

Project-Specific Construction EHMP (C-EHMP)

For
Hakalau Stream Bridge Scour Repairs

Located at

Hakalau Stream Bridge
Mamalahoa Highway (Route 19)
Hakalau, Hawaii

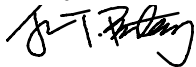
TMK (3) 3-1-001:999

April 8, 2022

Signatures

This document is not finalized until it is signed. A signed copy will be present on-site at all times.

I certify that as property owner, I am responsible for ensuring all parties who work or reside at my site are aware of the contamination at my property, and the associated hazards, and that the information in this document is true and accurate to the best of my knowledge. I am responsible for ensuring compliance with all land use controls as well as advance notifications to the Hawaii Department of Health (HDOH) of anticipated land use changes or groundbreaking activity at my property.



Property Owner or Representative of Property Owner

I certify that I am a qualified environmental professional, capable of ensuring compliance with the requirements of this Construction Environmental Hazard Management Plan (C-EHMP). It is my duty on this project to understand the requirements of this document and be on site during groundbreaking activities. I will communicate hazards, management protocols, and other C-EHMP requirements to construction professionals at the site. I will document such activities, and communicate with HDOH, as needed.

TBD and signed by Contractor's QEP

Qualified Environmental Professional

As Contractor, I am responsible for understanding the requirements of this C-EHMP, effectively communicating the requirements and hazards to my crews and subcontractors and providing the required training and personal protective equipment to site workers. I will work with the Qualified Environmental Professional to ensure compliance with this C-EHMP during work at this property.

TBD and signed by Contractor's Representative

Contractor Representative

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Acronyms

bgs	below ground surface
BMP	Best Management Practices
C-EHMP	Construction Environmental Hazard Management Plan
COPC	Contaminant(s) of Potential Concern
cy	cubic yard
DPP	Department of Planning and Permitting
DU	Decision Unit
EAL	Environmental Action Level
EHE	Environmental Hazard Evaluation
EHMP	Environmental Hazard Management Plan
EPA	Environmental Protection Agency
ESI	Environmental Science International, Inc.
HAR	Hawaii Administrative Rules
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
HDOH	State of Hawaii Department of Health
HDOT	State of Hawaii Department of Transportation
HEER	Hazard Evaluation and Emergency Response
HIOSH	State of Hawaii Department of Labor and Industrial Relations, Occupational Safety and Health
HRS	Hawaii Revised Statutes
LBP	Lead-Based Paint
LCP	Lead-Containing Paint
LEL	Lower Explosive Limit
LEPC	Local Emergency Planning Committee
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MI	Multi-increment
N/A	Not Applicable
n.d.	not detected
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
PPE	Personal Protective Equipment
QEP	Qualified Environmental Professional
RCRA	Resource Conservation and Recovery Act
XRF	X-Ray Fluorescence
TBD	To Be Determined
TCLP	Toxicity Characteristic Leach Procedure
TGM	Technical Guidance Document
TMK	Tax Map Key
UIC	Underground Injection Control
USCG	United States Coast Guard

1.0 INTRODUCTION

This Project-Specific Construction Environmental Hazard Management Plan (C-EHMP) provides guidance to environmental consultants, owners, operators, tenants, and construction/utility workers, who will be performing construction-related and ground-disturbing activities for the Hakalau Stream Bridge Scour Repair project. These guidelines should be used to keep workers, Site users, the environment, and the general public safe from contact with contamination at the Site and prevent Contaminants of Potential Concern (COPCs) from leaving the Site without proper management. Not adhering to this plan may have serious consequences including, but not limited to, stopping construction and being liable for any damage or harm caused by on-site contamination. This

C-EHMP was prepared as part of the design phase of the project. The Contractor will be required to prepare an updated C-EHMP or C-EHMP based on their means and methods. The Contractor's updated C-EHMP or C-EHMP Addendum shall be prepared and signed by the Contractor's Qualified Environmental Professional (QEP).

2.0 BACKGROUND

The C-EHMP applies to the property shown in Figures 1 and 3. The property is also identified by the following.

Address	Hakalau Stream Bridge, Mamalahoa Highway (Route 19), Hakalau, Hawaii
Tax Map Key (TMK) #	(3) 3-1-001:999
Latitude/Longitude	19°53'57.65"N, 155°07'47.80"W

Site Conditions

Distance to Nearest Surface Water Body	Within Hakalau Stream
Approximate Depth to Groundwater	Not Applicable (N/A)
Is the Property Above or Below Underground Injection Control (UIC) Line	Below
Is the first-encountered groundwater classified as a potential source of drinking water in the Mink & Lau Aquifer Identification and Classification Report?	N/A
Current Property Use Type (Residential, Commercial, Zoning, etc.)	Stream
Proposed/Future Property Use Type (Residential, Commercial, Mixed-Use Zoning, etc.)	Stream

Typical Soil Profile from Surface to Groundwater (Include Depth Range, Lithology)	Sediment and cobbles
Utilities Serving Site (e.g., Storm Drains, Electrical, Gas, Water, Sewer)	None

2.1. Existing Environmental Conditions

Hakalau Stream Bridge was constructed in 1953 (Environmental Science International, Inc. (ESI), 2016a). The bridge consists of a concrete deck with steel girders and concrete footings. Due to the age of the bridge, there were concerns that Lead-Based Paint (LBP) flaking from the steel girders may have impacted surface and near surface soils beneath and in the vicinity of the bridge. Based on State of Hawaii Department of Transportation (HDOT) records, abatement of LBP on the bridge was completed sometime in early 2000.

In November 2015, the State of Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HEER) Office inspected surface soil in the area around some of the bents of Hakalau Bridge and in the park itself. In addition, they performed a screening assessment to determine if soil had been impacted by lead, arsenic, and mercury. The HDOH used an X-Ray Fluorescence (XRF) analyzer to screen for lead, arsenic, and mercury in a few surface soil samples collected from around the bents and the park. Average lead concentrations measured with the XRF analyzer ranged from 528 to 19,360 milligrams per kilogram (mg/kg). Average arsenic concentrations measured with the XRF analyzer ranged from 29 to 1,062 mg/kg. Average mercury concentrations measured with the XRF analyzer ranged from 2 to 16 mg/kg (ESI, 2016a). The XRF-screened soil samples were then sent for laboratory analyses, which are considered “definitive” versus screening data only (i.e., XRF analyzer data results). Laboratory analyses results did not show arsenic or mercury concentrations above HDOH HEER Office Environmental Action Levels (EALs); however, the lead-screening data was substantiated by the laboratory data.

In March and April 2016, a LBP and soil assessment in association with the proposed bridge footing repair work was performed for Hakalau Bridge (ESI, 2016a). The assessment involved collecting paint chip samples from the bridge, paint chip samples from the rocks beneath the bridge, and surface soil samples (0 to 3 inches below ground surface (bgs)) in eight areas. The purpose of the assessment was to (1) determine if the paint on the base of the steel bridge girders contained lead and arsenic, and (2) determine if soil in the proposed bridge footing repair work areas contained elevated concentrations of lead, arsenic, and mercury. Based on the results of the assessment, the following conclusions were made.

- The grayish-black paint on the bridge contains Lead-Containing Paint (LCP) (paint with lead concentrations below 5,000 mg/kg).
- LCP and LBP are present on rocks along the stream bed. The LBP (paint with lead concentrations equal to or greater than 5,000 mg/kg) on the rocks consists of black and red paint and is possibly residual old paint that was removed from the bridge in early 2000.

- Neither lead, arsenic, nor mercury were detected at concentrations above the HDOH HEER Office EALs in the surface soil samples collected from the two stream banks. Based on field observations, the stream banks are within the ordinary high-water areas. This is consistent with the original assumption that any paint chips that may have fallen into the stream water have been washed away.
- Mercury was not detected in any of the surface soil samples at concentrations above the HDOH HEER Office EAL.
- Arsenic was detected at concentrations slightly above the HDOH HEER Office EAL in three of the eight areas sampled. However, bioaccessible arsenic was not detected at concentrations above the HDOH HEER Office EAL and thus no longer considered a contaminant of concern.
- Lead was detected at concentrations above HDOH HEER Office EAL in six of the eight areas sampled. The highest lead concentrations were detected around the base of the bridge bents located outside the stream.

Based on the results of the assessment, it was recommended that (1) signs notifying the public of the potential lead exposure hazard be posted, (2) further assessment of the lateral and vertical extent of lead contamination in the park area be completed, and (3) an Environmental Hazard Evaluation (EHE) be prepared.

In response to the elevated lead concentrations detected, the HDOH HEER Office recommended that fencing be installed to keep the general public out of the areas where the highest lead concentrations were detected and that a fact sheet be provided to explain the potential lead hazards to the public. Following the recommendation, fencing was installed in March 2016. Signs and additional fencing were installed in September 2016; and a fact sheet was distributed to stakeholders and posted at the HDOH HEER Office website in October 2016.

In 2016, an additional assessment was conducted (ESI, 2017). The assessment involved collecting 25 additional soil samples ranging in depth from 0 to 6 inches bgs. The samples were submitted for total lead and Toxicity Characteristic Leach Procedure (TCLP) lead laboratory analyses. Lead was detected at concentrations ranging from 14.1 to 9,480 mg/kg in all samples collected. Nineteen out of 25 soil samples contained lead at concentrations above the HDOH HEER Office EAL of 200 mg/kg. Lead concentrations in soils closest to the bridge footers were substantially higher than in the park areas.

TCLP lead concentrations ranging from 0.084 to 31.8 milligrams per liter (mg/L) were detected in all samples. Three areas contained TCLP lead at concentrations above the Resource Conservation and Recovery Act (RCRA) listed hazardous waste criterium (5 mg/L).

2.2. Contaminants of Potential Concern

Lead has been detected within the Site (Area A; Figure 3) at concentrations above the most conservative HDOH Tier 1 EAL. Lead was detected at higher concentrations in the surrounding areas (Figure 2); however, the proposed work associate with the Bent #8 scour repair is limited to Area A. Note, lead was not detected at a concentration above the HDOH Construction/Trench Worker Direct Exposure EAL of 800 mg/kg within Area A (Figure 3).

Media: Soil

COPC	Concentration Range	EAL*
Lead	not detected (n.d.) to 282 mg/kg	200 mg/kg

* EAL for Unrestricted Use; < 150m from surface water; above drinking water

Media: Stream Water

COPC	Concentration Range	EAL*
Unknown	Unknown	

* EAL for Unrestricted Use; < 150m from surface water; above drinking water

Areas with concentrations exceeding the EALs are depicted in Figure 2.

2.2.1 Contaminants of Potential Concern and Construction Materials

Question	Yes	No
Are storm drains (including interceptors) or will storm drains be present at the site?		x
Will any portion of a storm drain (including interceptors) be present at an elevation that is potentially in contaminated groundwater?		x
Will any portion of a utility corridor be present at an elevation that is potentially in contaminated groundwater?		x
Will a portion of any other utility or subsurface structure (other than foundations) extend potentially into contaminated groundwater?		x
Are any potentially flammable or explosive COPCs present at the site (e.g., methane, total petroleum hydrocarbons as gasoline, etc.)?		x
Will any electrical lines/utility corridors be subsurface?		x
Are any COPCs in vapors present at or above 10 % of the Lower Explosive Limit (LEL)?		x
Will any elevator shafts or escalator pits, potentially extend into contaminated groundwater?		x

Construction Materials Assessment

Construction Material in Contact with Contaminated Media	COPC, Concentration and Media	Proposed Material to be used	Material Safe with COPC	
			Yes*	No
Vehicles, Equipment, and Supplies	Lead in surface and near surface soil	Concrete	x	

3.0 SUMMARY OF POTENTIAL ENVIRONMENTAL HAZARDS

Bent #8 is located within the stream. Scouring is currently occurring beneath Bent #8 and needs to be repaired. The scope of work consists of using concrete to grout beneath Bent #8. Specifically, the scope of work may consist of the following activities.

- Removal of sediment and loose material from beneath Bent #8.
- Drilling holes through the Bent #8 foundation.
- Cofferdam construction.
- Dewatering.
- Filling beneath Bent #8 with concrete.
- Containerizing, handling, and disposal of sediment, loose material, and water.

The Contractor will be responsible for updating this C-EHMP or preparing a C-EHMP Addendum describing their specific means and methods to perform the scope of work. The Contractor shall submit the updated C-EHMP or C-EHMP Addendum to the Engineer for approval. No work involving the C-EHMP, or C-EHMP Addendum shall be performed until the updated C-EHMP, or C-EHMP Addendum is approved by both the Engineer and the HDOH HEER Office. Because the work will be conducted in the stream and beneath the water, it is unlikely that the sediment and loose material removed will contain elevated concentrations of lead. As indicated in Section 2.1, it is assumed that any paint chips that may have fallen into the stream water have been washed away and have not impacted the sediment at the bottom of the stream bed (as indicated in the stream bank samples (Decision Unit (DU)-3 and DU-4; Figure 2). In addition, because the stream is a perennial stream, it is not anticipated that the dewatering water will contain lead at elevated concentrations. Regardless, sediment, loose material, and the dewatering water will need to be properly stored and tested for lead prior to discharge, reuse, or disposal.

The primary lead exposure hazard associated with this project is the disturbance and potential cross-contamination of lead resulting from vehicle movement and staging of equipment in areas where lead was detected at concentrations above the HDOH HEER Office Tier 1 EALs in surface soil (0 to 3 inches bgs). To reduce the exposure, disturbance, and potential cross-contamination of lead, all work including ingress and egress shall be confined to Area A (Figure 3).

Environmental Hazard Table

COPC	Media			Hazard					Potential Receptors				
	Soil	Water	Vapor	Direct Exposure	Leaching	Gross Contamination	Ecotoxicity	Vapor Intrusion	Construction Workers	Site Visitors	Site Occupants	General Public	Future Site Users
Lead	X	X		X	X		X		X	X			

A detailed description of the effects of lead exposure is provide below.

Adults are primarily exposed through occupational exposure. Children are commonly exposed through ingestion and inhalation of surface dust, soil and lead-containing paint chips. Children are especially vulnerable because their growing bodies absorb more lead and are thus more sensitive to the harmful effects of lead. Workers can inadvertently bring lead-contaminated media to their homes (i.e., on their bodies, shoes, or clothing), which poses a great risk to their families, especially children.

Lead can enter your body through breathing or swallowing lead-dust particles (i.e., ingesting paint chips, dust, or lead-containing soil). From there it enters the bloodstream, is absorbed, then cumulatively stored in various organs and tissues. When absorbed into the body in high enough doses, lead can be toxic. Lead is cumulative and persistent in the body. Overexposure can result in the following:

- Short-Term (acute) Overexposure – Exposure to high concentrations of lead can cause retardation, convulsions, coma, and sometimes death (unusual, but possible).
- Extended Long-Term (chronic) Overexposure – Can result in permanent damage to the nervous system (brain), cardiovascular system, kidneys, and reproductive systems. Symptoms of chronic overexposure are provided below.

Chronic and Acute Direct Exposure Hazards Table

COPC	Direct Exposure Hazard				Acute Exposure	Chronic Exposure
	Ingestion	Inhalation	Absorption	Injection		
Lead	X	X			<ul style="list-style-type: none"> • Pain • Muscle weakness • Numbness • Abdominal pain • Nausea • Vomiting • Diarrhea • Constipation 	<ul style="list-style-type: none"> • Abdominal pain • Constipated • Depressed • Distracted • Forgetful • Irritable • Nauseous/Sick <p>People with prolonged exposure to lead may also be at risk for high blood pressure, heart disease, kidney disease, and reduced fertility.</p>

Lead Reference: EPA, 2021. "Learn About Lead" April 12, 2021. <<https://www.epa.gov/lead/learn-about-lead>>

Hazard Maps

A detailed Hazard Map of the Site is included as Figure 4. Hazard Maps delineate the location of known or presumed contamination at the Site and what type of hazard the contamination presents. All known and suspected contaminated media must be properly handled and disposed of in accordance with the guidance in this C-EHMP. Mishandling of contaminated media could result in spreading the contamination to uncontaminated areas of the Site or to off-site locations, which could result in fines and other penalties.

4.0 NOTIFICATION REQUIREMENTS

The effective environmental management of any project requires a coordinated effort from all individuals involved. The following sections outline the responsibilities of key personnel involved in the project.

4.1. Key Project Personnel

The project owner (owner/developer) is expected to maintain a list of project contacts throughout the construction phase of the project.

The key project personnel are as follows. An updated key project personnel list needs to be maintained throughout the project and submitted to HDOH HEER Office in writing whenever a change in key project personnel occurs. The Contractor shall update the key project personnel as needed.

Role	Company	Name	Phone #	e-mail
Construction Project Manager	To Be Determined (TBD)			
Construction Foreman	TBD			
On-site Qualified Environmental Professional	TBD			
Qualified Environmental Professional (Project Manager)	TBD			
Owner	HDOT	Kevin Kasamoto	(808) 692-7563	kevin.kasamoto@hawaii.gov
Operator	HDOT	Kevin Kasamoto	(808) 692-7563	kevin.kasamoto@hawaii.gov
Developer/Designer	KSF, Inc	Calvin Miyahara	(808) 593-0933	calvinm@ksfinc.us
National Pollutant Discharge Elimination System (NPDES) Permit contact	N/A	N/A	N/A	N/A
Department of Planning and Permitting (DPP) Building Permit contact	N/A	N/A	N/A	N/A
HDOH HEER Office Project Manager	HDOH HEER	Thomas Gilmore	(808) 586-4353	Thomas.gilmore@doh.hawaii.gov
Landfill Disposal Contact	TBD			
Waste Transporter Contact	TBD			

Role	Company	Name	Phone #	e-mail
Contact Export Site (if exporting soil)	TBD			
Contact Import Site (if importing soil)	TBD			

In addition, if Site conditions or planned building configurations change following acceptance of the of the C-EHMP of C-EHMP Addendum by the HDOH HEER Office, then the following agencies must be notified at least 90 days prior to conducting ground-disturbing activities, or as soon as the change has been identified. Please note that if the HDOH HEER Office is notified of a change in Site conditions or planned building configuration less than 90 days prior to ground-disturbing activities, there could be delays in construction if additional assessment work needs to be conducted. The initial notification of construction activities and any subsequent changes can be submitted through the HDOH e-permitting portal using the website link below.

Agency	Phone	Link/Website
HDOH HEER Office	808-586- 4249	https://eha-cloud.doh.hawaii.gov/epermit/app/#/formversion/ed9ca916-7863-459b-b5dd-e66f881381d5

5.0 REQUIREMENTS FOR ON-SITE ENVIRONMENTAL OVERSIGHT

On-site monitoring is a key component of ensuring that the procedures documented in this C-EHMP are implemented properly and function as intended (e.g., appropriate installation and location of erosion and sediment control measures, cleanliness of equipment, proper staging and storage area, suitability of secondary containment for fuel storage, screening of potential contaminated material, and stockpile segregation, etc.). A Qualified Environmental Professional (QEP) will be retained as the environmental monitor to provide guidance on implementing the recommended measures and to develop additional mitigation measures if the need arises. The on-site QEP shall have at least 5 years of experience providing environmental oversight for construction projects and must have completed the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) 40-hour training with a current 8-hour refresher.

Monitoring events will be conducted at an appropriate frequency based on specific work tasks/procedures and the potential for adverse impacts to occur. An appropriate schedule (frequency and duration of site visits) will be established between the QEP and all involved regulatory agencies regarding when the QEP is on-site. In general, the QEP will be familiar with the day-to-day operations and be on-site (1) during activities with the potential to impact human health or the environment, (2) when contaminated media will be disturbed, (3) when mitigation measures are implemented, or (4) as determined in discussion with the regulatory agencies. The QEP will be on-site whenever potentially contaminated soil or water may be disturbed. This is necessary to ensure the protection of construction workers, the general public, and the environment. Key monitoring stages for this project includes the following.

- Performing work in Hakalau Stream.
- Soil movement activities (e.g., drilling, excavation, transportation, soil disposal etc.).
- Dewatering activities.
- Installation of erosion and sediment control measures.
- Decontamination of vehicles and equipment.
- Soil and water sampling.
- Waste profiling and disposal.

The primary responsibility of the QEP is to ensure that the environmental and human health protection measures are implemented and are adhered to, and that any movement, transport, and disposal of contaminated material (on-site and to an offsite location) is properly documented.

Typical responsibilities of the QEP include those identified below.

- Communicate the requirements of the C-EHMP and C-EHMP Addendum to project members during pre-job and tailgate meetings.
- Provide advice regarding preparation for work activities in a manner that mitigates adverse environmental or health effects.
- Review the contractor's work procedures to ensure functionality and compliance with the C-EHMP, C-EHMP Addendum, and applicable State and Federal regulations, standards, and Best Management Practices (BMPs).
- The QEP will remain on-call during non-critical work periods to respond to emerging environmental issues.
- Oversight and monitoring of sediment and loose material removal and dewatering activities.
- On-site monitoring and documentation per the schedule established between parties prior to project start.
- Exercise the authority to modify and/or halt any construction activity at any time if deemed necessary for the protection of human health and the environment.
- Advise project members if project activities have caused or are likely to cause an environmental incident and provide recommendations for corrective action.
- Monitor compliance with the C-EHMP, C-EHMP Addendum, and relevant permit conditions.

- Liaise directly with project members and provide technical advice for the purpose of resolving situations that may impact human health and the environment as they arise.
- Maintain complete records of activities related to the implementation of the C-EHMP and C-EHMP Addendum. This should include any measurements taken (e.g., field screening data, equipment calibration, manifests, truck receipts, truck counting spreadsheets etc.), photographs, and incident reports.
- Complete and submit environmental monitoring reports to the HDOH HEER Office and report any unanticipated adverse effects to the environment. Such reports must include the nature of the effect, its cause, mitigation and/or remediation implemented, and whether a work stoppage was ordered, as well as photographs, analyses, and measurements, if applicable.
- Report unanticipated encounters with contamination at the Site in accordance with Hawaii Revised Statutes (HRS) 128D. Reportable releases include contamination not already identified at the Site, as well as unknown tanks, unknown drums, and/or abandoned pipelines that are not identified in advance and are encountered during excavation or other project-related activities.

Table of Project Activities when QEP Must be Present

Activity	Planned at Site?		QEP Will Be Present?		Monitoring Equipment to be Used by QEP
	Yes	No	Yes	No	
Soil Removal and Containerizing	x		x		Logbook and camera
Soil Sampling	x		x		Sampling supplies
Water Sampling	x		x		Sampling supplies
Silt Fence Installation	x		x		Logbook and camera
Drilling	x		x		Logbook and camera
Dewatering	x		x		Logbook and camera
Soil Disposal	x		x		Logbook, camera, waste transportation manifest
Work Below High-Water Mark	x		x		Logbook and camera
Erosion and Sediment Control Installation and Testing	x		x		Logbook and camera

Additional details regarding QEP monitoring schedule shall be included in the Contractor's updated CEHMP or C-EHMP Addendum.

6.0 CONSTRUCTION ACTIVITIES

Bent #8 is located within the stream. Scouring is currently occurring beneath Bent #8 and needs to be repaired. The scope of work consists of using concrete to grout beneath Bent #8. Specifically, the scope of work may consist of the following activities.

- Removal of sediment and loose material from beneath Bent #8.
- Drill holes through the Bent #8 foundation.
- Cofferdam construction.
- Dewatering.
- Filling beneath Bent #8 with concrete.
- Containerizing, handling, and disposal of sediment, loose material, and water.

The Contractor will be responsible for updating this C-EHMP or preparing a C-EHMP Addendum describing their specific means and methods. Because the work will be conducted in the stream and beneath the water, it is unlikely that the sediment and loose material removed will contain elevated concentrations of lead. As indicated in Section 2.1, it is assumed that any paint chips that may have fallen into the stream water have been washed away and have not impacted the sediment at the bottom of the stream (as indicated in the stream bank samples – DUs 3 and 4, Figure 2). In addition, because the stream is a perennial stream, it is not anticipated that dewatering water will contain lead at concentrations above the HDOH HEER Office EALs. Regardless, sediment, loose material, and dewatering water will need to be properly stored and tested for lead prior to discharge, reuse, or disposal.

The primary lead exposure hazard associated with this project is the disturbance and potential cross-contamination of lead resulting from vehicle movement and staging of equipment in areas where lead was detected at concentrations above the HDOH HEER Office EALs in surface soil (0 to 3 inches bgs; Figure 2). To reduce the exposure, disturbance, and potential cross-contamination of lead-contaminated soil, all work including ingress and egress shall be confined to Area A (Figure 3). The specific equipment and Contractor means and methods will be provided by the Contractor's updated CEHMP or C-EHMP Addendum.

Planned Types of Excavations:

Excavation Type	Maximum Depth
Drilling	TBD
Cofferdam Construction	TBD

7.0 SOIL MANAGEMENT PLAN

The purpose of this section is to ensure that lead-contaminated soil is properly handled and managed. The management and transport of potentially contaminated soil will be overseen by an on-site QEP.

7.1. Soil Management

Soil disturbed at the Site will be continuously monitored and documented by a QEP with at least 5 years' experience in environmental oversight associated with construction projects. Where known or suspected contaminated soil is encountered during excavation, the appropriate response actions must be taken that conform with the HDOH and Environmental Protection Agency (EPA) guidance, laws, and regulations. This includes proactive planning to ensure that workers have the appropriate level of Personal Protective Equipment (PPE), and that contaminated soil is properly handled and managed when excavated. Tasks associated with properly managing contaminated soil include the following:

- Where contaminated soil is encountered, a QEP shall provide field oversight to ensure:
 - that known or suspected contaminated soil is segregated from clean soil,
 - that known or suspected contaminated soil is properly stored, protected and managed,
 - and that health and safety guidance related to potential lead-exposure is provided to workers.
- Workers who may come into contact with contaminated soil must wear the appropriate level of PPE.
- Workers who may be exposed to lead-contaminated soil shall be trained in accordance with State of Hawaii Department of Labor and Industrial Relations, Occupational Safety and Health (HIOSH) Lead Construction Standard (Hawaii Administrative Rules (HAR) 12-148.1). Note, lead was not detected in soil at the Site (Area A) at concentrations above the HDOH HEER Office Construction/Trench Worker Direct Exposure EAL of 800 mg/kg.
- Soil transported to an off-site location should be drained of fluids and covered during transportation.
- If newly encountered soil contamination is discovered at a previously unknown location or from an unknown source, the HDOH HEER Office must be immediately notified of its discovery and shall be reported as a new release.

7.1.1 Field Identification of Contaminated Soil

Lead cannot be identified in the field through visual and olfactory observations; therefore, the contaminated soil must be managed in a manner protective of workers, the public, and the

environment. All sediment and loose material removed from beneath Bent #8 shall be containerized and tested for lead prior to reuse or disposal.

7.1.2 Dust and Erosion Control

Dust and erosion controls will be monitored and documented by a QEP for the duration of on-site work. The Contractor and the QEP must evaluate and establish erosion control and dust control measures. The erosion control and dust control measures must prevent the migration of contaminated soils to uncontaminated areas. Typically, BMPs are employed to control erosion and prevent the spread of contamination via runoff or wind.

Dust control measures should ensure compliance with ambient air quality standards established in the HAR 11-59 and should comply with air pollution control requirements specified in HAR 11-60.1. The Sediment and Erosion Control Plan is included in Appendix A.

7.1.3 Excavation and Containerizing

Sediment and loose material removed from beneath Bent #8 shall be stored and tested for lead prior to reuse or disposal.

- Excavated soils shall be drained of liquids to the extent practical prior to storage.
- It is anticipated that sediment and loose debris will be stored in properly labeled 55-gallon drums.
- Sediment and loose debris removed from beneath Bent #8 shall remain on-site and shall not be transported or stored offsite without prior authorization and/or characterization.

7.2. Soil Reuse and Disposal

Excavated soil shall be tested for lead and properly characterized prior to reuse or disposal. Results from the testing will determine the final disposition of the soil. Below is a summary of the soil sampling procedures. Soil samples shall be collected in accordance with the HDOH HEER Office Technical Guidance Document (TGM) and the HDOH Material and Stockpile Guidance (<https://health.hawaii.gov/heer/files/2019/12/Clean-Fill-Guidance-HDOH-Oct-2017-1.pdf>).

Soil Sampling Procedures

Soil samples will be collected at a frequency indicated in Sections 7.2.1 and 7.2.2. Each Multi-increment (MI) sample shall consist of 60 soil increments. The soil increments will be collected using a 20-gram capacity plastic disposable scoop. The soil increments will be dispensed into a clean, unused Ziploc bag. One MI sample will consist of approximately 1,200 grams of soil.

Following sample collection, the sample bag will be sealed, labeled, placed in a cooler with ice, and transported to the designated laboratory for analysis. A chain of custody will be used to track

the samples from collection to final disposition at the laboratory. Soil samples shall be collected in accordance with the HDOH HEER Office TGM.

Chemicals to Analyze	Analytical Method	Sampling Frequency (cubic yards (cy) per sample)
Total and TCLP Lead	EPA 6020B/EPA3050B	20

Off-site Disposal/Reuse Table

	Reuse Location	Disposal Location
Name of Re-use or Disposal Location	TBD	TBD
Address of Re-use or Disposal Location	TBD	TBD
Land Use (Site Zoning)	TBD	TBD

This information will be communicated to the soil hauler, and it will be ensured that the hauler only disposes of soil at locations approved in this plan. The QEP will monitor and review transportation manifests and disposal records to ensure adherence to the plan. Disposal of soil at a location not previously approved could result in fines.

On-site Reuse of Known or Suspected Contaminated Soil

Soil that contains lead at concentrations above the HDOH Tier 1 EAL (200 mg/kg) shall be disposed of at a HDOH-approved disposal facility permitted to accept lead-contaminated soil. Soil that contains lead at concentrations above the EPA RCRA Toxicity Limit of 5 mg/L should be classified as hazardous waste and disposed of at an EPA-approved hazardous waste disposal facility.

7.2.1 Soil Sampling for Re-Use

Soil may be reused on-site or off-site if lead concentrations are below the HDOH HEER Office Tier 1 EAL of 200 mg/kg. If soil is to be reused offsite, the HDOH HEER Office shall be contacted, and soil reuse discussed. If the HDOH HEER Office agrees on the reuse, a soil agreement signed by the generating and receiving party must be submitted to the HDOH HEER Office prior to any reuse. An example is included in Appendix B.

Total Volume of Soil Proposed for Export (cy):	2 cy
--	------

Soil-sampling requires the following parameters:

	Unrestricted Use	Commercial/Industrial Use
Stockpile Volume (cy) per sample	20 cy	20 cy
# of increments per MI sample	60	60

7.2.2 Stockpile Sampling for Disposal at a Disposal Facility

If soil will be disposed of, the MI soil sampling requirements are as follows. See Section 7.2 for soil sampling procedures.

	Disposal Facility Requirements
Stockpile Volume (cy) per sample	20 cy
# of increments per MI sample	60

The soil will be disposed of at the following permitted site: **TBD by the Contractor and included in the updated C-EHMP or C-EHMP Addendum.**

7.2.3 Record Keeping

A log of all soil that leaves the Site and its final disposition will be maintained by the QEP. All waste manifests, truckload counts at source and receiving site, weigh tickets, and soil profiles will be included in a final report documenting the environmental oversight conducted during this project. The report will be submitted to the HDOH HEER Office at the conclusion of the project. In addition, whenever soil is removed from the Site, summary reports of the disposal records, including copies of related documents, will be submitted to the HDOH HEER Office on a weekly or monthly basis, unless waived in writing by the HDOH HEER Office project manager. For all soil transported to an approved-disposal facility, a manifest containing required signatures will be submitted.

8.0 STREAM WATER MANAGEMENT PLAN

Dewatering at Bent #8 may be required (Figure 3). Because the stream is a perennial stream, it is not anticipated that dewatering water will contain lead at elevated concentrations. Regardless, the dewatering water will need to be properly stored and tested for lead prior to discharge, reuse, and/or disposal.

Estimated Depth to Groundwater at Site:	N/A		
Proposed Maximum Drilling/Excavation Depth:	TBD		
Estimated Direction of Groundwater Flow:	N/A		
Will Contaminated Stream Water be Encountered During this Project?	Yes	No	Unknown
		x	

Will Stream Water be Dewatered into the Sanitary Sewer System?		x	
Will Stream Water from this Site be Dewatered into the Storm Sewer System?		x	
Does the Contractor have a Dewatering Permit Issued by the County and/or HDOH Clean Water Branch?		x	
Is Free Product Known or Suspected to be Present at the Site?		x	

8.1. Stream Water Management

Dewatering will be continuously monitored and documented by a QEP with at least five years' experience in environmental oversight associated with construction projects. Where contaminated water may be encountered during excavation and drilling activities, appropriate response actions must be taken that conform with HDOH HEER Office and EPA guidance, laws, and regulations. This includes proactive planning to ensure that workers have the appropriate level of PPE, and that water is properly managed while dewatering is conducted. Tasks associated with properly managing stream water include the following:

- During dewatering, a QEP shall provide field oversight to direct appropriate dewatering activities, manage disposal of water if necessary, and provide health and safety guidance related to potential exposure of workers to COPCs.
- Workers who may come into contact with contaminated water must wear the appropriate level of PPE.
- Workers who may be exposed to potentially contaminated water shall be trained in accordance with HIOSH Lead Construction Standard (HAR 12-148.1).

8.1.1 Dewatering

Water shall be dewatered into suitable tanks or containers located outside the floodplain and the water shall be tested for lead prior to disposal. The tanks and containers shall be stored in the Storage and Staging Area (Figure 3) which is located outside the floodplain.

8.2. Water Disposal

The QEP will be responsible for overseeing the containerization of the water and for collecting water samples. Water samples will be analyzed for the following COPCs prior to disposal.

Chemicals to Analyze	Analytical Method
Total Lead	EPA 6020B/EPA3050B

A copy of the signed waste manifests must be maintained and included in the report submitted to the HDOH HEER Office following completion of the ground-disturbing activities.

Disposal Facility Name	TBD
Facility Address	TBD
Transporter Name	TBD
Transporter Address	TBD

9.0 STORM WATER MANAGEMENT PLAN

Sediment and loose material removed from beneath Bent #8 shall be placed in properly labelled 55-gallon drums (or similar) and stored in the designated storage and staging area located outside the floodplain. The containers shall be covered and secured at the end of each workday. BMPs shall be installed per the Erosion and Sediment Control Plan included in Appendix A.

Due to the location of the work along the shoreline and within a stream (Figure 1), the weather forecast shall be monitoring daily. Work shall not be scheduled or performed if severe weather is anticipated.

10.0 SPILL OR RELEASE RESPONSE

Releases, should they occur, must be reported to the HDOH HEER Office in accordance with HRS 128D and HAR 11-451. In addition to contractor releases, a release may include pre-existing contamination encountered during construction activities. If an unknown source of contamination is encountered, the release must be reported as described in the abovementioned regulations.

10.1. Release Response

If a release occurs, the following actions must be taken:

- Determine the identity of what was spilled, the source of the spill, the volume of the spill, the severity and extent of the spill, and if immediate emergency response actions are necessary.
- Stop work if contaminant releases are extremely large and cannot be contained. If an imminent threat to human health or the environment exists, or if human or environmental receptors are impacted (e.g., human receptors falling ill or suffering sudden illness), notify the Hawaii County Fire Department by calling **911**.
- If the spill is of a volatile, flammable, or combustible liquid or vapor, possible ignition sources should be eliminated, and workers will be directed to remain upwind.
- Stop work if an unusually large release or contaminated area is encountered unexpectedly or if there is any release of chemicals or hazards not covered by the plan.
- Stop work and take immediate emergency response actions if a worker or member of the general public is injured.

- Eliminate the source of the spill to the extent practicable (e.g., shutting off a valve, righting an overturned container), if it is safe to do so.
- Protect sensitive ecological receptors threatened by the spill.

10.2. Release Reporting

In the event of a hazardous substance release that causes imminent threat to human health or the environment, the first call should be to **911**.

All releases must be reported to the HDOH HEER Office (808-586-4249 or 808-247-2191 for after work hours) and the Local Emergency Planning Committee (LEPC) at 808-936-8181. Both agencies must be contacted by telephone or in person immediately following a release. Note, there is no penalty for reporting a release unnecessarily, but there are penalties for not reporting a release.

If petroleum is observed on surface water, notify the U.S. Coast Guard (USCG) through the National Response Center (NRC) at 800-424-8802. Please note, petroleum observed on groundwater is not reportable to the NRC. For oil and hazardous substance spills that threaten or occur in navigable waters, the USCG is the lead agency

The on-site personnel responsible for ensuring that the appropriate release notifications are conducted are listed below. Please note, that in the case of an emergency or imminent threat to the environment, any on-site personnel can contact **911**.

Personnel Responsible for Release Notifications

Name	Company	Title	Phone Number
TBD			

11.0 WORKER PROTECTION

A Site-Specific Health and Safety Plan (HASP) must be prepared by the Contractor in accordance with the appropriate HIOSH regulations. These regulations and requirements include, but are not limited to, selecting the appropriate level of PPE and following proper personal hygiene steps associated with the identified COPCs. **The Contractor's Site-Specific HASP shall be included in the updated C-EHMP or C-EHMP Addendum.**

General administrative controls for protecting workers from COPC hazards (further detailed in the Site-Specific HASP) include, at a minimum, the following:

- 40-hour HAZWOPER training and current 8-hour refresher required for all workers who may come into contact with contaminated media.
- HIOSH Lead Construction Standard training for workers who may be occupationally exposed to lead (HAR 12-148.1).

- A discussion of COPC hazards that may be encountered will be discussed during daily tailgate safety meetings.
- A QEP with at least five years' experience in environmental oversight associated with construction projects will be present when contaminated media will be moved or disturbed.
- Work shall be restricted to the area outlined in Figure 3, where lead was not detected at concentrations above the HDOH HEER Office Commercial/Industrial EALs or Construction/Trench Worker Direct Exposure EALs.

Engineering controls for protecting workers from COPC hazards (further detailed in the Site-Specific HASP) include the following:

- The appropriate level of PPE shall be selected based on the potential hazards and the COPCs associated with the individual construction tasks. The level of PPE may be upgraded or downgraded depending upon the tasks being conducted and the level of contact with the contaminated media.

12.0 DECONTAMINATION

The designated decontamination area is shown in Figure 3. The decontamination procedures are provided below.

12.1. Decontamination of Tools and Personnel

Appropriate personal hygiene practices shall be adhered to at all times when handling potentially contaminated soil and water. Washing facilities shall be made available on Site to allow workers to wash their hands and avoid cross-contamination before eating, drinking, smoking, and/or heading home for the day.

After contact with contaminated media, proper decontamination procedures shall be conducted, including the removal, segregation, and disposal of PPE. Any used PPE shall be placed in plastic garbage bags, double-bagged, and properly disposed of.

Hand-held and manual tools in direct contact with contaminated media must be decontaminated to remove any contaminated soil or water prior to handling "clean" material and before they are removed from the work area. The decontamination of tools must include the following:

- Physically remove soil adhering to the surface of the equipment using appropriate hand tools. Soil removed during this step should be placed into the 55-gallon drums containing sediment and loose debris removed from beneath Bent #8.
- Following removal of soil, wash tools with water. Wash water and rinsate shall be contained, collected, and stored in designated containers. Wash water and rinsate shall be tested for

lead prior to disposal. Wash water and rinsate shall be disposed of in accordance with applicable State and Federal regulations.

During decontamination, proper PPE shall be employed to minimize exposure to COPCs. **The list of PPE to be used shall be included in the Contractor's Site-Specific HASP.** Decontamination Areas shall be restricted to the Storage and Staging Area (Figure 3).

12.2. Decontamination of Vehicles and Equipment

Vehicle and equipment decontamination should occur following the use of vehicles and equipment (e.g., including haul trucks, heavy machinery, drill rig and accessories) in direct contact with lead-contaminated soil. The equipment decontamination procedures are intended to describe methods to mitigate the spread of lead to "clean" portions of the Site, non-contaminated materials, and to off-site locations.

Equipment and vehicles in direct contact with lead-containing media must be decontaminated to remove any sediment and loose debris before they leave the work area. The decontamination of vehicles and equipment must include the following:

- Physically remove soil adhering to the surface of the equipment and vehicles using appropriate tools. Soil removed during this step should be placed into the 55-gallon drums containing sediment and loose debris removed from beneath Bent #8.
- Following removal of soil, wash vehicle and equipment with water. Wash water and rinsate shall be contained, collected, and stored in designated containers. Wash water and rinsate shall be tested for lead prior to disposal. Wash water and rinsate shall be disposed of in accordance with applicable State and Federal regulations.

During decontamination, proper PPE shall be employed to minimize exposure to COPCs. **The list of PPE to be used shall be included in the Contractor's Site-Specific HASP.**

13.0 RECORDKEEPING AND REPORTING REQUIREMENTS

Detailed records of all environmental activities conducted during construction shall be kept and saved. These records may include air monitoring results, soil segregation, soil and/or groundwater sampling methodologies and results, dewatering activities, soil and water re-use or disposal, and any other environmental activities conducted in association with construction activities.

In addition to maintaining these records, a completion report shall be submitted to the HDOH HEER Office for review and comment within 30 days of the completion of ground-disturbing activities. The report shall include a summary of the environmental activities conducted during construction, copies of all disposal receipts, truck logs, and laboratory analytical results; as well as a map illustrating the approximate location(s) where any contaminated soil was encountered and/or re-used on-site.

If contaminated media is left on-site following the construction activity, an EHE and Environmental Hazard Management Plan (EHMP) shall be prepared to manage the contamination in the long-term. If the Site already has an EHE and EHMP, then the EHE and EHMP must be updated following construction to incorporate changes to the Site. EHEs and EHMPs must be submitted to the HDOH HEER Office for review and approval following the completion of construction activities detailed in this C-EHMP.

14.0 REFERENCES

ESI, 2016, Environmental Assessment, Hakalau Stream Bridge, Mamalahoa Highway (Route 19), Hakalau, Hawaii, ESI Project No. 115064, May 18, 2016.

ESI, 2017, Additional Assessment, Hakalau Stream Bridge, Mamalahoa Highway (Route 19), Hakalau, Hawaii, ESI Project No. 116046, February 24, 2017.

HAR 11-59. Hawai'i Administrative Rules, Department of Health. Title 11, Chapter 59. Ambient Air Quality Standard. September 15, 2001.

HAR 11-60.1. Hawai'i Administrative Rules, Department of Health. Title 11, Chapter 60.1. Air Pollution Control. June 30, 2014.

HAR 11-451. Hawai'i Administrative Rules, Department of Health. Title 11, Chapter 451, State Contingency Plan (SCP). August 2, 1995.

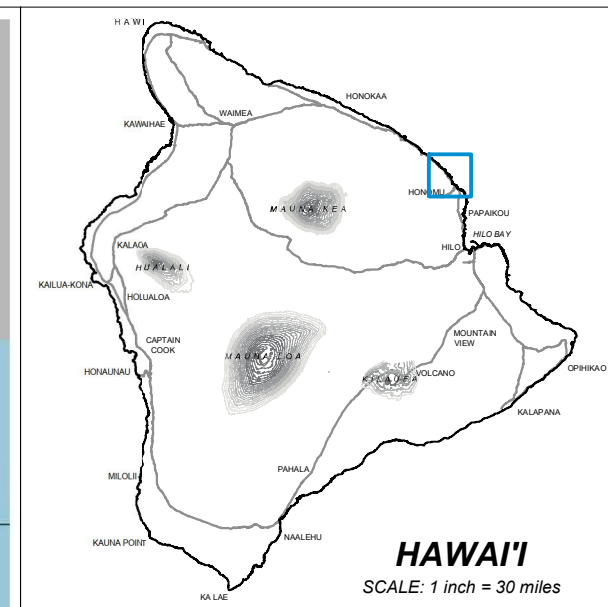
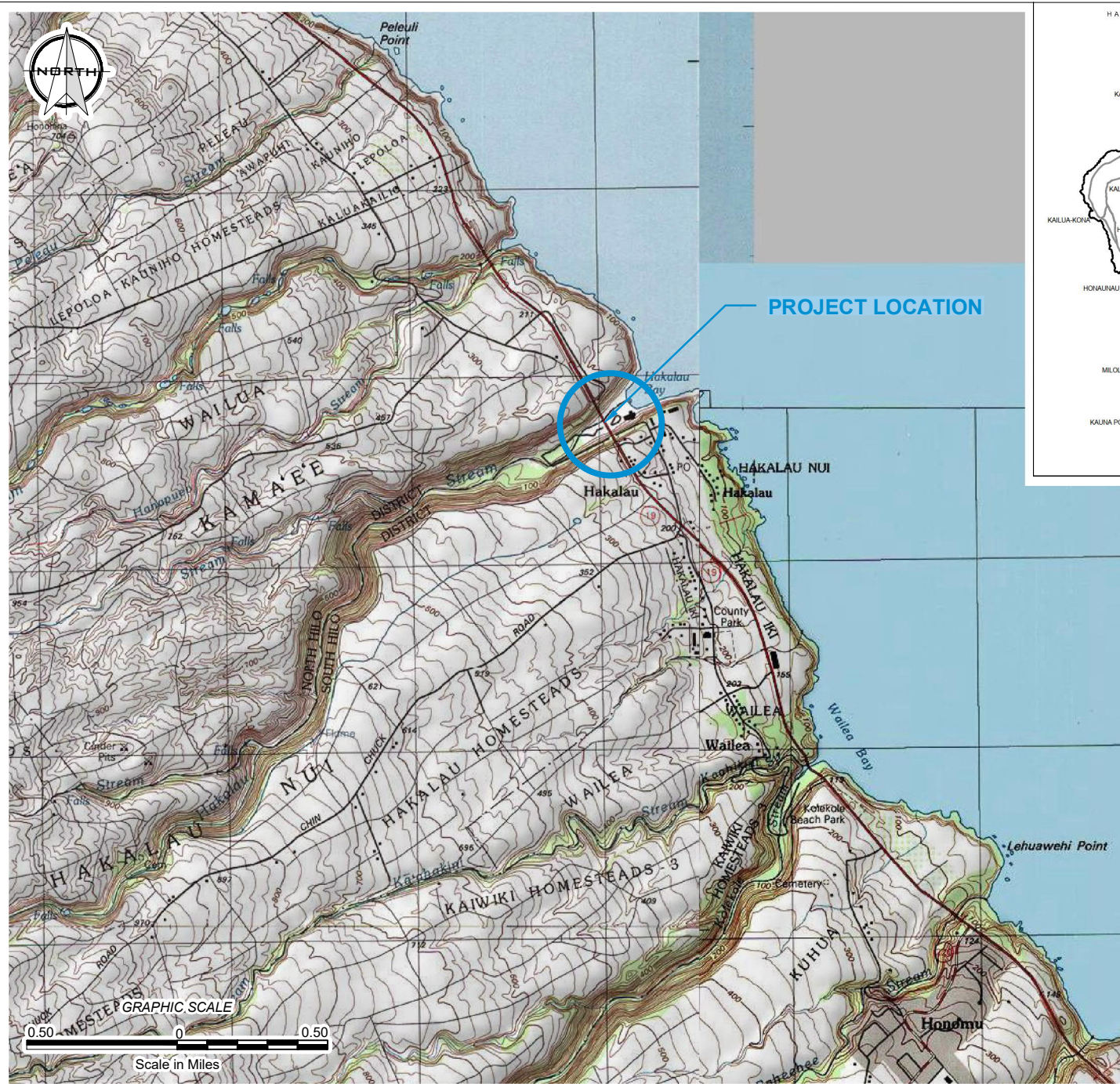
HDOH. State of Hawaii Department of Health (HDOH), Solid and Hazardous Waste Branch. *Use of HEER Office Environmental Action Level Guidance and HEER Office Technical Guidance Manual for Characterization and Remediation of Contaminated Properties Overseen by the Solid and Hazardous Waste Branch*. January 30, 2019.

HDOH. State of Hawaii Department of Health (HDOH), Hazard Evaluation and Emergency Response (HEER) Office. *Guidance for Stockpile Characterization and Evaluation of Imported and Exported Fill Material*. October 2017.

HRS 128D. Hawaii Revised Statutes. Hawaii Environmental Response Law (HERL), Chapter 128D. Website URL: https://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0128D/HRS_0128D-0001.htm

TGM. Technical Guidance manual for the Implementation of the Hawai'i State Contingency Plan. Website URL: <http://www.hawaiidoh.org/tgm.aspx>

Figures



NOTES

The accuracy of this document is limited to the quality and scale of the source information. This document is not a legal representation of an engineered survey.

SOURCES

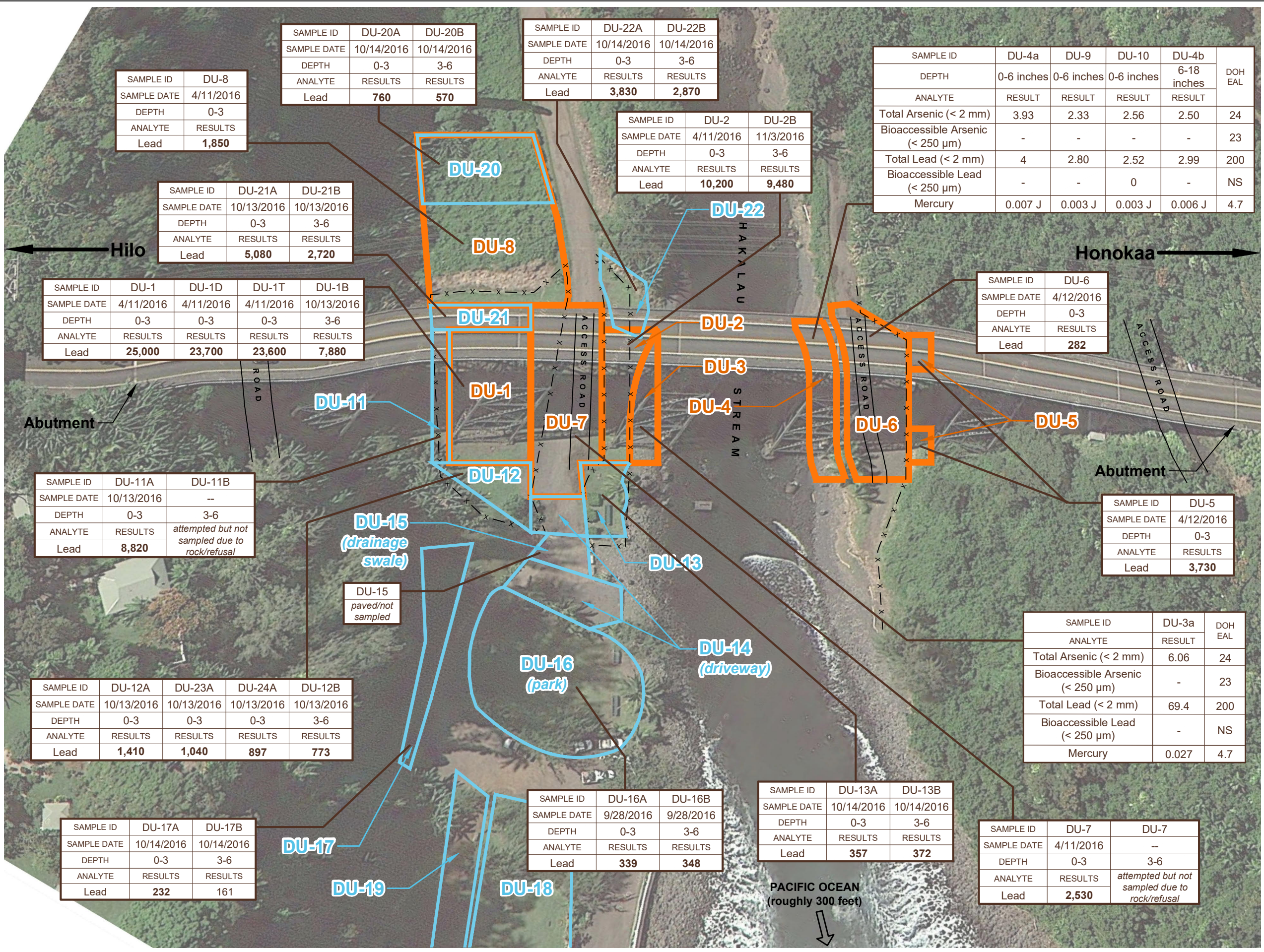
Island of Hawai'i GIS, USGS Clearinghouse
TOPO! Version 4.5.0

FIGURE 1 REGIONAL & SITE LOCATION MAP

HAKALAU STREAM BRIDGE
SCOUR REPAIR CEHMP
Route 19, Hakalau, Hawaii



ENVIRONMENTAL SCIENCE INTERNATIONAL



SAMPLE ID	DU-8
SAMPLE DATE	4/11/2016
DEPTH	0-3
ANALYTE	RESULTS
Lead	1,850

SAMPLE ID	DU-20A	DU-20B
SAMPLE DATE	10/14/2016	10/14/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	760	570

SAMPLE ID	DU-22A	DU-22B
SAMPLE DATE	10/14/2016	10/14/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	3,830	2,870

SAMPLE ID	DU-2	DU-2B
SAMPLE DATE	4/11/2016	11/3/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	10,200	9,480

SAMPLE ID	DU-4a	DU-9	DU-10	DU-4b	DOH EAL
DEPTH	0-6 inches	0-6 inches	0-6 inches	6-18 inches	
ANALYTE	RESULT	RESULT	RESULT	RESULT	
Total Arsenic (< 2 mm)	3.93	2.33	2.56	2.50	24
Bioaccessible Arsenic (< 250 µm)	-	-	-	-	23
Total Lead (< 2 mm)	4	2.80	2.52	2.99	200
Bioaccessible Lead (< 250 µm)	-	-	0	-	NS
Mercury	0.007 J	0.003 J	0.003 J	0.006 J	4.7

SAMPLE ID	DU-21A	DU-21B
SAMPLE DATE	10/13/2016	10/13/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	5,080	2,720

SAMPLE ID	DU-1	DU-1D	DU-1T	DU-1B
SAMPLE DATE	4/11/2016	4/11/2016	4/11/2016	10/13/2016
DEPTH	0-3	0-3	0-3	3-6
ANALYTE	RESULTS	RESULTS	RESULTS	RESULTS
Lead	25,000	23,700	23,600	7,880

SAMPLE ID	DU-11A	DU-11B
SAMPLE DATE	10/13/2016	--
DEPTH	0-3	3-6
ANALYTE	RESULTS	attempted but not sampled due to rock/refusal
Lead	8,820	

SAMPLE ID	DU-12A	DU-23A	DU-24A	DU-12B
SAMPLE DATE	10/13/2016	10/13/2016	10/13/2016	10/13/2016
DEPTH	0-3	0-3	0-3	3-6
ANALYTE	RESULTS	RESULTS	RESULTS	RESULTS
Lead	1,410	1,040	897	773

SAMPLE ID	DU-17A	DU-17B
SAMPLE DATE	10/14/2016	10/14/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	232	161

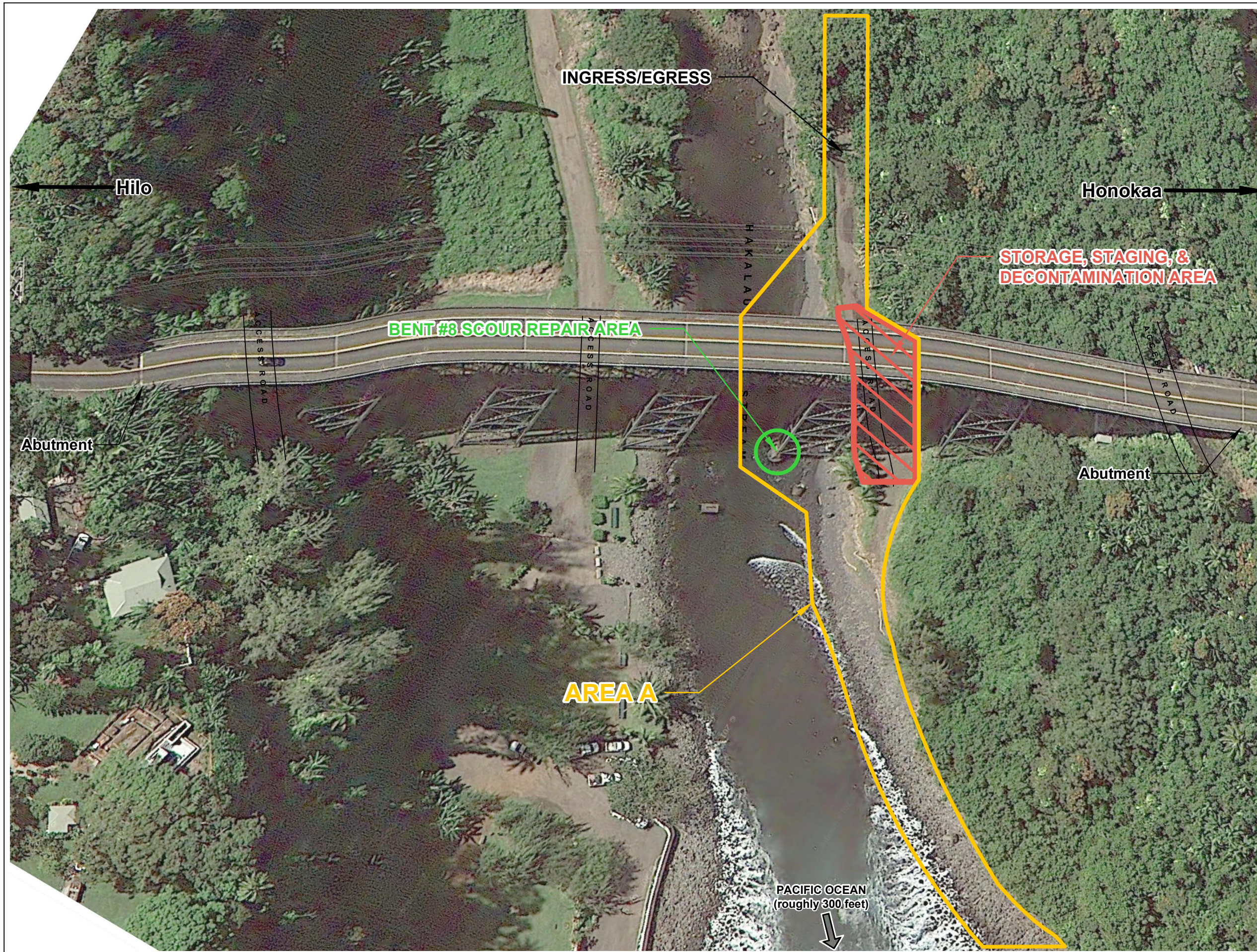
SAMPLE ID	DU-16A	DU-16B
SAMPLE DATE	9/28/2016	9/28/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	339	348

SAMPLE ID	DU-13A	DU-13B
SAMPLE DATE	10/14/2016	10/14/2016
DEPTH	0-3	3-6
ANALYTE	RESULTS	RESULTS
Lead	357	372

SAMPLE ID	DU-5
SAMPLE DATE	4/12/2016
DEPTH	0-3
ANALYTE	RESULTS
Lead	3,730

SAMPLE ID	DU-3a	DOH EAL
ANALYTE	RESULT	
Total Arsenic (< 2 mm)	6.06	24
Bioaccessible Arsenic (< 250 µm)	-	23
Total Lead (< 2 mm)	69.4	200
Bioaccessible Lead (< 250 µm)	-	NS
Mercury	0.027	4.7

SAMPLE ID	DU-7	DU-7
SAMPLE DATE	4/11/2016	--
DEPTH	0-3	3-6
ANALYTE	RESULTS	attempted but not sampled due to rock/refusal
Lead	2,530	



LEGEND	
	AREA A - PROJECT BOUNDARY
	STORAGE, STAGING, & DECONTAMINATION AREA
	BENT #8 SCOUR REPAIR AREA

NOTES
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SOURCES
Figure X: Lead Assessment Area (Parsons 2014)



GRAPHIC SCALE

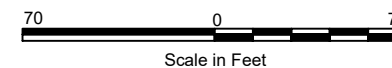
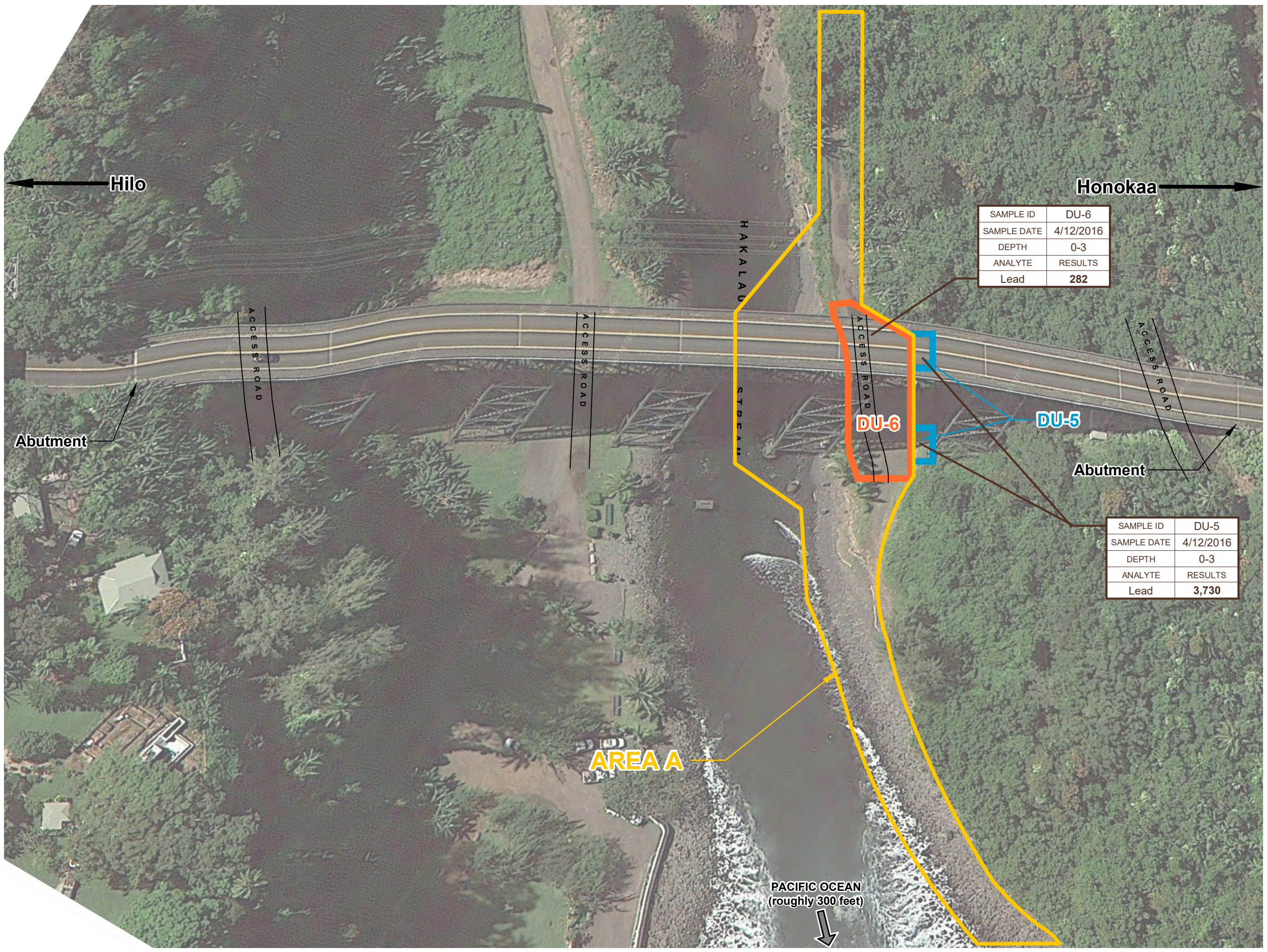


FIGURE 3 SITE MAP

CEHMP - HAKALAU STREAM BRIDGE
SCOUR REPAIR PROJECT
Route 19, Hakalau, Hawaii



LEGEND

AREA A - PROJECT BOUNDARY

DIRECT EXPOSURE HAZARD FOR UNRESTRICTED LAND USE

DIRECT EXPOSURE GROSS CONTAMINATION, & LEACH HAZARD FOR BOTH UNRESTRICTED & COMMERCIAL/ INDUSTRIAL LAND USE

SAMPLE ID reflects the decision unit (DU-6)

Sample collection depth in inches bgs

SAMPLE ID	DU-6
SAMPLE DATE	4/12/2016
DEPTH	0-3
ANALYTE	RESULTS
Lead	282

NOTES

1. The accuracy of this document is limited to the quality and scale of the source information. This document is not a legal representation of an engineered survey.

2. DOH EAL for lead is 200 mg/kg for soil at sites where groundwater is not a current or potential drinking water resource and a surface water body is located within 150 meters of release site.

3. Concentrations in **BOLD** exceed their DOH EAL.

4. Concentrations are in mg/kg.

5. Acronyms/Abbreviations:

bgs

below ground surface

DOH

State of Hawaii Department of Health

EAL

environmental action level

ID

identification

mg/kg

milligram per kilogram

mm

millimeter

SOURCES

Figure X: Lead Assessment Area (Parsons 2014)

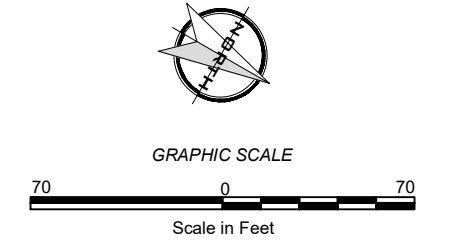



FIGURE 4

HAZARD MAP

CEHMP - HAKALAU STREAM BRIDGE
SCOUR REPAIR PROJECT
Route 19, Hakalau, Hawaii

**ENVIRONMENTAL SCIENCE INTERNATIONAL**

Appendix A - Erosion and Sediment Control Plan

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(075)	2022	4	22

WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

1. See Special Provisions Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.
2. Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.
3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
4. The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
6. If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
7. Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 21 calendar days of date of award. The Site-Specific BMP Review Checklist may be obtained from <http://www.stormwaterhawaii.com>.

B. WASTE DISPOSAL:

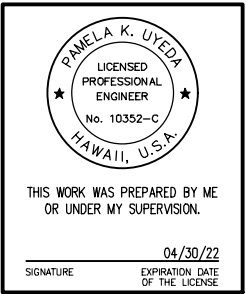
1. Waste Materials
Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form for Construction Sites to the Engineer within 21 calendar days of date of award. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.
2. Hazardous Waste
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

3. Sanitary Waste
Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. For projects with an NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.
2. For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.
3. Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
4. Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
5. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
6. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
7. Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.
8. Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling material from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.
9. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.
10. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
11. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WATER POLLUTION & EROSION CONTROL NOTES	
HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR FAP Proj. No. BR-019-2(075)	
Scale: None	Date: Mar. 2022
SHEET No. N-2 OF 4 SHEETS	

WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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12. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.
13. For projects with an NPDES Permit for Construction Activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the SWPPP.
14. For projects without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

- a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete	Cleaning Solvents
Detergents	Wood
Paints (enamel and latex)	Masonry Block
Metal Studs	Herbicides and Pesticides
Tar	Curing Compounds
Fertilizers	Adhesives
Petroleum Based Products	

- b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
- c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
- d. Keep products in their original containers with the original manufacturer's label.
- e. Do not mix substances with one another unless recommended by the manufacturer.
- f. Whenever possible, use a product up completely before disposing of the container.
- g. Follow manufacturer's recommendations for proper use and disposal.
- h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan

- a. Keep products in original containers unless they are not resealable.
- b. Retain original labels and Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS).
- c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan

The following product specific practices shall be followed onsite:

a. Petroleum Based Products:

Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.

b. Fertilizers:

Apply fertilizers used only in the minimum amounts recommended by the manufacturer and federal, state, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth. Once applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

c. Paints:

Seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or State waters. Dispose properly according to manufacturers' instructions and State and local regulations.

d. Concrete Trucks:

Washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or State waters. Do not discharge water in the drainage system or State waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the Engineer.

4. Spill Control Plan

- a. Post a spill prevention plan to include measures to prevent and clean up each spill.
- b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the Engineer and in the office trailer onsite.
- c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.
- d. Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.
- e. Clean up all spills immediately after discovery.
- f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the Engineer as soon as the Contractor has knowledge of the discharge. The Engineer will notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at 586-4309, and the Hawaii State Hospital Operator at 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

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<div><div><div>PAMELA K. UYEDA</div><div>LICENSED PROFESSIONAL ENGINEER</div><div>No. 10352-C</div><div>HAWAII, U.S.A.</div></div><div><div>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.</div><div>04/30/22</div><div>SIGNATURE EXPIRATION DATE OF THE LICENSE</div></div></div>	<div>STATE OF HAWAII</div> <div>DEPARTMENT OF TRANSPORTATION</div> <div>HIGHWAYS DIVISION</div> <div>WATER POLLUTION & EROSION CONTROL NOTES</div> <div>HAWAII BELT ROAD, HAKALAU STREAM</div> <div>BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR</div> <div>FAP Proj. No. BR-019-2(075)</div> <div>Scale: None</div> <div>Date: Mar. 2022</div>
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E. PERMIT REQUIREMENTS:

1. The calculated land disturbance area for this project based on the construction plans is 0.8 acres not including Contractor Staging and Storage areas. If the total of the disturbed area and the Contractor Staging and Storage area is one acre or greater, the Contractor shall obtain the NPDES Construction Activities Permit using HDOT's latest SWPPP template. See Hawaii Administrative Rules Chapter 11-55, Appendix C for the definition of land disturbance. The Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit and complying with the requirements of HAR 11-55 including, but not limited to:
- a. Deadlines for initiating and completing initial stabilization
 - b. Increased inspection frequency and installation of rain gage if applicable
 - c. Deadlines to initiate and complete repairs to BMPs
 - d. Reporting requirements and corrective action reports
2. Comply with all applicable State and Federal Permit conditions. Permits may include, but not limited to the following:
- a. NPDES Permit for Construction Activities
 - b. NPDES Permit for Construction Dewatering
 - c. Water Quality Certification
 - d. Stream Channel Alteration Permit
 - e. Section 404 Army Corps of Engineer Permit

F. SITE-SPECIFIC BMP REQUIREMENTS:

Each BMP below is referenced to the corresponding section of the current HDOT Construction Best Management Practices Field Manual and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/> under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swppp/> under Concrete Curing and Irrigation Water.

The requirements for Water Pollution, Dust, and Erosion Control submittals are included in Section 209 of the Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions. A list of pollutant sources and corresponding BMP used to mitigate the pollutants are included in Section 209 of the Special Provisions under Appendix A.

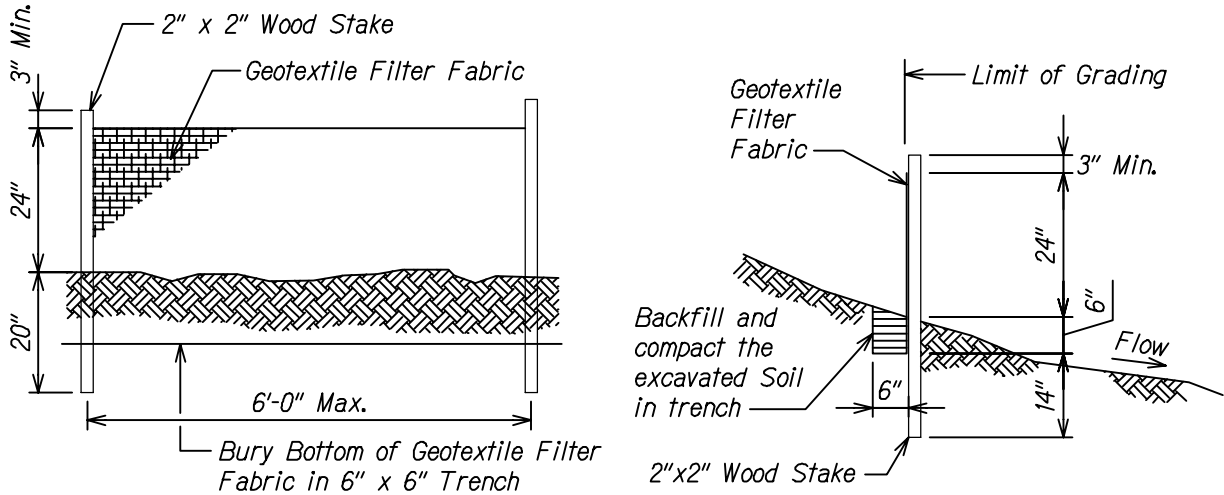
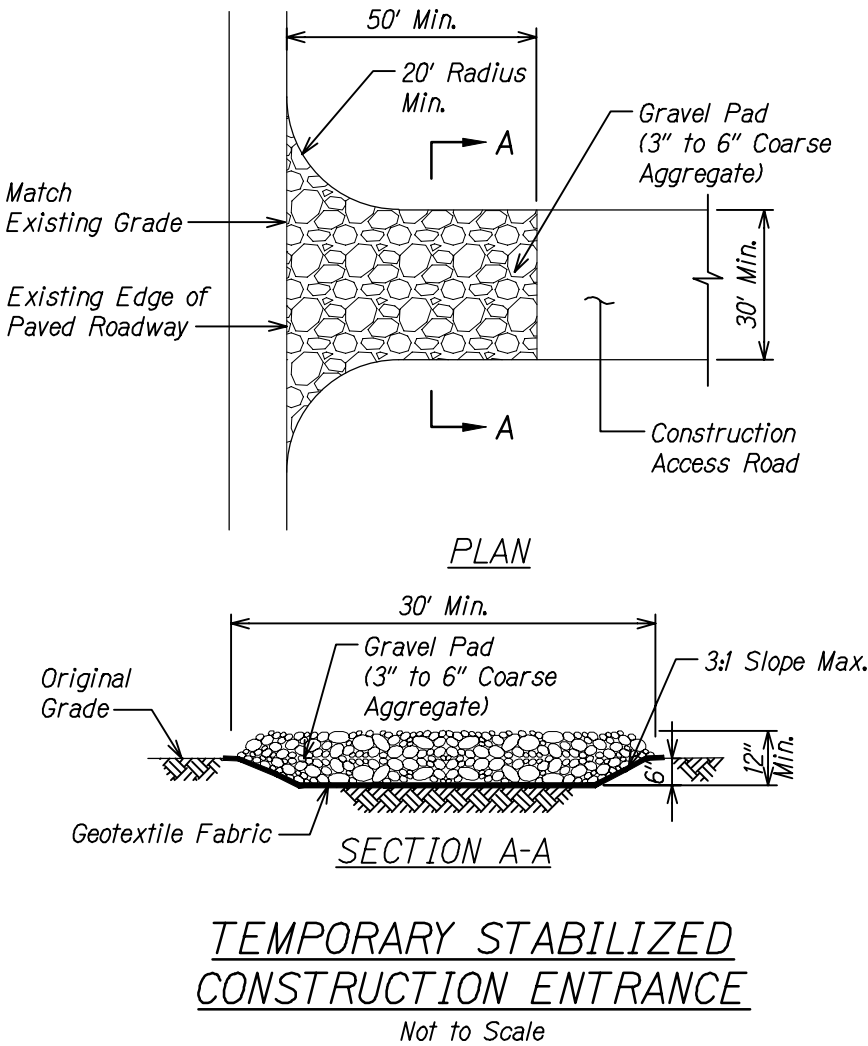
Follow the requirements below:

- Protect all Drainage Inlets receiving runoff from disturbed areas (SC-1).
- Contain on-site runoff using Perimeter Sediment Controls
 - SC-7 Silt Fence or Filter Fabric Fence
 - SC-2 Vegetated Filter Strips and Buffers
 - SC-6 Compost Filter Berm/Sock
 - SC-8 Sandbag Barrier
 - SC-9 Brush or Rock Filter
- Control offsite runoff from entering construction area
 - EC-3 Run-On Diversion
 - EC-6 Earth Dike, Swales, and Ditches
- Incorporate applicable Site Management BMP
 - SM-1 Employee Training
 - SM-2 Material Storage and Handling
 - SM-3 Stockpile Management
 - SM-6 Solid Waste Management
 - SM-7 Sanitary Waste Management
 - SM-9 Hazardous Materials and Waste Management
 - SM-10 Spill Prevention and Control
 - SM-11 Vehicle and Equipment Cleaning
 - SM-12 Vehicle and Equipment Maintenance
 - SM-13 Vehicle and Equipment Refueling
 - SM-14 Scheduling
 - SM-15 Location of Potential Sources of Sediment
 - SM-16 Staging Area
 - SM-17 Preservation of Existing Vegetation
 - SM-19 Dust Control
- Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (SC-11) for all areas which exit onto a paved street. Restrict vehicle access to these points.
- Manage Concrete Waste including installing a Concrete Washout Area (SM-4) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).
- Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

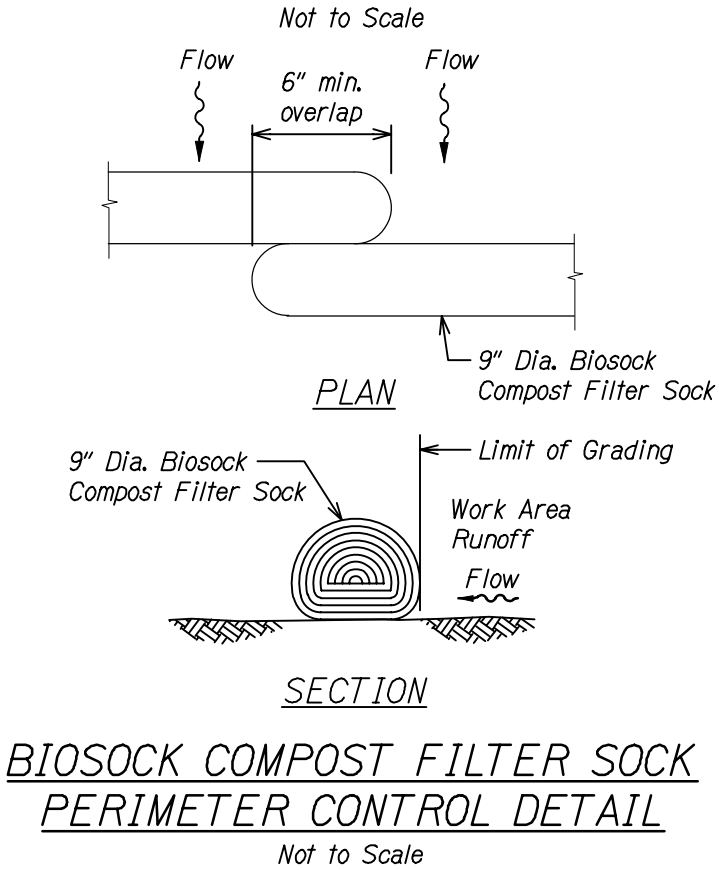
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<div><div><div>PAAMELA K. UYEDA</div><div>LICENSED PROFESSIONAL ENGINEER</div><div>No. 10352-C</div><div>HAWAII, U.S.A.</div></div><div><div>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.</div><div>04/30/22</div><div>SIGNATURE EXPIRATION DATE OF THE LICENSE</div></div></div>	<div>STATE OF HAWAII</div> <div>DEPARTMENT OF TRANSPORTATION</div> <div>HIGHWAYS DIVISION</div> <div>WATER POLLUTION & EROSION CONTROL NOTES</div> <div>HAWAII BELT ROAD, HAKALAU STREAM</div> <div>BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR</div> <div>FAP Proj. No. BR-019-2(075)</div> <div>Scale: None Date: Mar. 2022</div>
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- SILT FENCE NOTES:**
1. The filter fabric shall be a minimum of 36 inches wide.
 2. If silt fence is obtained from manufacturer as a package (i.e. fabric attached to post) the manufacturer's installation instructions shall be adhered to.



- GENERAL NOTES FOR BMP PLAN:**
1. Sediment and Erosion Control BMP details shown are the minimum required. The Contractor shall prepare site-specific BMP plans based on their means and methods, considering site conditions and construction sequence.

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04/30/22

SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL DETAILS

HAWAII BELT ROAD, HAKALAU STREAM
BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(075)

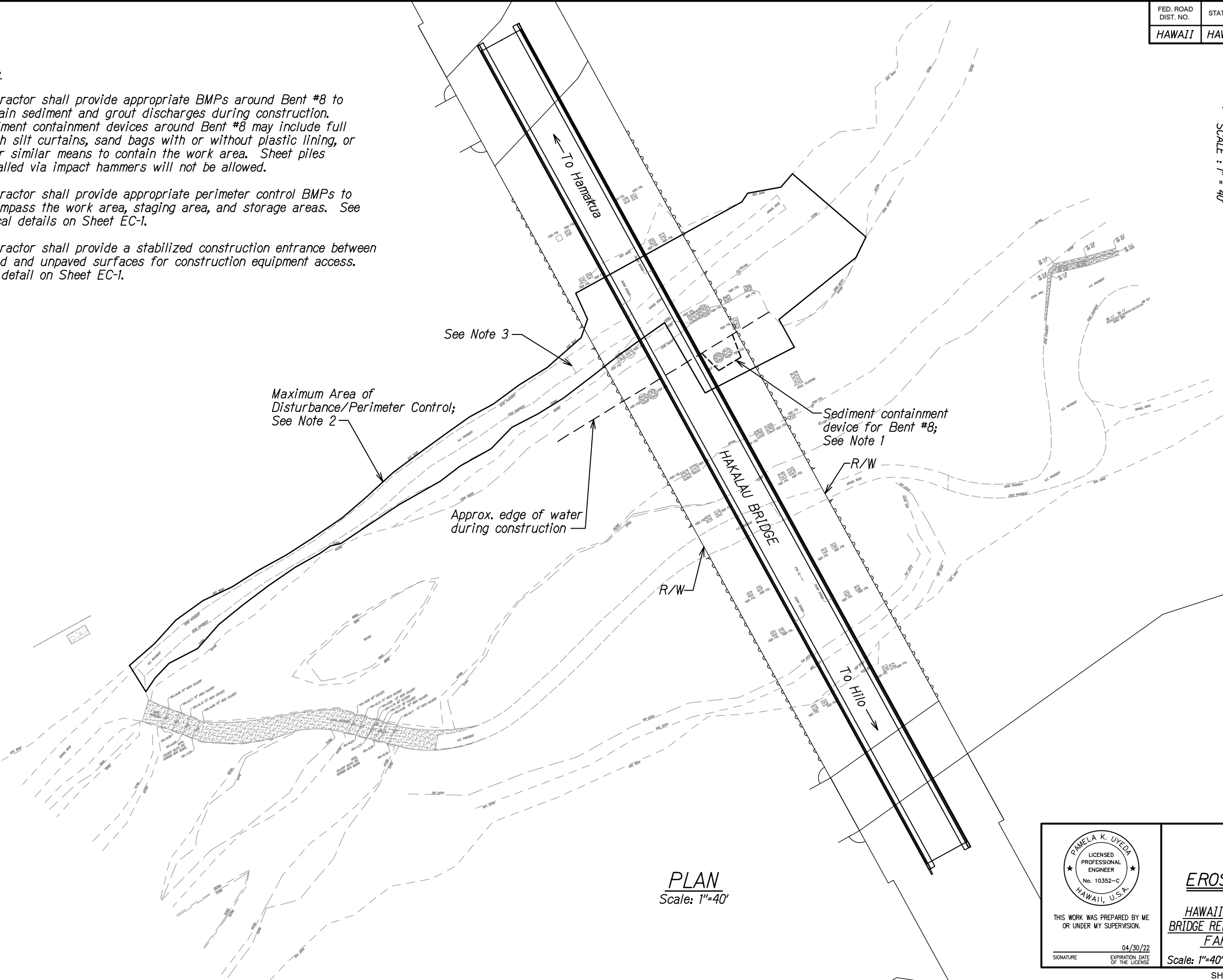
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HAWAII	HAW.	BR-019-2(075)	2022	8	22

NOTES:

1. Contractor shall provide appropriate BMPs around Bent #8 to contain sediment and grout discharges during construction. Sediment containment devices around Bent #8 may include full depth silt curtains, sand bags with or without plastic lining, or other similar means to contain the work area. Sheet piles installed via impact hammers will not be allowed.
2. Contractor shall provide appropriate perimeter control BMPs to encompass the work area, staging area, and storage areas. See typical details on Sheet EC-1.
3. Contractor shall provide a stabilized construction entrance between paved and unpaved surfaces for construction equipment access. See detail on Sheet EC-1.

TRUE NORTH
SCALE: 1" = 40'



PLAN
Scale: 1"=40'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN

HAWAII BELT ROAD, HAKALAU STREAM
BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(075)

Scale: 1"=40' Date: Mar. 2022

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EXPIRATION DATE
OF THE LICENSE

SIGNATURE

PAMELA K. UYEDA
LICENSED
PROFESSIONAL
ENGINEER
No. 10352-C
HAWAII, U.S.A.

Appendix B - Example Soil Acceptance Agreement

SOILS ACCEPTANCE AGREEMENT

This Agreement is made this **xx** day of **xx** by and between **xx** ("Contractor"), and **xx** ("Property Owner").

WHEREAS, **xx** desires to transport and place excess soil ("Materials") from Hakalau Stream Bridge Bent #8 Scour Repair Project Site to **xx**.

NOW THEREFORE, in consideration of **xx** Dollars (\$**xx.xx**), the receipt of which is hereby acknowledged by **xx**, and the mutual covenants, agreements, and conditions contained herein, **xx** and **xx** agree as follows:

1. **xx** warrants and covenants that it owns, is lawfully seized and has title to real property located in the State of Hawaii, and more particularly is identified as (**include address and TMK**), hereinafter referred to as the "Property". The Property is zoned **xx** and used for **xx**.
2. **xx** hereby gives and grants to **xx**, permission to transport and deposit soil from the Hakalau Stream Bridge Bent #8 Scour Repair Project to the Property, provided that the Materials are free of any contamination above HDOH HEER Office Tier 1 EALs.
3. All Materials deposited by **xx** on the Property shall become the property of **xx** upon delivery of the Materials at the Property except that any material that is not accepted will be immediately removed and returned to **xx**. Any rejection or objection to accepting the Material based upon contamination above HDOH HEER Office Tier 1 EALs will be made prior to a load leaving the Hakalau Stream Bridge Bent #8 Scour Repair Project Site. Any other rejection or objection to acceptance due to other material deficiencies with the import fill material will be made immediately such that it can be reloaded before being embanked.
4. This Agreement shall remain in effect for a period of **xx** (**xx**) months from the date hereof.
5. Each party represents that it has the good and lawful right to enter into this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the

date first above written.

CONTRACTOR:

Signature: _____

By: _____

PROPERTY OWNER:

Signature: _____

By: _____