

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 associated 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
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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>