abutments. The bridge has a length of approximately 23 ft and a width of approximately 32 ft. The bridge surface consists of asphaltic concrete pavement.

# Project Acreage
The survey area includes approximately 4.5 acres.

# Document Purpose
This CIA was prepared to comply with the State of Hawai‘i’s environmental review process under Hawai‘i Revised Statutes (HRS) §343, which requires consideration of the proposed project’s potential effect on cultural beliefs, practices, and resources. Through document research and cultural consultation efforts, this report provides information compiled to date pertinent to the assessment of the proposed project’s potential impacts to cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control’s Guidelines for Assessing Cultural Impacts) which may include traditional cultural properties (TCPs). These TCPs may be significant historic properties under State of Hawai‘i significance criterion “e,” pursuant to Hawai‘i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance criterion “e” refers to historic properties that “have an important value to the native Hawaiian people or to another ethnic group of the state due
to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity” (HAR §13-275-6 and §13-284-6). The document will likely also support the project’s historic preservation review under HRS §6E and HAR §13-275 and §13-284.

**Results of Background Research**

Background research for this project yielded the following results:

1. An 1885 document interviewing a native named Makea familiar with Kōloa Ahupua’a knew of 14 heiau (pre-Christian place of worship) in the area. Wendell Clark Bennett conducted fieldwork from 1928 to 1929 and reported four heiau within Kōloa: Kāneiolouma, Mauli‘ili‘i, Kihouna, and Kanehaule.

2. Previous archaeology and historical accounts indicate the mauka (toward the mountain) lands of Kōloa consisted of a well-maintained agricultural complex of taro, yams, sweet potato, and sugarcane that was irrigated by an extensive ‘auwai (irrigated ditch) siphoned off Waikomo and Pō‘ele‘ele streams.

3. Kōloa became the site of the first organized sugar plantation in the Hawaiian Islands. Ladd and Company leased 1,000 acres for the sole purpose of growing sugarcane (Palama and Stauder 1973). The commercialization of sugar in Kōloa had widespread social effects that changed the traditional view of the ‘āina (land) and responsibility of the ali‘i (chief).

4. Kōloa Town and Kōloa Landing became commercial centers during the mid- to late 1800s with the exportation of sweet potatoes, sugar, and molasses. Whalers also stopped for provisions such as pumpkins, salt, salted beef, pigs, and cattle (Palama and Stauder 1973:20).

5. By 1912, the Koloa Sugar Company built a new and larger mill, which included a railroad track and an asphalt road built to connect the mill to Kōloa Landing. World War I caused a huge demand for sugar. However, in 1925, Kōloa Landing was phased out when McBryde Sugar and Koloa Sugar began to ship their products out of Port Allen in Hanapēpē. The makai (toward the ocean) Kōloa lands were eventually phased out for cattle pastures by the Knudsen family. The mauka lands in Kōloa remained under sugar cultivation until the 1970s, when these were also converted into pasture.

6. During the late 1960s, Kōloa experienced a reverse migration back to the makai areas. Tourism drove development near the shoreline resulting in construction and service jobs moving away from the town center.
### Results of Community Consultation

CSH attempted to contact Hawaiian organizations, agencies, and community members. Please note that CSH is still awaiting approval of interview transcriptions and summaries from interviewees; results of the community consultation will change pending approval of interview transcriptions and summaries. Consultation was received from community members as follows:

1. Billy Kaohelauli’i, family from Kaua‘i; grandfather was former policeman in Poi’pū
2. Rupert Puni Rowe, one of the oldest families in Kōloa
3. Reginald Gage, retired Chief Appraiser and Real Property Assessor for the County of Kaua‘i; self-interest in Kaua‘i history; trustee of Grove Farm Homestead Museum; Vice President of Waioli Corporation

### Impacts and Recommendations

CSH identifies potential impacts and makes the following preliminary recommendations. Please note that CSH is still awaiting approval of interview transcriptions and summaries that were conducted for this study and that the impacts and recommendations may change pending approval of interview transcriptions and summaries.

1. Previous archaeology conducted within the project area indicated four historic-era properties, however, no *iwi kūpuna* (ancestral bones) were discovered. If in the event *iwi kūpuna* is found during any ground disturbing activities, personnel involved in the construction activities should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials (or other cultural finds) be encountered during ground disturbance or via construction activities, all work should cease immediately and the appropriate agencies should be notified pursuant to applicable law, HRS §6E.
# Table of Contents

**Management Summary** ....................................................................................................................................................... i

**Section 1 Introduction** ........................................................................................................................................................ 1

1.1 Project Background .......................................................................................................................... 1
1.2 Document Purpose .......................................................................................................................... 1
1.3 Scope of Work .................................................................................................................................. 6
1.4 Environmental Setting .................................................................................................................. 6
1.4.1 Natural Environment .................................................................................................................. 6
1.4.2 Built Environment .................................................................................................................... 7

**Section 2 Methods** ........................................................................................................................................................ 10

2.1 Archival Research .................................................................................................................................... 10
2.2 Community Consultation .................................................................................................................. 10
2.2.1 Scoping for Participants ................................................................................................................ 10
2.2.2 “Talk Story” Sessions .................................................................................................................. 10
2.2.3 Completion of Interview .............................................................................................................. 11

**Section 3 Ka‘ao and Mo‘olelo of Kōloa** .............................................................................................. 12

3.1 Traditional Legends Associated with Kōloa ..................................................................................... 12
3.1.1 The Story of Pumaia ..................................................................................................................... 12
3.1.2 Maulili Pool .................................................................................................................................. 14
3.1.3 Ke Kōloa o Kaikapū ..................................................................................................................... 15
3.2 Wahi Pana ........................................................................................................................................... 16
3.2.1 Kōloa .......................................................................................................................................... 16
3.2.2 Maulili Pond ............................................................................................................................... 17
3.2.3 Palila ............................................................................................................................................ 17
3.3 Heiau (Temple) ................................................................................................................................... 18
3.3.1 Kāneiolouma Heiau ..................................................................................................................... 18
3.3.2 Maulili Heiau ............................................................................................................................. 18
3.3.3 Kihouna Heiau ............................................................................................................................ 19
3.3.4 Kanehaule Heiau ....................................................................................................................... 19
3.4 ‘Ōlelo No‘eau .................................................................................................................................... 19
3.4.1 ‘Ōlelo No‘eau #47 ..................................................................................................................... 19

**Section 4 Traditional and Historical Accounts** .................................................................................. 20

4.1 Historical Accounts ............................................................................................................................ 20
4.1.1 Captain Cook’s Visit to Kaua‘i 1778 ............................................................................................ 20
4.1.2 Early Historic Period ................................................................................................................... 21
4.1.3 The Māhele and the Kuleana Act .............................................................................................. 22
4.1.4 Mid-1800s .................................................................................................................................. 24
4.1.5 1900s ....................................................................................................................................... 24
4.1.6 Modern Land Use ....................................................................................................................... 26
4.2 Previous Archaeological Research ................................................................................................... 31
4.3 Background Summary and Predictive Model .................................................................................... 35

**Section 5 Community Consultation** .................................................................................................. 36

5.1 Introduction ...................................................................................................................................... 36
5.2 Community Contact Letter ........................................................................................................ 36
5.3 Community Contact Table ....................................................................................................... 38
5.4 Kamaʻāina Interviews ............................................................................................................. 43
  5.4.1 Billy Kaohelaüli‘i and Rupert Puni Rowe ......................................................................... 43
  5.4.2 Reginald Gage .................................................................................................................... 43
5.5 Summary of Kamaʻāina Interview ......................................................................................... 43

Section 6 Traditional Cultural Practices ....................................................................................... 44
  6.1 Mahiʻai (Farming), Gathering, ............................................................................................ 44
  6.2 Wahi Pana ........................................................................................................................... 44

Section 7 Summary and Recommendations ............................................................................... 45
  7.1 Results of Background Research ...................................................................................... 45
  7.2 Results of Community Consultations ................................................................................ 45
  7.3 Impacts and Recommendations ....................................................................................... 46

Section 8 References Cited ........................................................................................................ 47

CIA for Bridge 7E Project, Kōloa, Kaua‘i

TMKs: [4] 2-7-001:004 por., 2-7-002:001 por., and 2-7-001 Kaumuali‘i Highway Right-of-Way
List of Figures

Figure 1. Portion of the 1996 USGS 7.5-minute topographic quadrangle showing the location of
the study area .......................................................................................................................2
Figure 2. Tax Map Key (TMK) [4] 2-7-01 showing the location of the study area (Hawai‘i TMK
Service 2012) .......................................................................................................................3
Figure 3. TMK: [4] 2-7-02 showing the location of the study area (Hawai‘i TMK Service 2012) 4
Figure 4. Aerial photograph showing the study area (Google Earth 2012) ...............................5
Figure 5. Aerial photograph (Google Earth 2012) showing the study area with an overlay of the
USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972) ....9
Figure 6. Photo of Kōloa Landing (Hawai‘i State Archives n.d.) .............................................23
Figure 7. 1891 Monsarrat map of Kōloa depicting the current study area .................................25
Figure 8. Portion of the 1910 Lihue USGS topographic quadrangle showing the location of the
study area ...........................................................................................................................27
Figure 9. Portion of the 1963 Koloa USGS topographic quadrangle showing the location of the
study area ...........................................................................................................................28
Figure 10. Portion of the 1978 Koloa USGS orthophotoquad aerial photograph showing the
location of the study area .................................................................................................30
Figure 11. Aerial photograph depicting one previous archaeological study within a 0.8 km (0.5
mile) radius of the study area (Google Earth 2013) ..........................................................32
Figure 12. Overview of Kaumuali‘i Highway and surrounding area, view to east (from Hammatt
and Chiogioji 1998) .........................................................................................................34
Figure 13. 2014 matching overview of Kaumuali‘i Highway and surrounding area from current
archaeological reconnaissance, view to east .....................................................................34
Figure 14. Community consultation letter sent to NHOs, agencies, and the community ..........37

List of Tables

Table 1. Previous Archaeological Investigations within a 0.8-km (0.5-mile) Radius of the Study
Area ....................................................................................................................................33
Table 2. Kōloa Heiau Documented by Thrum in 1907 ..............................................................33
Table 3. Results of Community Consultation ............................................................................38
Section 1  Introduction

1.1 Project Background

At the request of CH2M HILL and on behalf of the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), Cultural Surveys Hawai‘i, Inc. (CSH) completed this cultural impact assessment report for Bridge 7E, Kōloa Ahupua’a, Kōloa (Kona) Moku, Kaua‘i, FHWA/CFLHD Contract DTFH68-13-R-00027, TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por., Kaumuali‘i Highway Right-of-Way. The proposed project is located along Kaumuali‘i Highway, Route 50, approximately 800 feet (ft) west of the Maluhia Road/Kaumuali‘i Highway intersection within Kōloa, Ahupua’a, Kōloa District, Kaua‘i Island. The project area is depicted on a portion of the 1996 Koloa U.S. Geological Survey (USGS) topographic quadrangle (Figure 1), tax map plats (Figure 2 and Figure 3), and an aerial photograph (Figure 4). The study area includes approximately 4.5 acres.

The purpose of the project is to replace the existing deficient bridge to meet current design standards for roadway width, load capacity, bridge railings, and transitions. The existing bridge was constructed in 1933 and is composed of reinforced concrete consisting of two culvert cells with wing-wall abutments. The bridge has a length of approximately 23 ft and a width of approximately 32 ft. The bridge surface consists of asphaltic concrete pavement.

1.2 Document Purpose

The purpose of this CIA is to comply with the State of Hawai‘i’s environmental review process under Hawai‘i Revised Statutes (HRS) §343, which requires consideration of the project’s potential effect on cultural beliefs, practices, and resources. Through document research and cultural consultation efforts, this report provides information compiled to date pertinent to the assessment of the proposed project’s potential impacts on cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control’s Guidelines for Assessing Cultural Impacts), which may include traditional cultural properties (TCPs). These TCPs may be significant historic properties under State of Hawai‘i significance criterion “e,” pursuant to Hawai‘i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance criterion “e” refers to historic properties that “have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity” (HAR §13-275-6 and §13-284-6). The document will likely also support the project’s historic preservation review under HRS §6E and HAR §13-275 and §13-284.

Due to federal funding, this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act, and Section 4(f) of the Department of Transportation Act. The proposed project is also subject to Hawai‘i State environmental and historic preservation review legislation (HRS §343 and HRS §6E-8/HAR §13-275, respectively).
Figure 1. Portion of the 1996 USGS 7.5-minute topographic quadrangle showing the location of the study area
Figure 2. Tax Map Key (TMK) [4] 2-7-01 showing the location of the study area (Hawai‘i TMK Service 2012)
Figure 3. TMK: [4] 2-7-02 showing the location of the study area (Hawai‘i TMK Service 2012)
Figure 4. Aerial photograph showing the study area (Google Earth 2012)
1.3 Scope of Work

The scope of work for this CIA includes the following:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.

2. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.

3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.

4. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings.

1.4 Environmental Setting

1.4.1 Natural Environment

The ahupua‘a of Kōloa extends as a fairly large land segment from Mt. Kāhili to the sea. It is bordered by Lāwa‘i Ahupua‘a to the west and Weliweli Ahupua‘a to the east.

1.4.1.1 Makani (Prevailing Winds)

Northeasterly trade winds prevail throughout the year, although their frequency varies from 80 to 95% of the time during the summer months, when high-pressure systems tend to be located north and east of the Hawaiian Islands. During the winter months, the high pressure systems are located farther to the south, decreasing the occurrence of the trade winds to about 50 to 80% of the time (WRCC 2010).

The Wind Gourd of La‘amaomao tells the story of Pāka’a and his son Kuāpāka’a, descendants of the wind goddess La‘amaomao, who are given control over the winds of Hawai‘i which are contained in a gourd. Each wind could be called forth by chanting their names (Nakuina 1992). Pāka’a’s chant traces the winds of Kaua‘i found in the ahupua‘a of Kōloa. Makani is the general Hawaiian word for wind. There are at least two different Hawaiian names for the winds found in the Kōloa Ahupua‘a: Malanai a gentle breeze, the trade wind of Kōloa (Nakuina 1990:149), and “Holomālani wind” (Ho‘oulumāhiehie 2008:16).

1.4.1.2 Ua (Precipitation)

Precipitation is a major component of the water cycle, and is responsible for depositing wai (fresh water) on local flora. Pre-Contact kānaka (Native Hawaiians) recognized two distinct annual seasons. The first, known as kau (period of time, especially summer) lasts typically from May to October and is a season marked by a high-sun period corresponding to warmer temperatures and steady trade winds. The second season, ho‘oilo (winter, rainy season) continues through the end of the year from November to April and is a much cooler period when trade winds are less frequent, and widespread storms and rainfall become more common (Giambelluca et al. 1986:17). Typically the maximum rainfall occurs in January and the minimum in June (Giambelluca et al. 1986:17).
The rainfall pattern on Kaua'i is characterized by Waiʻaleʻale near the island’s highest point (Kawaikini, 1,598 m [5,243 ft]), and a minimum, Kekaha, along the western coast of the island. The rain gauge at Mt. Waiʻaleʻale receives more rainfall than any other gage in the world. With an annual median of 11,415 mm (449 in.), it is one of the wettest locations on earth. Southwest of Waiʻaleʻale, the Kekaha annual minimum is less than 500 mm (19.7 in.) (Giambelluca et al. 1986:17).

1.4.1.3 ‘Āina (Soil Survey)

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), soils within the study area include Kapaa silty clay, 3 to 8% slopes (KkB) and Halii gravelly silty clay, 3 to 8% slopes (HfB) (Figure 5).

Soils of the Kapaʻa Series are described as follows:

This soil is on broad ridges in the uplands. Included in mapping were about 300 acres on Kauai, south of Puu Kolo peak and southwest of Knudsen gap. This soil formed in volcanic ejecta. The surface layer and the upper part of the subsoil contain less gibbsite than is typical.

In a representative profile the surface layer is dark yellowish-brown silty clay about 14 inches thick. The subsoil, about 46 inches thick, is yellowish-red and reddish-brown silty clay that has subangular blocky structure. The substratum is soft, weathered rock. The surface layer is strongly acid. The subsoil is medium acid to very strongly acid.

Permeability is moderately rapid. Runoff is slow, and the erosion hazard is slight. In places root penetrate to a depth of 5 feet or more. [Foote et al. 1972:61]

Soils of the Halii Series are described as follows:

This soil occurs on ridgetops and side slopes on uplands. In a representative profile the surface layer is very dark grayish-brown gravelly silty clay about 6 inches thick. The upper part of the subsoil is dark reddish-brown and strong-brown silty clay and clay loam that has subangular blocky structure. Red bands up to 2 inches thick are common. The lower part of the subsoil consists of bands of red clay loam that continue to a depth of more than 60 inches. The substratum is soft, weathered rock. The soil is very strongly acid in the surface layer and very strongly acid to extremely acid in the subsoil. Permeability is moderately rapid. Runoff is slow, and the erosion hazard is slight. In places roots penetrate to a depth of 5 feet or more.

[Foote et al. 1972:34]

1.4.1.4 Nahele (Vegetation)

Vegetation observed within the study area included exotic grasses, eucalyptus (Eucalyptus sp.), and Albizia trees (Albizia sp.).

1.4.2 Built Environment

The study area’s built environment includes a portion of Route 50 (Kaumualii Highway) and Bridge 7E, the focus of the current project. Bridge 7E, also known as Hoinakaunalehua Bridge,
was constructed in 1933. The area surrounding the highway is understood to be agricultural land used for sugarcane cultivation, now cultivated with eucalyptus and Albizia trees for renewable energy projects.
Figure 5. Aerial photograph (Google Earth 2012) showing the study area with an overlay of the USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972)
Section 2  Methods

2.1 Archival Research

Research centers on Hawaiian activities including ka‘ao (legends), traditional mo‘olelo (stories), wahi pana (storied places), ‘ōlelo no‘eau (proverbs), oli (chants), mele (songs), traditional subsistence and gathering methods, ritual and ceremonial practices, and more. Background research focuses on land transformation, development, and population changes beginning with the early post-Contact era to the present day.

Cultural documents, primary and secondary cultural and historical sources, previous archaeological reports, historic maps, and photographs were reviewed for information pertaining to the study area. Research was primarily conducted at the CSH library. Other archives and libraries including the Hawai‘i State Archives, the Bishop Museum Archives, the University of Hawai‘i at Mānoa’s Hamilton Library, Ulukau, The Hawaiian Electronic Library (Ulukau.org 2014), the State Historic Preservation Division (SHPD) library, the State of Hawai‘i Land Survey Division, the Hawaiian Historical Society, and the Hawaiian Mission Houses Historic Site and Archives are also repositories where CSH cultural researchers gather information. Information on Land Commission Awards (LCAs) were accessed via Waiona ‘Aina Corporation’s Māhele database (Waiona ‘Aina 2000), the Office of Hawaiian Affairs (OHA) Papakilo Database (Office of Hawaiian Affairs 2014), and the Ava Konohiki Ancestral Visions of ‘Āina website (Ava Konohiki 2015).

2.2 Community Consultation

2.2.1 Scoping for Participants

We begin our consultation efforts by utilizing our previous contact list to facilitate the interview process. We then review an in-house database of kūpuna (elders), kama‘āina (native born), cultural practitioners, lineal and cultural descendants, Native Hawaiian Organizations (NHOs; includes Hawaiian Civic Clubs and those listed on the Department of Interior’s NHO list), and community groups. We also contact agencies such as SHPD, OHA, and the appropriate Island Burial Council where the proposed project is located for their response on the project and to identify lineal and cultural descendants, individuals and/or NHO with cultural expertise and/or knowledge of the study area. CSH is also open to referrals and new contacts.

2.2.2 “Talk Story” Sessions

Prior to the interview, CSH cultural researchers explain the role of a CIA, how the consent process works, the project purpose, the intent of the study, and how their ‘ike (knowledge) and mana‘o (thought, opinion) will be used in the report. The interviewee is given an Authorization and Release Form to read and sign.

“Talk Story” sessions range from the formal (e.g., sit down and kūkā [consultation, discussion] in the participant’s choice of place over set interview questions) to the informal (e.g., hiking to cultural sites near the study area and asking questions based on findings during the field outing). In some cases, interviews are recorded and transcribed later.
CSH also conducts group interviews, which range in size. Group interviews usually begin with set, formal questions. As the group interview progresses, questions are based on interviewees’ answers. Group interviews are always transcribed and notes are taken. Recorded interviews assist the cultural researcher in 1) conveying accurate information for interview summaries, 2) reducing misinterpretation, and 3) filling in missing details to mo‘olelo.

CSH seeks kōkua (assistance) and guidance with identifying past and current traditional cultural practices of the study area. Those aspects include general history of the ahupua‘a; past and present land use of the study area; knowledge of cultural sites (for example, wahi pana, archaeological sites, and burials); knowledge of traditional gathering practices (past and present) within the study area; cultural associations (ka‘ao and mo‘olelo); referrals; and any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the study area.

2.2.3 Completion of Interview

After an interview, CSH cultural researchers transcribe and create an interview summary based on information provided by the interviewee. Cultural researchers give a copy of the transcription and interview summary to the interviewee for review and ask them to make any necessary edits. Once the interviewee has made those edits, we incorporate their ‘ike and mana‘o into the report. When the draft report is submitted to the client, cultural researchers then prepare a finalized packet of the participant’s transcription, interview summary, and any photos that were taken during the interview. We also include a thank you card and honoraria. This is for the interviewee’s records.

It is important to CSH cultural researchers to cultivate and maintain community relationships. The CIA report may be completed, but CSH researchers continuously keep in touch with the community and interviewees throughout the year—such as checking in to say hello via email or by phone, volunteering with past interviewees on community service projects, and sending holiday cards to them and their ‘ohana (family). CSH researchers feel this is an important component to building relationships and being part of an ‘ohana and community.

“I ulu no ka lālā i ke kumu—the branches grow because of the trunk,” is an ‘ōlelo no‘eau (#1261) shared by Mary Kawena Pukui with the simple explanation: “Without our ancestors we would not be here” (Pukui 1983:137). As cultural researchers, we often lose our kūpuna but we did not lose their wisdom and words. We routinely check obituaries and gather information from other informants if we have lost our kūpuna. CSH makes it a point to reach out to the ‘ohana of our fallen kūpuna and pay our respects including sending all past transcriptions, interview summaries, and photos for families to have on file for genealogical and historical reference.
Section 3  Kaʻao and Moʻolelo of Kōloa

3.1 Traditional Legends Associated with Kōloa

Storytelling is better heard than read for much becomes lost in the transfer from the spoken word to the written word. Hawaiian storytellers of old were greatly honored and provided a major source of entertainment. Their stories contained teachings while interweaving parts of Hawaiian lifestyles, genealogy, history relationships, arts, and the natural environment. Kaʻao are often full of hidden and double meanings (Pukui and Green 1995:ix).

Beckwith notes that Hawaiians use the term kaʻao “for a fictional story or one in which fancy plays an important part” while moʻolelo is “a narrative about a historical figure, one which is supposed to follow historical events. Stories of the gods are moʻolelo.” In reality, the distinction between kaʻao as fiction and moʻolelo as fact cannot be “pressed too closely. It is rather in the intention than in the fact” (Beckwith 1970:1). Thus a so-called moʻolelo, which may be enlivened by fantastic adventures of kupua (supernatural beings), “nevertheless corresponds with the Hawaiian view of the relation between nature and man” (Beckwith 1970:1). A kaʻao, on the other hand, so consciously composed to tickle the fancy rather than to inform the mind as to supposed events” (Beckwith 1970:1).

The following section presents traditional accounts of ancient Hawaiians living in the vicinity of the project area. Originating before the time of the first Hawaiian in an age of mythical characters, these epic adventures inadvertently led to the Hawaiian race of aliʻi (chiefs) and makaʻāinana (commoners) alike. The kaʻao from in and around the project area shared below are some of the oldest Hawaiian stories that have survived and they still speak to the characteristics and environment of the area and its people.

3.1.1 The Story of Pumaia

Hawaiian legends are filled with clever characters and mythical figures. The story of Pumaia tells the adventures of a man and his friend Wakaina. They traverse the two realms of the living and the dead and run into many creatures of different temperaments along their way home: a strong man who kills them, an evil prophet who seeks to kill them, and a wise owl deity who intervenes in the pursuit from the evil prophet (Fornander 1919:550–554).

Pumaia was born in Koloa, Kauai. Malaihi was the father and Kuhihewa was the mother. They lived together until the child had grown up, and his body had acquired strength, when Pumaia said to his father, ‘You will please let me go to see the club of my grandmother.’ The father gather his consent. The son went, and arriving at the house of Kiha, his grandmother, he asked, ‘Where is the club?’ ‘Here it is,’ said the grandmother . . . He shouldered the club and commenced his journey. He caught up with Wakaina, and the latter inquired, ‘Where are you journeying to?’ ‘Going sightseeing,’ replied Pumaia. ‘Please let me go with you.’ Pumaia consented and they went along.

Puukolea stood forth and called out, ‘Whose offspring are you?’ ‘Our own,’ replied Pumaia. ‘If you excel in strength, you are saved; if your strength is meager, I will kill you.’ Then they commenced to fight. That man, however, had a dual body,
while these had the ordinary living body. Pumaia asked Wakaina, ‘Which of us shall be the first one to fight with this man?’ The other replied, ‘It is better that I do it.’ Pumaia consented and Wakaina went to fight Puukolea. Before they commenced fighting, however, he chanted a portion of a song, thus:

Behold! Behold! The mere lehua of Puuoni,
Struggling with the clouds of the air,
Now above, now below the rain clouds.

. . . They kept on fighting until Pumaia was weakened. He thought of his club; so when Wakaina came back and inquired, ‘How are you?’ he answered, ‘I am weak; go and fetch my club; perhaps it can do something.’ While they yet spoke the other man appeared in a different body. The fought on, and before Pumaia could reach for his club, he was killed by this man; Wakaina also was killed. Their spirits returned on their parents and were seen by them . . .

Fear is creeping over us,
Coming for us to go;
We can not; we are held by Waiauau.
Come to give us life!
Life—indeed.

When these ghosts finished their chant the parents came out immediately, but they saw nothing. They looked here and there, but they would not see them. Meanwhile the two had gone as spirits until they met Pupuilima. Some people saw these two coming, but Pupuilima said: ‘Those are not men; those are ghosts.’ ‘How do you know those are ghosts?’ said the others. So they laid wagers. Pupuilima then said to them, ‘I will spread an ape leaf on the ground; and if it breaks, then they are men, but if it does not, then they area spirits.’ He spread it. Meanwhile Pumaia said to Wakaina, ‘There is our death being prepared.’ ‘How shall we be saved?’ Pumaia explained: ‘Where my feet tread there you tread; because I was raised from my young days until I died, and until I found you; for this process is like that done to Pamano when by the spreading of an ape leaf he was saved.’ So when they proceeded Pumaia trod on the ape leaf and it broke through; the friend treaded after him. They were chased by the prophet until they were caught. This is what I have obtained.

While they were going along they were given chase. They came along until they caught up with Pueonuiokona. The owl, however, did not catch sight of them while they were coming. When they had passed ahead the prophet who was chasing them caught up with Pueonuiokona. The owl asked, ‘What is the cause of this heavy breathing and this perspiring?’ This one answered, ‘That you should be asking “what”? Spirits! And there they are! I am chasing them, but can not catch them; I have been wishing to get near them so that I can kill them, for I am possessed with great anger towards them.’

When the owl heard what the prophet had said, he said to him, ‘You are a prophet, and I am a prophet, still I did not see them; and now I hear you saying that if you catch them then they die.’ Where they were holding this conversation, however, was on . . .
the plain of Kamaomao. While the others prepared to come for the spirits, Pumaia said to his friend, ‘Here comes our death; but we will wait. If the new one gets ahead of the old one then we have hope for life.’

. . . While the prophets were following, and because Pueonuiokona was the faster, an idea occurred to one of them, and he said to himself, ‘If I catch up to that prophet I shall kill him, for he is simply going after my enemies to save them.’ The owl went along slowly until his fellow prophet thundered after him and gave his hand a jerk. Pueo asked, ‘What wrong has a fellow committed that you should tug at the arm from behind and thereby nearly tripping me?’ The other replied with blazing eyes, ‘Who told you to go after my enemies with the intention of saving them? Why don’t you look for your own, and on them practice saving?’ The owl replied: ‘If you excel in strength you can obtain them, but if you are weak you can not have them; because I, even I, am an old resident of the plain. When spirits from the dead arrive I cause them to revive. Also no prophet comes to this plain; this is the first time that I have seen a prophet on this plain, and that is yourself. Because you complained of my desire to give life to those spirits, so be it! By a test of strength will [we know] whether you obtain them or I do.’

They immediately commenced to fight. Where they fought was at Kalepolepo, near the isthmus. The prophet was killed and his entrails were disemboweled by Pueonuiokona and placed on the akolea. That shrub used to be plentiful at that place, but it is destroyed now on account of numerous animals.

August 8, 1872

Kiliona

[Fornander 1919:550–554]

3.1.2 Maulili Pool

The following ka‘ao names the pool Maulili in the Kōloa Moku as the headwaters of two major ‘auwai (irrigated ditch) that flow throughout the ahupua‘a (traditional land division).

The pool of Maulili, on Waikomo stream, in Koloa District, Kauai, is a few hundred feet south of the Maulili road bridge. It was a sacred and noted place of olden times. The gods Kane, and his brother, Kanaloa, are said to have once slept above it, on its eastern bank and left the impress of their forms as can be seen in the apapa [stratum, flat, especially a coral flat]. The apapa in the vicinity is called ‘Unu’ and a ‘Heiau,’ but was never walled in, it is said. On the nights of Kane the drums are heard to beat there, also at the sacred rocks, or unu’s, of Opuokahaku and Kanemilohae, near the beach of Poipu, Ahupuaa of Koloa.

In the Maulili pool lived a large Moo, named ‘Kihawahine.’ At the brink of the waterfall into the pool once stood a sharp pointed rock, named Laaukahi (Puukaua), blasted away to make room for a water gate a few years ago. To the west of the waterfall, down in the pool is the flat rock named Kahonunuimaeae. The eastern was in the pool, just below the resting places of Kane and Kanaloa, for a short distance, only, is called ‘Pali o Koloa.’ The District of Koloa is named from this
Pali. We are told by old Hawaiians. To the south of the Pali o Koloa, in the wall is a rocked named ‘Waihanau’; as one of their meles has it:

‘Aloha wale ka Pali o Koloa,
Ke Ala huli i Waihanau e, hanau.’

To the south of Waihanau is a projecting rock named ‘Ke elelo o ka Hawaii’—the tongue of Hawaii,—said to have been wrested and brought from Hawaii by the Kauai warrior Kawelo, of Wailua.

At the southern end of the Maulili pool start two large auwai’s, that watered the land of East and West Koloa. [Thrum 1905:92–93]

Kamakau offers a more complete version of this same mele, the only different is the word “ala” which has been recorded as “alo” it could either be a misprint or misunderstanding

Aloha ka pali o Koloa,
Ke alo huli i Waihanau e,
Hanau, Hanau,
Aloha wale ka hoahanau,
Ka ho‘i wale i ke Kahalao e
Ho‘i wale--ho‘i wale.
Greeting to the cliffs of Koloa
That turn to face Waihanau,
Hanau, Hanau,
True aloha to my kinsmen
Who turn to go on the long trail
Empty handed! Empty handed!

[Kamakau 1961:344]

3.1.3 Ke Kōloa o Kaikapū

Kaikapū was a mo‘o (lizard, water sprit) who guarded the Kōloa shoreline keeping residents and visitors away from swimming holes and food sources on the reef and offshore (Wichman 1991:88). Her favorite trick was to hide herself in the rocks near the mouth of Waikomo Stream, listening for sounds of people. When she heard voices, she would swim furiously around the point and grab the fishermen from the rocks or a swimmer near the shore. The residents of Kōloa feared Kaikapū and soon no one came close to the ocean. As a result of Kaikapū’s antics, no one ate any fish; gathered the līpoa (bladelike, branched brown seaweed; Dictyopteris plagiogramma) used to flavor their food; or worked at the salt pans along the shoreline (Wichman 1991:88).

Liko and his grandmother stared at the Kōloa shoreline hopeless and angry. Liko’s grandmother sighed:
‘I would like a taste of i’a ho’omelu,’ she said. ‘I dream of the delicious pieces of raw hīnālea [wrasse; *Labridae*] fish mixed with red salt, roasted kukui [candlenut; *Aleurites moluccana*] nuts and brown līpoa seaweed.’ Even though some people thought this fermented relish had an offensive smell, Liko’s grandmother loved to spice her poi [Hawaiian staff of life made with cooked taro corms] with it. [Wichman 1991:88]

Liko decided his grandmother would have what she wanted and headed to the shore. Liko stared at Kaikapū and watched her movements. When it reached low tide and the waves became flat, he looked along the coastline remembering where he once gathered līpoa and caught hīnālea (Wichman 1991:89). Kaikapū dove under the water and hid, while Liko stood on a bluff and observed that the *moʻo* did not come up.

‘Lizard or no lizard,’ he muttered, ‘I’m going to catch a hīnālea and gather some līpoa.’

Below him a wave surged up through the hole in the rocks. The water poured back into the hole and Liko smiled. He had an idea.

He ran home and got his sport spear made of heavy kauila wood, sharp at both ends and very strong. He picked up his funnel-mouthed hīnālea trap wove from ‘inalua vine. He returned to the edge of the rocks, grasped his spear and fish trap and dove into the water, kicking hard to reach some rocks where he anchored the fish trap. His lungs grew tight, hurting from the lack of air, and he surfaced. [Wichman 1991:89]

Liko resurfaced and heard a snort. It was Kaikapū, smiling, and opening her jaws to swallow Liko. He yelled and hit the water vigorously. Kaikapū was surprised at how defiant Liko was but did not hesitate to try and eat him. Opening her jaws to swallow Liko, she instead felt a sharp pain as the kauila spear pierced her mouth. Screaming, Kaikapū tossed her head to rid herself of the spear.

Liko’s grandmother stood on the shoreline and watched:

‘Kaikapū!’ she called, ‘Here I am. Take me instead!’

‘No!’ Liko yelled. ‘Grandmother, go back!’

Kaikapū was enraged and could only think of Liko who was still in the water. Liko dove down to find the opening in the lava tube that led to the rocky shoreline. He struggled to find the opening. Kaikapū saw his feet fluttering as he slipped into the narrow lava tube. Never considering her own size, Kaikapū chased Liko into the lava tube. At that moment, a surge of water pushed through the lava tube and Liko managed to pull himself onto the rocks where his grandmother met him. Just then another wave surged and a roar resonated through the lava tube. It was Kaikapū. She was stuck in the lava tube. From that day on, the seashore was free for everyone to use.

### 3.2 Wahi Pana

#### 3.2.1 Kōloa

There are place names within Kōloa that have legendary associations. The name Kōloa itself has several derivations. Kōloa is the name of a steep rock on the banks of Waikomo Stream, from
whence the *ahupua’a* got its name. This bank of the river was called Kōloa after the native Hawaiian duck (*Anas wyvilliana*) (Kikuchi 1963:46; Pukui et al. 1974:116).

3.2.2 Maulili Pond

Maulili translates as “constant jealousy.” It is a deep pool in Waikomo Stream in the uplands of Kōloa mentioned in the *moʻolelo* above. When the gods Kāne and Kanaloa first came to Kauaʻi, legends say they explored the island and came to the pool at Maulili at evening. They stretched out beside the pool for their night’s sleep on its eastern bank and left the impression of their forms within the rock, as can be seen in the ‘āpapa (a flat area). Kiha-wahine, a fearsome mo’o goddess, lived in Waihānau Pool, near Maulili Pond. When she was there in residence, the water turned red and no one dared to swim there (Wichman 1998:40).

3.2.3 Palila

Palila was the son of Ka-lua-o-pālena and Maihi-iki (Wichman 2003:45). He was taken from his mother since birth and raised by his grandmother, Hina, in the temple of Alana-pō where he trained to be a warrior. He only ate bananas from two patches grown for him. One patch was located along a bank in Wailua, while the other was located in the mauka section of Makaleha. Palila trained hard and demonstrated his skills to his grandmother who replied, “Yes, you are halfway through your learning . . . You only use your right arm. Now learn to use your left arm,” (Wichman 2003:45). His teachers were astounded but Palila continue to train. On the day he completed his training, he heard a battle echoing over the ridge that divided the plains of Puna from Kōloa. Curious about the commotion, he wanted to ask his grandmother, but she was nowhere to be found. Hina was in the battlefield to warn Ka-lua-o-pālena that his son Palila would be coming to assist:

Hina said to Ka-lua-o-pālena, ‘Be on your guard. Three warriors will come before you today. The first will be Ka-kohu-koko from Moloa’a. He claims it takes forty men to carry his war club. Do not choose him. The second will be Lupe-a-ka-wai-o-Wainiha. He will claim it takes 120 men to carry his war club. Do not choose him. Then will come a third warrior, twirling his war club in his right hand, then in his left hand. He will be the warrior by whose help you will conquer all of Kauaʻi.’ [Wichman 2003:45]

Ka-hoku-koko and Lupe-a-ka-wai-o-Wainiha both showed up and Ka-lua-o-pālena denied both of them. Both warriors were shamed and returned to their homes. However, Palila did not present himself and Hina’s words were not fulfilled. Ka-lua-o-pālena drew up his army and prepared for battle.

Palila continued to follow the noises of the battle over the ridge. He looked down on Kōloa, Weliweli, and Pā‘ā and saw two armies facing each other. One army was led by his father, Ka-lua-o-pālena, while the other was led by the Kona chief, Ka-maka-o-ka-lani. Palila stood on a point called Ke-komo-o-ke-anu (“coming of the cold”) where he was seen by both armies. From Palila’s vantage point, he could see that his father had a standard war formation while Ka-maka-o-ka-lani’s was thin. The remainder of the Kona chief’s men were hidden in the surrounding forests and ready to ambush Ka-la-o-pālena. Outraged, Palila went to the edge of the forest and with a blow of his club, knocked down a tree which began a domino effect until the entire forest had fallen. Ka-maka-o-ka-lani’s hidden army was then killed. Palila walked into the battlefield to face the Kona chief,
challenging him to a one-on-one combat. Palila held his club in his right hand and a dagger in the left. Ka-maka-o-ka-lani did not notice the dagger and died (Wichman 2003:46).

Ka-lua-o-pālena approached his son and stretched out on the ground offering himself as a sacrifice. Palila raised his club, lowered it, rested it on the ground, and leaned on it. The club sank into the ground and as Palila pulled it up, a spring emerged. Hina crossed the field and welcomed Palila. The army turned to the fallen forest where the spring now created a lake, which is still in Kōloa (Wichman 2003:47). Within days a messenger came from the ruling chief of Oʻahu who requested Palila’s help. Palila had many adventures on Oʻahu and Hawaiʻi, eventually becoming the ruling chief of Hilo. Hina predicted Palila would eventually reign Hilo, thus naming him after the honeycreeper only found on Hawaiʻi island.

3.3 Heiau (Temple)

3.3.1 Kāneiolouma Heiau

The heiau (non-Christian place of worship) was first surveyed by Thomas G. Thrum and later published in The Hawaiian Almanac and Annual (1907), which documented heiau throughout the Hawaiian Islands. Wendell Clark Bennett also surveyed heiau on Kauaʻi between 1928 and 1929, later documenting and publishing his finds for Bishop Museum (Bennett 1931:3). Kāneiolouma Heiau is located along the shores of Poʻipū near Kihouna Heiau (see Section 3.3.3). Kāneiolouma, being the larger of structure of the two, consists of three large sections and four rooms with limestone slabs in the middle section (Bennett 1931:119). Mary Kawena Pukui offers moʻolelo on the structure below:

O Olouma kekahi haiau, aia no i Koloa, Kauai, mauka e o Hooleina-ka-puaa, he loko mauka o na hale, a o ka haiau iho e pili pu ana, o Kiha no ke aliʻi nona ia haiau. He unu hai puaa i-a ula a pela aku. O lonoikaoualii ke aliʻi, o Wakea ke kahuna, mai Oahu mai ka pohaku i hana ia ai o ka haiau na ka menehune i hana.

Louma was another heiau, which also stood in southern Koloa on the mountainward side of Hoʻoleina-ka-puaa (Place-to-throw-in-the-pig), a pond on the mountainward side of the houses. The heiau was close by. Kiha was the chief to whom it belonged. It was a heiau in which hogs, red fishes etc. were offered. Lonoikaoualiʻi was the chief and Wakea was the priest who brought the stones from Oahu. The menehune built the heiau. [Pukui 1936]

3.3.2 Maulili Heiau

The Maulili Heiau was first built by Ka-pueo-maka-walu, the son of Kapu-lau-kī. It was a place of human sacrifice (Wichman 1998:12). In 1885, a Lahainaluna document was published based on an oral history project. On 7 September 1885, a student from Lahainaluna Schools interviewed Makea—“a native who is well acquainted with Kōloa”—and recorded “what she said about the well-known places in the olden times” (Lahainaluna Schools 1885). Makea also discussed Maulili Heiau:

Maulili was the first heiau of south Koloa. Kapulauki was the first chief of Koloa, Kiha came next. That is the chief that I know of. He was a ruling chief of Kauai in the olden days, when the heiau was standing there. It had already been built and
men had been sacrificed on its altars. This Kiha was called Kiha-of-the-luxuriant-hair. Another name for him was Kakae and another was Ka-pueo-make-walu (Eight-eyed-owl).

This heiau was also famous for this reason—that was the heiau to which Kawelo was carried after he had swooned in Wahiawa in the battle where stones were used as missiles.

The location of this heiau was not known, but a deaf mute knew and it was he who pointed it out to the chiefs and that is how it was rediscovered in the olden days. Kiha lived on the eastern side of the heiau and Aikanaka lived on the northeastern side. This chief Aikanaka was the one with whom Kawelo fought and he was the owner of this heiau at that time. [Lahainaluna Schools 1885:165]

### 3.3.3 Kihouna Heiau

This heiau sits near Kāneiolouma Heiau also located on the shores of Po‘ipū. The single walled enclosed heiau consists of walls measuring in 4 to 6 ft in height (Bennett 1931:118–119).

Kihouna Heiau, which is also spelled Kihahouna, is 100 feet by 125 feet and is believed to have been dedicated to fishing and agricultural deities. The walled structure had virtually disappeared until it was reconstructed in 1984. [Friends of the Koloa Community 1985:22]

### 3.3.4 Kanehaule Heiau

Located in Kaunuieie, Kōloa, the site was located in the mauka portions of the ahupua‘a (Bennett 1931:122). Thrum describes the heiau: “A paved walled enclosure of large size, destroyed some time ago: a heiau where the rites of circumcision were performed” (Thrum 1906:36).

### 3.4 ‘Ōlelo Noʻeau

Mary Kawena Pukui is known as one of the greatest contributors to the preservation of the Hawaiian language, a scholar, and ethnographer. Hawaiian knowledge was shared by way of oral history and many often competed in poetic battles of wit to see who could ascribe the most kaona (layered hidden meaning) to the simplest phrase. The following section draws from Pukui’s knowledge of Hawaiian folk tales, proverbs, and sayings to describe the ʻāina (land) in the project area. The ‘ōlelo no‘eau is first described, followed by the Hawaiian phrase and English translation.

#### 3.4.1 ‘Ōlelo Noʻeau #47

The proverb uses a play on words to express the feeling of drunkenness.

Aia i Kōloa.

Is at Kōloa.

A play on kō (drawn) and loa (long)—drawn a long way under. Drunk.

[Pukui 1983:8]
Section 4  Traditional and Historical Accounts

4.1 Historical Accounts

4.1.1 Captain Cook’s Visit to Kaua’i 1778

Kaua’i Island was the first island in the archipelago to be approached by western explorers. The first Hawaiians to engage in trade with the outside world were from Kōloa. The event took place off Makahū‘ena Point, and Cook recorded this in his journal of 19 January 1778:

seeing some Canoes come off from the shore towards the Ships, I brought to give them time to come up . . . they exchanged a few fish they had in the Canoes for any thing we offered them, but valued nails, or iron above every other thing . . . [Donohugh 2001:50]

Bernice Judd, writing in 1935, summarized most of what was known of the traditional Hawaiian life of Kōloa:

In the old days two large ‘auwai or ditches left the southern end of the Maulili pool to supply the taro patches to the east and west. On the kuāunas [embankments] the natives grew bananas and sugar cane for convenience in irrigating. Along the coast they had fish ponds and salt pans, ruins of which are still to be seen. Their dry land farming was done on the kula (dry land), where they raised sweet potatoes, of which both the tubers and the leaves were good to eat. The Hawaiians planted pia (arrowroot) as well as wauke (paper mulberry) in patches in the hills wherever they would grow naturally with but little cultivation. In the uplands they also gathered the leaves of the hala (screwpine) for mats and the nuts of the kukui (candlenut) for light. [Judd 1935:53]

Beginning possibly as early as 1450, the “Kōloa Field System” was planned and built on the shallow lava soils to the east and west of Waikomo Stream. The Kōloa Field System is characterized as a network of fields of both irrigated and dryland crops, built mainly upon one stream system. Waikomo Stream was adapted into an inverted tree model with smaller branches leading off larger branches. The associated dispersed housing and field shelters were located among the fields, particularly at junctions of the irrigation ditches. In this way, the whole of the field system was contained within the entire makai portion of the ahupua’a of Kōloa, stretching east and west to the ahupua’a boundaries.

The field system, with associated clusters of permanent extended family habitations, was in place by the middle of the sixteenth century and was certainly expanded and intensified continuously from that time. Long ‘auwai were constructed along the tops of topographic high points formed by northeast-to-southwest-oriented Kōloa lava flows, and extended all the way to the sea. Habitation sites, including small house platforms, enclosures and L-shaped shelters were built in rocky bluff areas that occupied high points in the landscape and were therefore close to ‘auwai, which typically ran along the side of these bluffs (Hammatt et al. 2004). From AD 1650-1795, the Hawaiian Islands were typified by the development of large communal residences, religious structures, and an intensification of agriculture. Large heiau in Kōloa may date to this period.
The manufacture of salt was important for Native Hawaiians. Many of the larger salt pans on Kaua‘i are located near Nōmilu, “where people came in the summer to gather salt when the winds blow the salt across the surface of the pond at the edge of the pond where it was carefully scooped out with the hands or with pieces of gourd shell and dried” (Wichman 1998:35). The importance of salt manufacture in the area was illustrated in the 1874 Boundary Commission determination for Kōloa, where the oral testimony of Pene Kalauau claimed he had come all the way “from Koolau to go to Koloa for salt” (Boundary Commission, 1874, Kaua‘i 1:124).

4.1.2 Early Historic Period

By the early 1800s, Kōloa Landing had become the principal port of Kaua‘i. Shipments of North American furs and pelts to the Orient depended on the provisioning of ships at Kōloa Landing, as well as other Hawaiian ports. As the fur trade grew, markets in China became aware of sandalwood grown in the Hawaiian Islands. The shipment of most of Kaua‘i’s sandalwood to the Orient took place at Kōloa Landing, until the supply of the fragrant wood was exhausted around 1830.

Accounts by visitors and settlers at Kōloa focused on the early westerners’ own concerns—religious and commercial—as these concerns appeared within the historical record of Kōloa in the 1800s. However, scattered throughout the accounts are occasional references to the Hawaiians of Kōloa that give some insight into their lives.

The American Board of Commissioners for Foreign Missions (ABCFM) missionary Samuel Whitney described in a Missionary Herald article (June 1827:12) an 1826 visit to Kōloa with Kaikio’ewa, the governor of Kaua‘i:

The people of this place were collected in front of the house where the old chief lodged in order to hear his instructions. After a ceremony of shaking hands with men, women, and children they retired . . .

Our company consisted of more than a hundred persons of all ranks. The wife of the chief, with her train of female attendants, went before. The governor, seated on a large white mule with a Spaniard to lead him, and myself by his side, followed next. A large company of aipupu [‘āʻīpuʻupuʻu (stewards)], cooks, attendants came on in the rear. [Missionary Herald June 1827:12]

Whitney’s account suggests something of the deference paid to the aliʻi (chief) by the local populations and the scale at which the aliʻi carried out their functions. An even grander view of that deference was provided in an account of a later visit by an aliʻi to Kōloa. John Townsend, a naturalist staying in Kōloa in 1834, described a visit by Kamehameha III:

In the afternoon, the natives from all parts of the island began to flock to the king’s temporary residence. The petty chiefs, and head men of the villages, were mounted upon all sorts of horses from the high-headed and high-mettled California steed, to the shaggy and diminutive poney [sic] raised on their natives hills; men, women, and children were running on foot, laden with pigs, calabashes of Poe [sic], and every production of the soil; and though last certainly not least, in the evening there came the troops of the island, with fife and drum, and ‘tinkling cymbal’ to form a body guard for his majesty, the king. Little houses were put up all around the vicinity, and thatched in an incredibly short space of time, and when Mr. Nuttall, and myself visited the royal mansion, after nightfall, we found the whole
neighborhood metamorphosed; a beautiful little village had sprung up as by magic, and the retired studio of the naturalists had been transformed into a royal banquet hall. [Palama and Stauder 1973:18]

On 31 December 1834, Peter Gulick and his family arrived in Kōloa. Apparently the first foreigners to settle in the ahupua'a, they initiated the process of rapid change that would reshape the life of Kōloa in the nineteenth century. In 1835, a 30 by 60-ft grass house was erected as a meeting house and school near the Maulili Pond. Mr. Gulick cultivated sugarcane and collected a cattle herd for the Protestant Mission. In 1837, a 45 by 90-ft adobe church was built where Kōloa Church stands today, and the first mission doctor, Thomas Lafon, arrived to assist Mr. Gulick (Damon 1931:179, 187). The Kōloa mission station apparently flourished immediately. Navy Lieutenant Charles Wilkes, a member of the U.S. Exploring Expedition, during his visit to Kōloa in 1840 recorded the following:

The population in 1840, was one thousand three hundred and forty-eight. There is a church with one hundred and twenty-six members, but no schools. The teachers set apart for this service were employed by the chiefs, who frequently make use of them to keep their accounts, gather in their taxes &c. The population is here again increasing partly by immigration, whence it was difficult to ascertain its ratio. [Wilkes 1845:64]

Kōloa Village and Kōloa Landing, at the mouth of the Waikomo Stream, became flourishing commercial centers as trade with Americans and Europeans grew (Figure 6). An estimate in 1857 stated that “10,000 barrels of sweet potatoes were grown each year at Kōloa, and that the crop furnished nearly all the potatoes sent to California from Hawai‘i” (Judd 1935:326). Sugar and molasses were also chief articles of export. Whalers used the Kōloa “Roadstead” from 1830 to 1870, and took on provisions of squashes (pumpkins), salt beef, pigs, and cattle (Damon 1931:176). Hawaiians grew the pumpkins on the rocky land north of the landing. There were also numerous salt pans along the shore near the landing that were used to make the salt (Palama and Stauder 1973:20).

4.1.3 The Māhele and the Kuleana Act

To try to maintain sovereignty of the land, the mōʻī (king) Kauikeouli (Kamehameha III) in 1846–1848 supervised the Māhele—the division of Hawaiian lands—that transformed the land system in Hawai‘i from collective to private ownership. The Māhele was modeled after western concepts. Crown Lands were to be reserved for the mōʻī and the royal house, Konohiki Lands were claimed by aliʻi and their konohiki (headman of an ahupua’a under the chief), and Government Lands were set aside to generate revenue and were managed by the government. In 1850, these three categories of land were subject to the rights of the makaʻāinana (commoners) and other tenants (naturalized foreigners, non-Hawaiians born in the Islands, or long-term resident foreigners), who could make claims for their habitation and agricultural plots, known as kuleana (Native land rights) parcels (Chinen 1958:8–15).

Under the Kuleana Act of 1850, the makaʻāinana were required to file their claims with the Board of Commissioners to Quiet Land Titles (Land Commission) within a specified time period in order to apply for fee-simple title to their lands. The claim could only be filed after the claimant arranged and paid for a survey, and two witnesses testified that they knew the claimant and the...
Figure 6. Photo of Kōloa Landing (Hawai‘i State Archives n.d.)
boundaries of the land, knew that the claimant had lived on the land since 1839, and knew that no one had challenged the claim. Then the maka‘āinana could present their claims to the Land Commission to receive their Land Commission Award (LCA) (Kame‘elehiwa 1992).

Not everyone who was eligible to apply for kuleana lands did so and not all of those claims were awarded. Some claimants failed to follow through and come before the Land Commission, some did not produce two witnesses, and some did not get their land surveyed. In addition, some maka‘āinana may have been reluctant to claim ‘āina (land) that had been traditionally controlled by their ali‘i, some may not have been familiar with the concept of private land ownership, and some may have not known about the Māhele, the process of making claims (which required a survey) or the strict deadline for making claims. Further, the Land Commission was comprised largely of foreign missionaries, so the small number of claimants and awards may reflect only those maka‘āinana who were in good standing with the church. Significantly, the surveying of the land was not standardized (Kame‘elehiwi 1992:296–297).

A total of 14,195 claims were filed and 8,421 awards were approved for about 29% of the 29,220 adult Native Hawaiian males living at the time of the Māhele, averaging 3 acres each (Kame‘elehiwa 1992:295). Out of the potential 2,500,000 acres of Crown and Government lands, 28,658 acres of land were awarded to the maka‘āinana, less than 1% of the total acreage of Hawai‘i (Kame‘elehiwa 1993:295). The small number of kuleana awards and their small size prevented the maka‘āinana from maintaining their independent subsistence, often forcing them to abandon their newly acquired property (Chinen 1958:32).

Although many Hawaiians did not submit or follow through on claims for their lands, the distribution and written testimonies of LCAs can provide insight into patterns of residence and agriculture. Many of these patterns probably had existed for centuries. Eighty-nine kuleana awards were given to individuals within Kōloa Ahupua‘a. The majority of these Land Commission Awards (LCAs) were located in and around Kōloa Town itself. No LCAs were granted within the vicinity of the study area.

4.1.4 Mid-1800s

The Koloa Sugar Company began commercial operation in the late 1840s with about 450 acres of Kōloa land under cultivation. Development of additional acreage continued gradually. An 1891 map of Kōloa by Monsarrat depicts a fence line extending through the current study area. The study area is depicted in an undeveloped area between the government road to the east and a trail to the west. A cane field is depicted approximately 1.0 km to the southwest.

In 1874, a dispute over the northern boundary of Kōloa Ahupua‘a led to a hearing before Duncan McBryde, the Commissioner of Boundaries for Kaua‘i (Figure 7). One native witness, Nao (who described himself as born in Kōloa but presently living in Ha‘ikū), in order to show that Hoaea (the area in dispute) was indeed at the northern boundary of Kōloa, testified: “At Hoaea, tea [sic] leaves were hung up to show that there were battles going on” (Boundary Commission, Kaua‘i 1874:1:124). That there were traditional “warning systems” well-known to all natives suggests Kōloa may well have been the scene of some serious conflicts. Throughout the early settlement history of Kōloa, conflicts must have occurred at intervals often enough and serious enough to warrant having to devise such a system.
Figure 7. 1891 Monsarrat map of Kōloa depicting the current study area
4.1.5 1900s

The Koloa Sugar Company had previously purchased the ahupua‘a of Pā‘ā southeast of Kōloa Town, and a large parcel of it was unproductive. A new and much larger mill was built there in 1912 about a mile from Kōloa. New railroad track was laid, and an asphalt road was built to connect the new mill with Kōloa Landing. World War I caused a huge demand for sugar. By the end of hostilities in 1918, the Koloa Sugar Company was producing 9,000 tons of sugar each year, and adding additional acreage. A road alignment, later to become Kaumuali‘i Highway, is depicted in the 1910 Lihue USGS topographic map (Figure 8) extending through the current study area. No other development is depicted in the vicinity of the study area.

Kōloa Landing was phased out around 1925 when McBryde Sugar Company and the Koloa Sugar Company began shipping their product out of Port Allen Harbor at Hanapēpē. The McBryde Plantation had been improving the facilities at ‘Ele‘ele Landing since the turn of the century and a private company, the Kauai Terminal Limited Railway, had developed a modern bridge crossing the Hanapēpē River. Soon after this, the Koloa Sugar Company ceased to use the makai (seaward) Kōloa fields, and much of the area was converted into cattle-grazing pasture by the Knudsen family. Most of the mauka (upland) areas of Kōloa remained under sugarcane cultivation as late as the 1970s, when these cane lands were converted into pasture.

It was during the 1930s, when Federal funds became available to assist the Territory of Hawaii’s highway construction program, that development of the Kaumuali‘i Highway project accelerated. On 10 October 1933, Hawaiian Contracting Company, Ltd. was awarded a $354,355.63 contract for construction of a 5.066-mile long portion of the Kaua‘i Belt Road (i.e., the present Kaumuali‘i Highway) extending west from the junction with the road to Kōloa. The project, identified as NRH 12-B, was funded by the National Recovery Highway Fund, the Federal Aid Fund, and a contribution by the County of Kaua‘i.

Following the merger of the plantation lands of the Koloa Sugar Company and Grove Farm Company in 1948, the combined lands under cultivation required new sources of irrigation water. In 1965, Grove Farm built a tunnel to bring the waters from Ku‘ia directly into the Waitā (Kōloa) Reservoir. Grove Farm leased these cane lands to McBryde Sugar Company when it terminated sugar operations in 1974 (Wilcox 1996). The mill in Pā‘ā was finally closed in 1996, and remains a landmark of the countryside.

4.1.6 Modern Land Use

By the late 1960s, the main town of Kōloa experienced a type of reverse migration back to the shoreline. Although the town had established a Civic Center in 1977, the pace of tourism-driven development at the shoreline had been drawing construction and service jobs away from the town center. The Ki‘ahuna Plantation Resort opened in 1967, followed by the construction of various condominiums throughout the 1970s and 1980s. Finally, the Hyatt Regency Resort, with its expansive golf course, opened in 1991.

The 1963 Koloa USGS topographic quadrangle (Figure 9) depicts the modern alignment of Kaumuali‘i Highway extending through the study area. A drainage is shown extending perpendicular to and underneath the highway at the location of Bridge 7E. The drainage extends from a flume in the northwest to Mauka Reservoir located south of the study area.
Figure 8. Portion of the 1910 Lihue USGS topographic quadrangle showing the location of the study area
Figure 9. Portion of the 1963 Koloa USGS topographic quadrangle showing the location of the study area
By the early 1990s, the tourist industry had successfully attached the name “Po‘ipū Beach” to the entire coastline beginning at Kōloa Landing and continuing east to Makahū‘ena Ledge. With the development of the Po‘ipū Bay Resort Golf Course and the Hyatt Regency Kaua‘i Resort Hotel, the Po‘ipū Beach name became synonymous with all 2 miles of coastline fronting the Wai‘ohai, Kiahuna, and Sheraton developments, ending at Po‘ipū Beach Park (Donohugh 2001).

The 1978 Koloa USGS orthophotoquad aerial photograph (Figure 10) depicts fields of sugarcane in cultivation surrounding the study area. The drainage that extends through Bridge 7E is clearly visible. On September 1996, the last sugar crop was harvested ending 179 years of Koloa Plantation. Since then the area in and around the study area has remained the same. Remnants of sugarcane were visible until the late 1990s.

Future plans within the Kōloa District will place more demands on beachfront properties along the coastline. Over 1,000 acres of former sugar plantation lands are slated for hotel and condominium development surrounding both Lāwa‘i and Po‘ipū coastal resort areas (Donohugh 2001). Future development plans for the upland areas involve large tracts of lands as well as regional redevelopment within Kōloa Town itself. The area within the current project is cultivated with eucalyptus and Albizia trees for renewable energy projects. In 2008, the county Planning Commission approved use permits to allow a company, Green Energy Hawaii, to proceed with its plan to build a 7,100-kilowatt facility in Knudsen Gap.
Figure 10. Portion of the 1978 Koloa USGS orthophotoquad aerial photograph showing the location of the study area.
4.2 Previous Archaeological Research

The majority of the previous archaeological investigations conducted within the *ahupua’a* of Kōloa have been in conjunction with the burgeoning development of the areas located south of the study area. Only one modern systematic study has been conducted in the study area and no other archaeological studies have been conducted within a 0.8-km (0.5-mile) radius of the study area. The location of this previous archaeological study is shown in Figure 11 and in Table 1.

Evidence of the importance of Kōloa to pre-Contact traditional Hawaiians was indicated in the Lahainaluna Schools document produced in 1885. An interviewee named Makea was able to describe 14 *heiau* within Kōloa Ahupua’a. Of the 14 *heiau*, five were associated with human and animal blood sacrifices (*luakini* and *po’okanaka*), five with fishing, two medicinal, and one agricultural, with one of unknown function (Lahainaluna Schools 1885:165–166).

Thomas Thrum was the next to document sites in the Kōloa area in his list of the *heiau* of Kaau‘i (Thrum 1907). He discussed six *heiau* in the district of Kōloa, which once extended from Hanapēpē to Māhā’ulepū (Table 2).

The earliest systematic archaeological survey on the Island of Kaau‘i was conducted by Wendell Bennett in the late 1920s. Bennett examined and recorded 202 sites on the island. The following are sites recorded within Kōloa Ahupua’a:

- **Site 72** Niu Kapukapu Heiau—on the top of Niu Kapukapu Hill on the east bluff of Lāwa‘i Valley.
- **Site 73** Stone work on the hill just in-land from Site 72
- **Site 74** Fishing shelter on the shore near the mouth of Kukui‘ula valley.
- **Site 75** Kūhiō Park, west of Waikomo Stream with taro patches, a small *heiau*, an oven, paved house platform, fish pond, game ground with seats and a fishing shrine.
- **Site 76** Salt pans east of Waikomo Stream
- **[Sites 77–84]** Located east of Kōloa Ahupua’a
- **Site 85** Walls, enclosures and house sites in the cactus covered country around the Kōloa reservoir and extending to the sea.
- **Site 86** House site in the area described in Site 85

[Bennett 1931:116–117, 120]

A comparison of two photographs taken from nearly identical positions, one in 1998 (from Hammatt and Chiogioji 1998) and the other in 2014 (from the current archaeological reconnaissance), documents a significant change in vegetation across the landscape in the vicinity of the study area (Figure 12 and Figure 13).
Figure 11. Aerial photograph depicting one previous archaeological study within a 0.8 km (0.5 mile) radius of the study area (Google Earth 2013)
Table 1. Previous Archaeological Investigations within a 0.8-km (0.5-mile) Radius of the Study Area

<table>
<thead>
<tr>
<th>Reference</th>
<th>Type of Investigation</th>
<th>Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammatt and Chiogioji 1998</td>
<td>Archaeological assessment</td>
<td>Approximately 11.5-km long portion of Kaumuali‘i Hwy</td>
<td>Four historic-era sites and areas of concern within or adjacent to hwy corridor identified: Grove Farm office building in Puhi, Lihu‘e Mill Bridge, Ho‘omana Overpass Bridge, and Lihu‘e Public Cemetery</td>
</tr>
</tbody>
</table>

Table 2. Kōloa Heiau Documented by Thrum in 1907

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanakaluauae</td>
<td>Māhā‘ulepū, Kōloa</td>
<td>Of large size, destroyed years ago by Fredenberg to erect cattle pens with its stones</td>
</tr>
<tr>
<td>Kanehaule</td>
<td>Kaunuieie, Kōloa</td>
<td>Paved walled enclosure of large size, destroyed some time ago; a heiau where rites of circumcision were performed</td>
</tr>
<tr>
<td>Kihouna</td>
<td>Po‘ipū, Kōloa</td>
<td>Single walled heiau situated a short distance west of Kanehaule Heiau (above), 100 x 125 ft, enclosed on all sides by walls 4 to 6 ft high with entryway near middle of mauka wall; makai wall 8 ft thick; a section of stones as of pavement shows nearly whole length near makai wall and in NE corner is section said to have been its altar stones</td>
</tr>
<tr>
<td>Kaneiolouma</td>
<td>Po‘ipū, Kōloa</td>
<td>Size 102 x 180 ft, lying nearly east and west along shore close to beach; of three terraces, with two prominent and other room divisions at east or inner end, west end open; side walls 3 to 5 ft high; seaward wall 9 ft thick; east end wall very crooked, 11 ft thick, 6 ft high; inner terrace stone paved, middle terrace partly so, with flat slabs of coral or limestone</td>
</tr>
<tr>
<td>Weliweli</td>
<td>Weliweli, Kōloa</td>
<td>Paved heiau of large size; Po‘okanaka class; walls 4 ft high: portions of same said to be still standing</td>
</tr>
<tr>
<td>Waiopili</td>
<td>Māhā‘ulepū, Kōloa</td>
<td>Oblong heiau of good size, walls still standing</td>
</tr>
</tbody>
</table>
Figure 12. Overview of Kaumuali‘i Highway and surrounding area, view to east (from Hammatt and Chiogioji 1998)

Figure 13. 2014 matching overview of Kaumuali‘i Highway and surrounding area from current archaeological reconnaissance, view to east
4.3 Background Summary and Predictive Model

Although much of the seaward portion of Kōloa is a relatively dry area with approximately 30 inches of rain per year, the perennially flowing streams provided a resource for the development of a rather expansive agricultural system. Accounts of the early history of Kōloa (Farley 1907; Jarves 1844; Judd 1935; and Townsend 1839) describe in the lands mauka of Kōloa Town a seemingly continuous, well-maintained, agricultural complex of taro, yams, sweet potato, and sugarcane irrigated by an extensive ‘auwai system siphoned off Waikomo and Pō‘ele‘ele streams. This system had a significant influence on later commercial endeavors in Kōloa.

Kōloa is the site of the first organized sugar plantation in Hawai‘i. Ladd and Company leased about 1,000 acres for the sole purpose of growing sugarcane (Palama and Stauder 1973). The commercialization of sugarcane in Kōloa had widespread social effects. The traditional view of the ‘āina being a responsibility of the ali‘i was being transformed.

Kōloa Town and Kōloa Landing, at the mouth of Waikomo Stream, became prominent commercial centers during the mid- to late 1800s, exporting a variety of products such as sweet potatoes, sugar, and molasses. Whalers also stopped for provisions of squash, salt, salt beef, pigs, and cattle (Palama and Stauder 1973:20). This heightened activity dramatically altered the social structure and landscape of Kōloa.

While clearly most of the infrastructure supporting historic agriculture lies well seaward of the present study area, during the later historic period the upper elevations of Kōloa became important collection areas for irrigation water. It is possible that historic ditches, flumes, pipelines, and other features related to collection of irrigation water exist within or in the immediate vicinity of the study area.
Section 5  Community Consultation

5.1 Introduction

Throughout the course of this assessment, an effort was made to contact and consult with Native Hawaiian Organizations (NHOs), agencies, and community members. CSH initiated the outreach effort in August 2015 through letters, email, telephone calls, and in-person contact. Consultation effort is still on-going.

5.2 Community Contact Letter

In the majority of cases, letters (Figure 14) along with map, aerial photograph of the project area, and TMK maps were mailed with the following text:

At the request of CH2M HILL and on behalf of the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), Cultural Surveys Hawai‘i, Inc. (CSH) is conducting a cultural impact assessment (CIA) for Bridge 7E, Kōloa Ahupua‘a, Kōloa (Kona) Moku, Kaua‘i Island, TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por. The project area is located along Kaumuali‘i Highway, Route 50, approximately 800 ft west of the Maluhia Road/Kaumuali‘i Highway intersection within Kōloa, Ahupua‘a, Kōloa District, Kaua‘i Island. The project area is depicted on a portion of the 1996 Kōloa U.S. Geological Survey (USGS) topographic quadrangle and a 2013 aerial photograph (see attachments).

The proposed project would replace the existing Bridge 7E and its roadway approaches to maintain the stream crossing on HI-50 as a safe and functional component of the regional transportation system for highway users. The existing structure, which is a double box culvert, would be demolished and replaced with a single-cell box culvert. During construction, a temporary bypass route would be provided adjacent to and mauka of the highway.

The project area includes approximately 2.07 acres. The purpose of the CIA is to gather information about the project area and its surroundings through research and interviews with individuals that are knowledgeable about this area. The research and interviews assist us when assessing potential impacts to the cultural resources, cultural practices, and beliefs identified as a result of the planned project. We are seeking your kōkua and guidance regarding the following aspects of our study:

- General history and present and past land use of the project area.
- Knowledge of cultural sites- for example, historic sites, archaeological sites, and burials.
- Knowledge of traditional gathering practices in the project area, both past and ongoing.
- Cultural associations of the project area, such as legends and traditional uses.
Aloha mai e ka ʻaiwa,

At the request of CH2M HILL and on behalf of the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), Cultural Surveys Hawaiʻi, Inc. (CSH) is conducting a cultural impact assessment (CIA) for Bridge 7E, Kōloa Ahupua’a, Kōloa (Kaumuali‘i) Moku, Kaua‘i Island. TMKs: [4] 2-7-001:004 por., and 2-7-002:001 por. The study area is located along Kaumuali‘i Highway, Route 50, approximately 500 ft west of the Maluhia Road Kaumuali‘i Highway intersection within Kōloa, Ahupua‘a, Kōloa District, Kaua‘i Island. The study area is depicted on a portion of the 1996 Kōloa U.S. Geological Survey (USGS) topographic quadrangle and a 2013 aerial photograph (see attachments).

The purpose of the project is to replace the existing deficient bridge to meet current design standards for roadway-width, load capacity, bridge railings, and transitions. The existing Bridge 7E, also known as Ho‘onakualae‘hua Bridge, was constructed in 1933 and is composed of reinforced concrete consisting of two culvert cells with wing-wall abutments. The bridge has a length of approximately 23 ft and a width of approximately 32 ft. The proposed replacement structure is a single cell box culvert in the same location.

During construction, a temporary bypass route would be provided adjacent to and mauka of the highway.

The study area includes approximately 4.5 acres. The purpose of the CIA is to gather information about the project area and its surroundings through research and interviews with individuals that are knowledgeable about this area. The research and interviews assist us when assessing potential impacts to the cultural resources, cultural practices, and beliefs identified as a result of the planned project. We are seeking your kōloa and guidance regarding the following aspects of our study:

- General history and present and past land use of the project area.
- Knowledge of cultural sites- for example, historic sites, archaeological sites, and burials.
- Knowledge of traditional gathering practices in the project area, both past and ongoing.
- Cultural associations of the project area, such as legends and traditional uses.
- Referrals of kūpuna or elders and kama‘aina who might be willing to share their cultural knowledge of the project area and the surrounding ahupua‘a lands.
- Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the project area.

We invite you to contact us at (808) 262-9972 or (e-mail: mhboris@culturalsurveys.com or amitchell@culturalsurveys.com) if you have any information you would like to share.

Mahalo nui loa,
Cultural Surveys Hawai‘i Inc.
Archaeological and Cultural Impact Studies
P.O. Box 1114
Kailua, Hawai‘i 96734 Ph: (808) 262-9972

July 13, 2015

Figure 14. Community consultation letter sent to NHOs, agencies, and the community.
• Referrals of kūpuna or elders and kamaʻāina who might be willing to share their cultural knowledge of the project area and the surrounding ahupuaʻa lands.

• Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the project area.

In most cases, two or three attempts were made to contact individuals, organizations, and agencies.

5.3 Community Contact Table

Below in Table 3 are names, affiliations, dates of contact, and comments from NHOs, individuals, organizations, and agencies contacted for the current project.

Table 3. Results of Community Consultation

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aipoalani, C. Kunane</td>
<td>Chair, Kauai-Niʻihau Island Burial Council</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 CSH mailed out a second community consultation letter 10 September 2015</td>
</tr>
<tr>
<td>Blaich, Beryl</td>
<td>Executive Secretary to the Board, Mālama Māhāʻulepū Group Coordinator, Board of Advisors of Mālama o Mānoa Board Member, Mānoa Valley Heritage Foundation</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 CSH mailed out a second community consultation letter 10 September 2015</td>
</tr>
<tr>
<td>Burgess, Stella</td>
<td>Cultural Specialist</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 18 August 2015, Mr. Makaliʻi responded to CSH’s letter on behalf of Stella Burgess. He regretfully informed us that Mrs. Burgess passed away last year February 2014. He also stated he is willing to offer as much assistance as possible, and offered to reach out to kūpuna from the area that may have any recollection.</td>
</tr>
<tr>
<td>Cataluna, Don (trustee)</td>
<td>Kauaʻi-Niʻihau Office of Hawaiian Affairs (OHA)</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 CSH mailed out a second community consultation letter 10 September 2015</td>
</tr>
<tr>
<td>Chang, Piʻilani</td>
<td>Cultural Historian</td>
<td>CSH mailed the first community consultation letter out 12 August 2015</td>
</tr>
</tbody>
</table>

Acknowledgements:

CIA for Bridge 7E Project, Kōloa, Kaua‘i

TMKs: [4] 2-7-001:004 por., 2-7-002:001 por., and 2-7-001 Kaumuali‘i Highway Right-of-Way
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ching, Francis</td>
<td>Hawaiian Resource Specialist, Kamehameha Schools</td>
<td>CSH emailed the first community consultation letter out 13 August 2015</td>
</tr>
<tr>
<td>Cobb, Rowena</td>
<td>Principal Broker, Cobb Realty in Kōloa</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 CSH mailed out a second community consultation letter 10 September 2015</td>
</tr>
<tr>
<td>Dahilig, Michael A.</td>
<td>Planning Director, Kauaʻi County Planning</td>
<td>CSH mailed the first community consultation letter out 12 August 2015</td>
</tr>
<tr>
<td>Dias, David</td>
<td>Former employee of McBryde Sugar Company</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 17 August 2015 letter returned to CSH by U.S. Postal Service (USPS)</td>
</tr>
<tr>
<td>Gage, Reginald</td>
<td>Former Chief Appraiser and Real Property Assessor, County of Kauaʻi Interest in Kauaʻi history Trustee, Grove Farm Homestead Museum Vice President, The Waioli Corporation</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 25 August 2015: Reginald called CSH; he would like to participate in an interview and would prefer a phone interview rather than in-person. He is 80 years old and prefers to be contacted in the morning. 26 August 2015: Spoke with Mr. Gage to set up a recorded interview for 28 August 2015 and offered him some information he was looking for about the 2015 SHA conference and the monthly SHA newsletter. He has a paper on an artifact in the John Webber collection in Switzerland, a necklace made from an endemic land snail claimed to be from Tonga, but Mr. Gage has evidence that it is a Kauaʻi Island land snail. 28 August 2015: CSH conducted a phone interview with Mr. Gage that was recorded. \textit{Interview transcription and summary pending}</td>
</tr>
<tr>
<td>Hartwell, Blake</td>
<td>Kōloa Community Association</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 CSH mailed out a second community consultation letter 10 September 2015</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Isoda, Stanley</td>
<td>Kamaʻaina</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 17 August 2015 letter returned to CSH by USPS</td>
</tr>
<tr>
<td>Kamai, Grace</td>
<td>Former Kauaʻi-Niʻihau Island Burial Council Member</td>
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<td>Kaohelauliʻi, Billy</td>
<td>Kamaʻaina of Kōloa Caretaker, Kaneholumalu Heiau</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 3 September 2015: CSH contacted uncle Billy Kaohelauliʻi over the phone asking to use a previous interview conducted by CSH Cultural Director Auliʻi Mitchell (3 August 2006). Uncle Rupert agreed. 7 October 2015: CSH edited the original transcriptions and summary for the review and approval from Mr. Kaohelauliʻi. Interview transcription and summary pending</td>
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<td>Kaohi, Lionel</td>
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<td>Kaholokula, Robbie</td>
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<td>McMahon, Nancy</td>
<td>Park Planner, Kaua‘i Department of Parks and Recreation Former archaeologist, State of Hawai‘i</td>
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<td>Puni-Rowe, Rupert</td>
<td>Kanaka Maoli Caretaker, Kāneholumalu Heiau</td>
<td>CSH mailed the first community consultation letter out 12 August 2015 3 September 2015: CSH contacted uncle Rupert Puni over the phone asking to use a previous interview conducted by CSH Cultural Director Auli‘i Mitchell (3 August 2006). Uncle Rupert agreed. 17 October 2015: CSH edited the original transcriptions and summary for review and approval from Mr. Rowe. 27 October 2015: Mr. Rowe called and clarified an edit to the birthplace of Mr. Kaohelaulation‘i’s mother who was born on Kaua‘i Island.</td>
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<td>Oi, Tommy</td>
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<td>Kamaʻāina of Kōloa Former Grove Farm and McBryde Sugar Company machinist</td>
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<td>Torres, Johnny</td>
<td>Retired from McBryde Sugar Company.</td>
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5.4 Kamaʻāina Interviews

Kamaʻāina and kūpuna with knowledge of the proposed project and study area participated in semi-structured interviews from August 2015. Approval of transcriptions and interview summaries are still ongoing. CSH initiated the interviews with questions from the following five broad categories: wahi pana and moʻolelo, agriculture and gathering practices, freshwater and marine sources, cultural and historic properties, and burials.

The authors and researchers of this report extend our deep appreciation to everyone who took time to speak and share their manaʻo with CSH whether in interviews or brief consultation, including contacts who opted not to contribute to the current cultural impact assessment, but nevertheless spent time explaining their position on the proposed project. We request that if these interviews are used in future documents, the words of contributors are reproduced accurately and in no way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

5.4.1 Billy Kaohelauli‘i and Rupert Puni Rowe

Approval of interview transcription and summary pending.

5.4.2 Reginald Gage

Approval of interview transcription and summary pending.

5.5 Summary of Kamaʻāina Interview

Approval of interview summaries pending.
Section 6  Traditional Cultural Practices

6.1 Mahi‘ai (Farming), Gathering,

Kaua‘i was the first island in the archipelago to be approached by western explorers. Writings of foreigners documenting Hawaiian life describe the cultural landscape being full of ‘auwai. Along the ‘auwai were bananas and sugar cane. The coastal areas consisted of fishponds and salt pans while the kula or plains, consisted of sweet potatoes, pia, and wauke. The mauka sections were cultivated in hala and kukui. The hala was used for mats while the nut of the kukui was used for light (Judd 1935:53).

The Kōloa Field System was a large network of fields, both irrigated and dryland, comprised of shallow lava soils and irrigated by the Waikomo Stream. Housing and shelters could be found amongst the field system. The field system stretched across the entire Kōloa Ahupua‘a.

The shoreline of Kōloa consisted of salt pans. Winds blew the salt water into shallow ponds where the community carefully scooped what they needed. Salt manufacturing was an important aspect of Kōloa Ahupua‘a. It was noted in a Boundary Commission testimony that people “from Koolau to go to Koloa for salt” (Boundary Commission 1874, Kaua‘i 1:124).

6.2 Wahi Pana

According to a Lahainaluna Schools document published in 1885, an interviewee named Makea who was a resident of Kōloa, was able to describe 14 heiau within the ahupua‘a. Of the 14 heiau, five were associated with human and animal blood sacrifice (luakini, po‘okanaka); five were associated with fishing; two were of medicinal use; one agricultural; and the last was of an unknown function (Lahainaluna Schools 1885:165-166).

In 1907, Thomas Thrum later surveyed the sites of Kaua‘i. He documented six heiau in the district of Kōloa, which once extended from Hanapēpē to Māhā‘ulepu. During the late 1920s, Wendell Bennett examined and recorded 202 sites on the island of Kaua‘i. Bennett recorded the following sites within Kōloa Ahupua‘a: Niu Kapukapu Heiau (Site 72); stone work on a hill (Site 73); fishing shelter on the shore near the mouth of Kukui‘ula Valley (Site 74); Kūhiō Park with taro patches, a heiau, oven, paved house platform, fishpond, game grounds with seats, and a fishing shrine (Site 75); salt pans (Site 76); walls, enclosures, and house sites (Site 85); and a house site (Site 86).
Section 7  Summary and Recommendations

CSH undertook this CIA at the request of CH2M HILL. The research broadly covered the entire ahupua’a of Kōloa, including the current project area.

7.1 Results of Background Research

Background research for this study yielded the following results as follows:

1. An 1885 document interviewing a native named Makea acquainted with Kōloa Ahupua’a knew of 14 heiau in the area. Wendell Clark Bennett conducted fieldwork from 1928 to 1929 and reported four heiau within Kōloa: Kāneiolouma, Mauliʻiliʻi, Kihouna, and Kanehaule.

2. Previous archaeology and historical accounts indicate the mauka lands of Kōloa consisted of a well-maintained agricultural complex of taro, yams, sweet potato, and sugarcane irrigated by an extensive ‘auwai siphoned off Waikomo and Pōʻeleʻele streams.

3. Kōloa became the site of the first organized sugar plantation in the Hawaiian Islands. Ladd and Company leased 1,000 acres for the sole purposed of growing sugarcane (Palama and Stauder 1973). The commercialization of sugar in Kōloa had widespread social effects that changed the traditional view of the ‘āina and responsibility of the aliʻi.

4. Kōloa Town and Kōloa Landing became commercial centers during the mid- to late 1800s with the exportation of sweet potatoes, sugar, and molasses. Whalers also stopped for provisions such as pumpkins, salt, salted beef, pigs, and cattle (Palama and Stauder 1973:20).

5. By 1912, Koloa Sugar Company built a new and larger mill, which included a railroad track and an asphalt road built to connect the mill to Kōloa Landing. World War I produced a huge demand for sugar. However, in 1925, Kōloa Landing was phased out when McBryde Sugar and Koloa Sugar began to ship their products out of Port Allen in Hanapēpē. The makai Kōloa lands were eventually phased out for cattle pastures by the Knudsen family. The mauka lands in Kōloa remained under sugar cultivation until the 1970s, when they were also converted into pasture.

6. During the late 1960s, Kōloa experienced a reverse migration back to the makai areas. Tourism drove development near the shoreline resulting in construction and service jobs moving away from the town center.

7.2 Results of Community Consultations

CSH attempted to contact NHOs, agencies, and community members. Below is a list of individuals who shared their manaʻo and ʻike about the project area and Kōloa Ahupuaʻa:

1. Billy Kaohelauliʻi, family from Kauaʻi; grandfather former policeman in Poiʻpū
2. Rupert Puni Rowe, from one of the oldest families in Kōloa
3. Reginald Gage, retired Chief Appraiser and Real Property Assessor for the County of Kauaʻi; self-interest in Kauaʻi history; trustee of Grove Farm Homestead Museum; Vice President of the Waioli Corporation
7.3 Impacts and Recommendations

CSH identifies potential impacts and makes the following preliminary recommendations. Please note that CSH is still awaiting approval of interview transcriptions and summaries from that were conducted for this study and that the impacts and recommendations may change pending approval of interview transcriptions and summaries.

1. Previous archaeology conducted within the project area indicated four historic-era properties, however, no *iwi kūpuna* (ancestral bones) were discovered. If in the event *iwi kūpuna* is found during any ground disturbing activities, personnel involved in the construction activities should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials (or other cultural finds) be encountered during ground disturbance or via construction activities, all work should cease immediately and the appropriate agencies should be notified pursuant to applicable law, HRS §6E.
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Friends of the Koloa Community

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Google Earth

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