

Cover Sheet to Accompany C-EHMP Template

CONSTRUCTION ENVIRONMENTAL HAZARD MANAGEMENT PLAN (C-EHMP) TEMPLATE

This document is a **TEMPLATE** to help you to create a Construction Environmental Hazard Management Plan (C-EHMP) for your project. The purpose of a C-EHMP is to identify what environmental hazards are posed by contaminants at your project site, and to provide clear procedures for how to safely manage these environmental hazards. The Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response Office (HEER) may require that a project-specific C-EHMP be created for any project involving construction & demolition (C&D) activities (grading, grubbing, etc.) at a site where environmental contaminants are known or suspected to exist.

Preparation and adherence to the project-specific C-EHMP you create will help prevent unforeseen delays in construction schedules during C&D activities at sites with known contamination and helps to avoid costly fines. The intent of this document is to assist expedient progress of the project.

If you are planning work at a project site where environmental contaminant levels exceed HDOH Environmental Action Levels (EALs), you should have a C-EHMP. If you unexpectedly encounter contamination at your project site after breaking ground, you should create and implement a C-EHMP for your project as soon as possible as construction work may be stopped until one has been prepared.

Use this C-EHMP Template to create your own project-specific C-EHMP. Review and complete **ALL SECTIONS**. Table 1 below is a checklist of environmental issues you should identify before beginning work. Methods for managing these issues should be detailed in your C-EHMP.

Portions of this C-EHMP Template document in **RED** font provide instructions for the creation of the project-specific C-EHMP, or provide optional language to be used where appropriate in the project-specific C-EHMP. These **RED** font sections should be modified or deleted, as appropriate, from the resulting project-specific C-EHMP.

In order to prevent project delays, please submit your project-specific C-EHMP to the HEER Office for review and approval at least 90 days prior to the start of construction activities.

Table 1: Pre-Construction Evaluation of Environmental Issues at Your Site

Yes	No	
		Are concentrations of COPCs above the lowest unrestricted Tier 1 EAL ¹ ? ²
		Has the release been reported to the HDOH HEER Office? ²
		Are concentrations of COPCs above the construction worker EAL?
		Has the extent of contamination been fully delineated (both vertically and laterally)?
		Have sufficient soil vapor samples been collected in areas where a future building will be present?
		Is there an ongoing release at the site that must be mitigated prior to construction?
		Does contaminated media need to be removed or remediated prior to construction?
		Are COPC concentrations and contaminated media unknown but presumed or suspected to be present at the site at potentially hazardous levels based on historic site activities or other evidence? ¹
		Will demolition of structures be conducted at the site prior to redevelopment?
		If demolition will occur, has asbestos and lead-paint abatement been completed prior to demolition in accordance with all State and Federal regulations?

EAL= Environmental Action Level

COPC=Chemical of Potential Concern

¹If no contaminants are present or suspected to be present at the site at concentrations greater than the lowest unrestricted Tier 1 EAL then a C-EHMP is not required. The lowest Tier 1 EAL is defined as the EAL for unrestricted land use where groundwater is a potential drinking water resource and the nearest surface water body is less than 150 meters away.

²All releases must be reported to the HEER Office Emergency Preparedness and Response Section (EP&R) by calling (808) 586-4249 and following up with a written Release Notification

Following construction, contact the HEER Office to confirm that all contamination was managed in accordance with the approved C-EHMP. At a minimum, please submit all appropriate manifests, tracking logs, and photos. If contaminated media will be left on-site following the completion of construction, then a Site-Specific Environmental Hazard Evaluation (EHE) must be conducted and a separate Environmental Hazard Management Plan (EHMP) will have to be prepared to manage the contamination in the long-term. If the site already has an EHE-EHMP, then the EHE-EHMP must be updated following redevelopment to incorporate changes to the site. EHEs and EHMPs must be submitted to the HDOH for review and approval following the completion of construction activities detailed in this C-EHMP.

Project-Specific Construction EHMP (C-EHMP)

For

{Project Name}

{Site Name}

Located at

{Site Address}

{Site TMK #}

{Date}

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 ground-breaking 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.

Qualified Environmental Professional

As Construction Manager, 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.

Construction Manager

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Additional Info Regarding Figures and Attachments

Please include Figures using the following labels and nomenclature:

{modifications to this nomenclature are acceptable, however, please be sure all elements are included, i.e., site location, known contaminants, construction plans, hazard maps, and engineering controls}

Figure 1 should be the Site Location map (if multiple maps are submitted to show the site location, please use the nomenclature ***Figure 1a***, ***Figure 1b***, ***Figure 1c***, etc., e.g., ***Figure 1a*** may be a GoogleEarth image or Topo Map with an arrow pointing to the site, ***Figure 1b*** may then be a close-up of the block with the site property outlined and adjoining businesses labeled, ***Figure 1c*** may focus on a portion of the site where utility trenching is planned, etc.)

Figure 2 should depict known or suspected contamination at the site (multiple maps should use the nomenclature ***Figure 2a***, ***Figure 2b***, etc.). Figures may include delineated plumes, areas of soil contamination, they may also indicate where soil DUs were designated, depth of contamination, the locations of wells, etc. and/or may depict the locations of historic structures from Sanborn or other historic maps. Where sample data is known for the site, COPCs at concentrations that exceed the Tier 1 EAL should be listed on the map(s), including concentrations or concentrations ranges. Multiple Figures may be appropriate to avoid the drawings becoming too busy, e.g., ***Figure 2a*** may depict historic structures, ***Figure 2b*** may depict the extent of soil contaminants, ***Figure 2c*** may depict water well locations and concentrations, etc.

Figure 3 should be an easy to interpret Hazard Map (multiple maps should use the nomenclature ***Figure 3a***, ***Figure 3b***, etc.). Hazard Maps are described in Section 13.5.6 of the TGM. Separate Figures for hazards associated with different phases of construction may be appropriate, but as best as possible the number of Hazard Maps

should be limited so that the contractor can easily see where all known and suspected hazards associated with COPCs at the site are located.

Figure 4 should show the proposed construction activity, including proposed demolition, excavation, trenching, etc. (multiple maps should use the nomenclature **Figure 4a**, **Figure 4b**, etc.). Depending on the complexity of the project, numerous drawings may be included. Drawings should identify where construction may encounter COPC-impacted media. A full set of blueprints is not required (or necessarily helpful), the drawing submitted should allow for the reviewer to get a general overview of what the construction project will be, and where COPC-impacted media may be encountered, but does not need to include a lot of specific construction details. – The exception to this is where the construction plans will include the installation of a vapor extraction system and/or vapor barrier (or other Engineering Controls) to address long-term mitigation of known or suspected volatile COPCs. In this case, drawings should be detailed enough to demonstrate that the Engineering Control(s) will be adequate to meet the long-term management requirements for the contaminated media.

Figure 5 should depict short-term engineering controls, re-infiltration pits, and contaminated media storage locations specific to the C-EHMP (again, multiple maps should use the nomenclature **Figure 5a**, **Figure 5b**, etc.). The Figure(s) should also include Exclusion Areas and Decontamination Areas (if these are specific to certain activities, e.g., during excavation of utility trenches an Exclusion Zone is necessary, but not during other activities, then different maps for different stages of construction may be appropriate). Clearly, during the course of construction these locations may move or change, but prior to the start of construction all parties involved should have a general idea of where things such as soil stockpiles, frac tanks, waste drums, and stormwater diversion berms will be placed. This will help ensure that there is room for all the necessary engineering controls and waste management at the site and help avoid delays during construction. If changes occur during construction activities, updated figures should be provided to the HEER Office.

Attachments:

The following attachments should be included with the C-EHMP:

Construction Material Documents – for materials that will be in contact with contaminated media, documentation that the material is safe to use, and will remain functional, in the presence of the identified contamination should be included as an attachment to the C-EHMP (see Section 2.3.1)

Site-Specific Health and Safety Plan (HASP) – A site-specific HASP must be prepared for the project that identifies worker protections from COPC hazards. A copy of the HASP should be submitted along with the C-EHMP to the HEER Office for our records. Although the HEER Office does not review and approve HASPs, we will be checking to ensure that the HASP includes details about site-specific COPCs and worker training requirements, such as HAZWOPER training.

Sampling and Analysis Plan – If details on how soil and groundwater will be sampled during the construction activity are included in a separate SAP, then a copy of that SAP should be attached to the C-EHMP. Alternatively, sampling procedures may be described within the C-EHMP itself.

Erosion and Sediment Control Plan

Soil Acceptance Agreement

Permits – attach any permits specific to the handling and disposal of contaminated media for this construction project, e.g. Dewatering Permits, NPDES Permits, Special Management Area Permits, etc. must be attached to the C-EHMP.

Acronyms

{This is a template for an acronym list. Delete or add acronyms, based on what you use in your C-EHMP.}

BMP	Best management practices
C-EHMP	Construction Environmental Hazard Management Plan
COPC	Chemical of potential concern
cy	Cubic yard
EAL	Environmental Action Level
EHE	Environmental Hazard Evaluation
EHMP	Environmental Hazard Management Plan
HAR	Hawaii Administrative Rules
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
HDOH	Hawaii Department of Health
HEER	Hazard Evaluation and Emergency Response
HIOSH	Hawaii Department of Labor and Industrial Relations, Occupational Safety and Health
HRS	Hawaii Revised Statutes
LEL	Lower explosive limit
LEPC	Local Emergency Planning Committee
MI	Multi-increment
NRC	National Response Center
PEL	Permissible exposure limit
PID	Photoionization detector
PPE	Personal protective equipment
PQL	Practical Quantitation Limit
QEP	Qualified environmental professional
SAP	Sampling and Analysis Plan
SHWB	Solid and Hazardous Waste Branch
TGM	Technical Guidance Document
USCG	United States Coast Guard
VOC	Volatile organic compound

1.0 Introduction

This Project-Specific Construction Environmental Hazard Management Plan (C-EHMP) provides guidance to environmental consultants, owners, operator, tenants, and construction/utility workers, who are proposing construction-related and ground-disturbing activities that change building configuration and property use at sites with known or presumed contamination (renovation/redevelopment). Examples of such activities include, but are not limited to demolition, grading, excavation, trenching, or drilling at sites with identified or potential contamination. These guidelines should be used by all who may be hired to assist any of the activities described above to keep workers, site users, the environment, and the general public safe from contact with contamination on site and prevent 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 onsite contamination.

Additional Details Regarding the Usability of the C-EHMP

These guidelines are specific to the demolition and/or construction phase(s) of the specific project described in Section 6.0 below only and do not address the ongoing operations subsequent to construction. Future projects at the site will require a separate C-EHMP if contaminated media will be impacted. Prepare this plan as soon as possible and include flexibility and options for different scenarios of re-use and disposal. Early preparation of this plan is highly recommended to be able to include it into bid specs and keep costs reasonable. Once 100% of the design is complete, update this plan with the actual construction methodology. This plan should include and address all phases of the construction project, including, but not limited to demolition, utility excavation, geotechnical boring, footing installation, grading, landscaping, soil import and/or export, and slab installation. In general, the C-EHMP is no longer required once ground-disturbing activities are completed, unless above-ground soil vapor management is required.

If contaminated media will be left on-site following the completion of construction, then an Environmental Hazard Evaluation (EHE) must be conducted and a separate Environmental Hazard Management Plan (EHMP) will have to be prepared to manage the contamination in the long-term. If the site already has an EHMP, then the EHMP must be updated following redevelopment to incorporate changes to the site. EHEs and EHMPs must be submitted to the HDOH for review and approval following the completion of construction activities detailed in this C-EHMP.

2.0 Background

The C-EHMP applies to the property shown in **Figure 1**. The property is also identified by the following.

Address	
TMK #	
Latitude/Longitude	

Site Conditions

Distance to Nearest Surface Water Body	
Approximate Depth to Groundwater	
Is the Property Above or Below UIC Line	
Is the first-encountered groundwater classified as a potential source of drinking water in the Mink & Lau Aquifer Identification and Classification Report?	
Current Property Use Type (Residential, Commercial, Zoning, etc.)	
Proposed/Future Property Use Type (Residential, Commercial, Mixed Use Zoning, etc.)	
Typical Soil Profile from Surface to Groundwater (Include Depth Range, Lithology)	
Utilities Serving Site (e.g., Storm Drains, Electrical, Gas, Water, Sewer [specify-C&C, Cesspool, Septic, Other])	

C&C= City and County *{substitute County name for Neighbor Islands}*

2.1. Existing Environmental Conditions

Brief Summary of the site background and history of contaminant releases and/or environmental investigations. The level of detail provided should reflect the project complexity and context. Please contact the HEER Office if you have any questions regarding the necessary detail.

2.2. Chemicals of Potential Concern

The following chemicals of potential concern (COPCs) have been detected above the most restrictive unrestricted EAL and may pose a hazard.

Why Is This Information Important?

Please note that irrespective of the location and use of the site, all COPCs should be compared to the most conservative Tier 1 HDOH EALs (unrestricted use where

groundwater is a potential drinking water resource and the nearest surface body is less than 150 meters). The purpose for this is to identify whether the soil or groundwater may pose a hazard if it is transported off site. Soil exceeding this EAL and leaving the site is considered a waste and must be handled according to HDOH Solid and Hazardous Waste Rules and Regulations (Hawaii Revised Statutes (HRS 342H), Hawaii Administrative Rules [HAR] 11-58). Mishandling of waste may lead to fines. For methane and other gases where EALs do not exist, use the individual gases' lower explosive limits (LEL) and Occupational Safety and Health Administration (OSHA) permissible exposure levels (PEL) for short-term (acute) and chronic exposure limits to assess the potential hazard to construction workers and other site users. Use **BOLD** font to highlight levels that exceed the construction worker EALs, PELs and/or LELs).

Media: Soil

COPC	Concentration Range	EAL*

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

Media: Groundwater

COPC	Concentration Range	EAL*

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

Media: Soil Vapor

COPC	Concentration Range	EAL*/LEL/PEL

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

LEL= Lower Explosive Limits

PEL= Permissible Exposure Level

COPC=Chemical of Potential Concern

Areas with concentrations exceeding the EALs and areas where vapor concentrations may exceed the PELs and LELs are depicted on **Figure 2** and **Figure 3**.

2.2.1 Chemicals of Potential Concern and Construction Materials

Question	Yes	No
Are storm drains (including interceptors) or will storm drains be present at the site?		
Will any portion of a storm drain (including interceptors) be present at an elevation that is potentially in contaminated groundwater?		

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

Why Is This Information Important?

If COPCs are present in the soil, groundwater or soil vapor at concentrations above the HDOH EAL for unrestricted land use where groundwater is a potential drinking water resource and the nearest surface water body is less than 150 meters and you answered “yes” to any question, then the construction materials that will be used need to be assessed to determine whether they are compatible with the COPCs at the site-specific concentrations.

Below are a few examples:

- If a planned gasket material to be used for a storm drain will sit partially in petroleum-contaminated groundwater, then you must ensure that the planned material is resistant to degradation by petroleum.*
- If a pipe will extend through a plume of chlorinated solvent-contaminated groundwater, then you must determine whether the planned piping material and sealant is resistant to chlorinated solvents.*
- If soil vapors are present at concentrations that exceed 10% of the LEL, then you must ensure that the materials used for certain utilities are intrinsically safe if there is the presence of flammable or explosive vapors in the subsurface.*

Identifying the need for special materials in areas where contamination is present prior to development is essential to preventing project slowdowns that may occur during construction. Soil vapor contamination, including COPCs which do not have EALs but where the LEL or PEL may be exceeded, can present unique problems during and after construction. Identifying these potential problems ahead of time, and planning for how to address them, can help keep your construction project on schedule.

Please conduct an evaluation of whether the construction materials planned for use are compatible with the COPCs present at the site. The evaluation should state how it was determined that the materials are appropriate for use under the site conditions, and for

those materials that are determined not to be appropriate for use, an alternative material should be proposed for substitution.

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
(ex. Sewer pipe)	(ex. TCE, 50 ppm in groundwater)	(ex. 8" PVC piping)		

* Documentation that material is safe to use, and will remain functional, in the presence of the identified contamination should be included as an attachment to the C-EHMP.

COPC=Chemical of Potential Concern

Why Is This Information Important?

Regarding construction materials and design plans where soil vapor COPC concentrations exceed 10% of the LEL or where the vapor intrusion EAL is exceeded, designs may need to be revised to include a vapor extraction system, vapor barriers, vapor monitoring, or other engineering controls to protect future users. Materials used must also be assessed for their reactivity to identified potentially flammable/explosive soil vapor COPCs.

If a vapor barrier or soil vapor extraction system is required as part of the remedy, include specs of the extraction system and/or vapor barrier to show that the system will be adequate for conditions at the site and that the vapor barrier material is compatible with the contamination present at the site and describe how the extraction equipment and vapor barrier will be tested for effectiveness onsite (e.g. smoke test). These details will also need to be included in the EHE/EHMP prepared or updated for the site following construction to manage contamination left on site in the long term. Additional long-term air monitoring of the extraction system may also be required. If separate submittals of long-term vapor management Engineering Controls have been submitted, then they need only be briefly referenced here.

The following soil vapor concerns should be assessed during construction planning and in preparation of the C-EHMP Engineering and Administrative Controls:

Preferential Pathways

The potential for preferential pathways that can conduct contamination (generally in the form of groundwater or soil vapor) such as utility corridors and gravel backfill should be evaluated to assess whether there is a need to line those areas with compatible material to prevent migration of contamination.

Vapor Intrusion/Indoor Air Contamination

Where soil vapor COPC concentrations exceed HDOH Tier 1 EALs, design plans may need to include Engineering or Administrative Controls to mitigate potential soil vapor intrusion that could create an indoor air contamination concern. Examples of Administrative Controls include, but are not limited to, limiting the use of ground floor spaces, requiring use of HVAC systems to create positive pressure in interior spaces, and/or conducting annual cap maintenance inspections of the ground floor slab condition. Engineering controls could include, but are not limited to, soil vapor monitoring, active or passive soil vapor extraction systems, and/or installation of a soil vapor barrier. A description of engineering controls that will be incorporated into this construction for long-term management of soil vapor must be included in this section and depicted on **Figure 4**. Documentation of the materials and equipment to be used must be included as an attachment or submitted separately for review and approval by the HEER Office.

3.0 Summary of Potential Environmental Hazards

Description of potential hazards posed by the COPCs to identified receptors (include at a minimum - construction workers, the general public, any current onsite workers).

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
(ex. TPH-g)	X	X		X	X	X			X				X

COPC=Chemical of Potential Concern

A detailed description of the effects of exposure to known COPCs at the site is included in the Site-Specific HASP for the project. Details include how to recognize potential exposure to COPCs, how to avoid exposure to COPCs, and required training and Personal Protective Equipment (PPE) to use when working around the COPCs. *Below is a simplified chart that should be completed and included in the C-EHMP for easy reference.*

Chronic and Acute Direct Exposure Hazards

COPC	Direct Exposure Hazard				Acute Exposure	Chronic Exposure
	Ingestion	Inhalation	Absorption	Injection		
(ex. Lead)	X	X			<p><i>pain, muscle weakness, numbness and tingling, and, rarely, symptoms associated with inflammation of the brain. Abdominal pain, nausea, vomiting, diarrhea, and constipation</i></p>	<ul style="list-style-type: none"> • <i>Abdominal pain</i> • <i>Constipated</i> • <i>Depressed</i> • <i>Distracted</i> • <i>Forgetful</i> • <i>Irritable</i> • <i>Nauseous/Sick</i> <p><i>People with prolonged exposure to lead may also be at risk for high blood pressure, heart disease, kidney disease, and reduced fertility.</i></p>

COPC=Chemical of Potential Concern

***Add references here: References may include but are not limited to the NIOSH Pocket Guide, EHE Guidance, EPA Ecotox Database*

Hazard Maps

Hazard Maps (Figure 3) should be included for areas that pose a risk to construction workers, the general public, and areas where COPCs were detected at concentrations above the most conservative HDOH EALs. The hazard maps should be simple and easy for construction workers to follow. For details regarding hazard maps, please see Section 13.5.6 of the HEER Office Technical Guidance Manual. If you are unsure of the necessary amount of detail to provide, please contact the HEER Office for guidance.

A detailed Hazard Map (or Maps) is included as **Figure 3** (for multiple figures, use the nomenclature "Figure 3a, 3b, etc. for all Hazard Maps) in the Figures Section of this C-EHMP. Hazard Maps delineate the location of known or presumed contamination at the site and what type of hazard the contamination represents. Not all contamination is a Direct Exposure Hazard to Construction Workers and other Site Users, however, all 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 uncontaminated 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 need to identify the responsibilities of key personnel involved in project construction.

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 in writing whenever a change in key project personnel occurs.

Role	Company	Name	Phone #	e-mail
Construction Project Manager				
Construction Foreman				
Onsite Qualified Environmental Professional				
Qualified Environmental Professional (Project Manager)				
Owner				
Operator				
Developer				
NPDES Permit contact				
DPP Building Permit contact				
HDOH HEER Office Project Manager				
Landfill Disposal Contact				

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

In addition, if site conditions or planned building configurations change following submittal and acceptance of this C-EHMP 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 HDOH 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 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 Onsite 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, 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 onsite QEP will have at least 5 years of experience providing environmental oversight for construction projects and must have completed HAZWOPER 40-hour training with 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 onsite. In general, the QEP will be familiar with the day-to-day conduct of project activities and be on-site during activities

with the potential to impact human health or the environment, when contaminated media will be disturbed, when mitigation measures are implemented, or as determined in discussion with the regulatory agencies. Monitoring should be conducted with greater frequency during periods of inclement weather (e.g., heavy precipitation, strong winds) and during critical components/tasks of the project, such as working in contaminated groundwater. The QEP will be onsite whenever potentially contaminated soil or groundwater may be disturbed and when hazardous vapors may be present. If demolition activities include abatement of lead-based paint or asbestos, abatement activities must be completed in accordance with all State and Federal laws and regulation prior to demolition. This is necessary to ensure the protection of construction workers, the general public, and the environment. Key monitoring stages may include, but are not necessarily limited to:

Delete the stages that don't apply and add additional project-specific monitoring stages, as necessary.

- *During activities conducted below the high-water mark of a waterbody*
- *During pre-construction geotechnical and/or environmental sampling*
- *During soil exposing (e.g., concrete/asphalt removal) and soil movement activities (e.g., demolition, grading, excavation, pile or caisson installation, utility corridor installation, soil stockpiling, soil disposal etc.)*
- *During dewatering activities*
- *Prior to and after heavy rain/storm events*
- *During engineering control installation and testing*
- *During installation of erosion and sediment control measures*

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 (onsite and to an offsite location) is properly documented.

Typical responsibilities of the QEP include those identified below; *however, specific items are expected to be refined and/or expanded as per the needs of the project.*

- Direct the segregation of contaminated soil.
- Communicate the requirements of the C-EHMP to project members during pre-job and tailgate meetings.
- Remain onsite as per the schedule established between parties prior to project start. The QEP will remain on-call during non-critical work periods to respond to emerging environmental issues.
- Review the contractor's work procedures to ensure functionality and compliance with the C-EHMP and applicable regulations, standards and best management practices (BMP).
- Provide advice in preparing for work activities in a manner that mitigates adverse environmental or health effects.
- 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 make recommendations for corrective action.
- Monitor compliance with the C-EHMP 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. This should include any measurements taken (e.g. pH, turbidity, temperature, conductivity, photoionization detector [PID] screening, air monitoring, equipment calibration, manifests, truck receipts, truck counting spreadsheets etc.), photographs and incident reports.
- Complete and submit environmental monitoring reports to the HDOH HEER 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 photographs, analyses, and measurements, if applicable.
- Report unanticipated encounters with contamination at the site in accordance with HRS 128D. Reportable releases include contamination not already identified at the site, as well as tanks, drums, and/or abandoned pipelines that are not identified in advance and are encountered during excavation.

Complete the Table below. Insert additional activities specific to the site as necessary. List types of monitoring equipment that will be used by the QEP (e.g., PID meter, air samplers, truck tickets/manifests, water sampling jars, etc.) Please provide additional details as necessary in the space below the table. If a QEP will not be present for one of the activities listed, you must provide a justification in the additional details section.

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	
Environmental Sampling					
Geotechnical Sampling					
Silt Fence Installation					
Demolition					
Grading					
Excavation					
Pile Installation					
UST Removal					
Dewatering					
Utility Trenching					
Soil Stockpiling					
Soil Export/Import					
Vapor Barrier Installation					
Vapor Extraction					

Activity	Planned at Site?		QEP Will Be Present?		Monitoring Equipment to be Used by QEP
	Yes	No	Yes	No	
Confined Space Work					
Work Below High-Water Mark					
Engineering Control Installation and Testing					
Pipeline Tapping					
Installation of Erosion/Sediment Controls					
Prior to/During Rainstorm Events					
Other:					
Other:					
Other:					

Additional details regarding QEP monitoring schedule:

6.0 Construction Activities

*Please provide site-specific information about what type of construction activities will be conducted in detail and provide construction plans or drawings on where these activities take place (e.g., if piles are to be installed, describe how the piles will be installed and how soil and groundwater/slurry mixture from the locations of the piles will be extracted, sampled, and handled to avoid contaminating surrounding areas; provide maps of where single piles are to be placed; do the same for other types of excavations as listed below). Construction drawings should be labeled as **Figure 4** (for multiple figures, use the nomenclature “Figure 4a, 4b, etc. for all Construction Activity Plans).*

Describe if storm drains or other potential preferential pathways will be re-routed, checked for integrity, and/or sealed. Indicate if elevator shafts or other potential vapor pathways (e.g. sewer lines) are planned and include a map with the planned location.

*If engineering controls such as vapor barriers or an active/passive vapor extraction system needs to be installed include a general sketch of these controls in **Figure 4** and separately submit a detailed Remedial Design Plan, if required. If potential explosive vapors may be present, include what intrinsically safe equipment will be used to avoid potential explosions during construction activities that may create sparks.*

*Indicate if dewatering is anticipated and if onsite infiltration or frac tanks will be used and show in a map where these will be located. Indicate what basic BMPs will be installed and maintained at the site and include a drawing of the BMPs. Examples of BMPs for small construction projects are included in **Appendix A**. Larger projects may require additional BMPs.*

*Frac tanks, storage drums, soil stockpiles, silt fencing, and other temporary engineering controls and BMPs (e.g., exclusion zones, decontamination areas, stockpile containment areas, etc.) should be diagramed on **Figure 5** (for multiple figures, use the nomenclature “Figure 5a, 5b, etc. for all Engineering Controls and BMPs). These features may also be indicated on **Figure 4** where appropriate. If, during construction, the locations of engineering controls are changed or moved, revised diagrams should be submitted to the HDOH as soon as possible.*

If you have already prepared an Erosion and Sediment Control Plan, attach it to this C-EHMP.

Planned Types of Excavations:

Excavation Type	Maximum Depth
<i>Piles</i>	<i>(65 ft) Example</i>
<i>Caissons</i>	
<i>Potholing for Utility Locating</i>	
<i>Elevator Shafts</i>	
<i>Spread footing</i>	
<i>Utility Corridors</i>	
<i>Storm Drain</i>	
<i>Mass Excavation</i>	
<i>Grading</i>	
<i>Etc.</i>	

7.0 Soil Management Plan

The purpose of this section is to ensure that contaminated soil is properly handled and managed. If the full extent of contaminated soil is unknown (e.g., if the contamination is not delineated), then all soil at the site must be treated as potentially contaminated. The management of potentially contaminated soil will be overseen by an onsite QEP.

7.1. Soil Management

Soil disturbed at the Site will be continuously monitored and documented by a QEP with at least five years’ experience in environmental oversight associated with construction projects. Where known or suspect contaminated soil is encountered during excavation, the appropriate response actions must be taken that conform with HDOH and EPA guidance, laws, and regulations. This includes proactive planning to ensure that workers have the appropriate level of PPE and that contaminated soil is managed properly 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 suspect contaminated soil is segregated from clean soil,
 - that known or suspected contaminated soil is properly stored and covered with plastic sheeting,
 - that the contaminated soil is managed properly during and following excavation,
 - and that health and safety guidance related to potential exposure of workers to COPCs is provided.
- Workers who may come into contact with contaminated soil must wear the appropriate level of PPE.
 - Workers who may come into contact with contaminated soil must have required training (at a minimum, 40-hour HAZWOPER certification and current 8-hour annual refresher training).
 - Soil trucked offsite should be drained of fluids and the load must be covered with a dust screen during transport.
 - If newly encountered soil contamination is discovered at a previously unknown source or location, the HDOH HEER Office must be immediately notified of its discovery by reporting it as a new release.

*Include cut/fill maps and maps that identify areas proposed for soil disturbance with **Figure 4**. These maps should be easy to read by construction workers.*

Where trenches or excavation pits may constitute confined spaces, particularly where soil or groundwater COPCs include volatile chemicals, confined space entry permits may be required. Details about where and when confined space entry restrictions and permits are required should be briefly described here (with reference to the HASP) and further discussed in the Site-Specific HASP for this project.

7.1.1 Field Identification of Contaminated Soil

Some COPCs, including, but not limited to metals, dioxins, pesticides, and polychlorinated biphenyls, cannot be identified in the field through visual and olfactory observations. In some cases, previous sampling or historical research into previous industrial operations may have identified areas where these COPCs are likely present at concentrations above the most restrictive HDOH EALs that are targeted for excavation. If your site contains COPCs that are not identifiable via qualitative field observations, the contaminated soil must be managed in a manner protective of site workers, the public, and the environment. Prior delineation is critical to ensure safe management practices. Areas of known or suspected contaminated soil are depicted in **Figure 2** (*edit Figure number as appropriate*). Soils in these areas must be segregated and stockpiled separately from clean soil. *If soil contamination has not been delineated, then all soil at the site must be presumed to be contaminated with site-specific COPCs and identified as “suspect” or “presumed” contaminated in Figures and in this section.*

Other types of contaminated soil *may* be identified in the field through visual and olfactory observations. Petroleum contaminated soil typically exhibits petroleum staining and/or a petroleum hydrocarbon odor. Free product may or may not be observed. Solvent-contaminated soil typically exhibits a solvent or sweet-smelling odor, and in some instances free phase product may be present. Petroleum contaminated soil may be also detected indirectly via a rotten egg odor stemming from anaerobic degradation of the product that produces hydrogen sulfide in oxygen starved zones. Suspect contaminated soil should be segregated from clean material. Soil with a strong petroleum or solvent odor and/or free phase product should be segregated separately from the moderately impacted soil, as soil that is considered grossly contaminated must be removed, may not be replaced in the excavation and must be properly disposed of. During excavation of known or suspected contaminated soil, the QEP must perform the following activities:

- Monitor the location of excavation activities to ensure that soil depicted on hazard maps is properly managed as contaminated, even when there is no field evidence of contamination.
- Visually screen soils for staining, debris, soil waste, discoloration, or other evidence of contamination as the soils are removed from the excavation.
- Check for petroleum or other unusual chemical odors emanating from the soil.
- Collect soil screening samples in sealable inert bags and test the headspace within each bag for volatile organic compounds (VOCs) using a PID and following the Maine Department of Environmental Protection PID Bag Headspace Test procedure described in detail in Section 8.4.2 of the Technical Guidance Manual (TGM). Prior to testing, PID meters must be calibrated in accordance with device manufacturer instructions.
- Use the field observations, VOC measurements, and any other field screening tests, such as the glove and paper towel tests, to segregate the soil properly.

Please provide site-specific information and response actions. The guidelines listed above may be basic and are not intended to be comprehensive of all site conditions. Indicate the purpose of the screening (e.g., delineation, soil segregation) and how the screening will take place in detail (e.g., take the sample from the excavation site wall or cuttings, collect sample from the excavator bucket, collect sample from stockpile right after deposition). Include the frequency of screening (e.g., every 5 minutes, every 5 cy etc.). In general, if the site has previously not been completely assessed due to surface obstructions such as buildings etc., additional delineation and removal of the main mass of contamination, followed by confirmation sample collection may be required (“opportunistic remediation”). The process on how this will be achieved should be discussed in detail for screening and confirmation sample collection.

7.1.2 Dust and Erosion Control

Dust and erosion controls at the Site will be continuously monitored and documented by a QEP with at least five years' experience in environmental oversight associated with construction projects. Prior to excavation activities, the Contractor and the QEP must evaluate and establish erosion control and dust control measures. The erosion control and dust control measures must prevent impacted soils from migrating away from the excavation area. Typically, Best Management Practices (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 Hawaii Administrative Rules (HAR) 11-59 and should comply with air pollution control requirements specified in HAR 11-60.1. During excavation and handling of impacted soil, the following dust control measures must be implemented to minimize dust generation:

- Dust/silt fences: BMPs associated with erosion control measures shall include the installation of silt fencing in the vicinity of the excavation and along the site perimeter. Dust barriers must be used where extensive excavation is anticipated. The locations of dust fences that will be constructed for this site are depicted on **Figure 5**.
- Equipment decontamination: BMPs to control the transport of contaminated soil from the site and within the site shall be used to limit the tracking of soil away from the excavation area. Decontamination areas should be set up adjacent to excavation areas where contaminated media will be disturbed, adjacent to stockpile areas, and where vehicles and equipment leaves the site. Decontamination protocols are described in Section 14.0. The locations of decontamination areas are depicted on **Figure 5**.
- Wetting/misting: BMPs associated with dust control measures shall include the use of water to be sprayed on the soil during excavation activities. During excavation, water shall be sprayed on the surface of the soil to prevent dust from being generated. However, the amount of water used for dust control shall be minimized as to not create run-off away from the excavation.
- *{Add additional dust/erosion controls or modify the above as appropriate}*

7.1.3 Excavation and Stockpiling

Suspect contaminated soil must be stockpiled and segregated from clean soil. The following tasks must be performed with respect to managing contaminated soil.

- Contaminated soil will be segregated from uncontaminated soil.
- Water contained within excavated soils will be allowed to drain back into the excavation prior to stockpiling the soil.
- Stockpile contaminated soil in a 20-mil plastic-lined, bermed area. The stockpiles must be covered with plastic sheeting at the end of each day and during any

major wind or rain events. The plastic sheeting must be secured with enough ballast so that it will not be dislodged by strong winds.

- Underlay the edges of the plastic sheeting with clean soil or other material to create a berm around the stockpile.
- Ensure that the height of the berm will be sufficient to prevent storm water runoff or run-on from breaching it. The contaminated soil must be placed inside the bermed area on top of the plastic sheeting.
- Soil stockpiles shall be located away from storm drain inlets, surface waters, and storm water drainage pathways/channels.
- Stockpile soil that has a strong petroleum or solvent odor and/or free phase product separately from both clean and moderately impacted soil. This soil may not be reused and must be properly disposed of.
- Soil stockpiles must remain on-site and cannot be transported or stored off-site without prior authorization or characterization. *(Off-site storage of soil will likely require a Temporary Storage and Disposal Facility permit and may require other permits as well).*
- *Confirmation sampling of the underlying soil may be required following stockpile removal to ensure that COPCs did not leach into the ground. The QEP should prepare a plan for confirmation sampling post-stockpiling.*

*Please provide site-specific information and response actions. The proposed locations of soil stockpiles must be included in **Figure 5**. If the location of stockpile(s) changes or stockpiles are moved, then updated Figures must be provided to HDOH as soon as possible. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions.*

7.2. Soil Reuse and Disposal

If soil (contaminated or otherwise) will not be removed from the site for off-site reuse or disposal, then state so here and delete the remainder of Section 7.2, 7.2.1, and 7.2.2. If soil will be imported to the site, but no soil will leave the site, include Section 7.2.3 (otherwise, 7.2.3 may also be deleted). If construction plans change, such that soil will be imported or exported from the site, then this C-EHMP must be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to importing or exporting soil from the site, or as soon as the change has been identified.

Prior to reuse of soil off-site or disposal at a licensed disposal facility, all soil will be sampled to ensure that it is appropriately characterized so the final disposition of the soil may be determined. Below are the planned location(s) for soil reuse or disposal. If other locations are later planned following approval of this plan, then the HEER Office must be notified and provide approval prior to any material being transported.

Why Is This Information Important?

Please note the frequency that soil samples must be collected depends on the reuse or disposal location and the COPCs associated with the site.

Soil stockpile sampling should be conducted using multi-increment (MI) sampling in accordance with the HEER Technical Guidance Manual

(<http://www.hawaiidoh.org/tgm.aspx>) and the Fill Material and Stockpile Guidance (<https://health.hawaii.gov/heer/files/2019/12/Clean-Fill-Guidance-HDOH-Oct-2017-1.pdf>). See also the HDOH Solid and Hazardous Waste Branch (SHWB) policy and Q&A regarding MI sampling and use of the HEER Office TGM (https://health.hawaii.gov/shwb/files/2019/01/20190131_SHWB-TGM-Memo-Draft-complete.pdf).

Use this section to describe exactly how soil samples will be collected, handled, and analyzed. If a separate Sampling and Analysis Plan has already been prepared, then it may be referenced here and included as an attachment.

Chemicals to Analyze	Analytical Method	Sampling Frequency (CY per Sample)

Note to qualified environmental professional:

Prior to analyzing samples at the laboratory, check that the laboratory limits are below the most restrictive unrestricted EAL (unrestricted use, <150m from surface water, located above drinking water) for each COPC. Include a table if laboratory limits are not sensitive enough to meet unrestricted EALs.

All soil samples should be collected in accordance with the HEER Office TGM. This requires the collection of multi-increment soil samples to properly characterize the soil.

In order to streamline potential work and prevent delays that may occur if the plans for final disposition of the generated soil change, use this section to plan flexibility into disposal and reuse of soil, e.g., if onsite reuse in commercial/industrial setting is planned, prepare a sampling contingency plan for sampling for unrestricted use with different stockpile size and sampling frequency, so that should the site switch to an export site, another sampling strategy for offsite reuse can be implemented without any delay in onsite activities. If this is not done in advance, the change in plans will require a C-EHMP addendum and another review by HDOH. Therefore, if you are not including contingency soil management options in this plan, include the text, "The current construction plans do not anticipate contingencies for alternate soil reuse; therefore, if plans, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to moving soil off-site."

Off-site Disposal/Re-Use Table

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

This information will be communicated to the soil hauler and it will be ensured that the hauler only dispose of soil at locations approved in this plan. The QEP will monitor and review hauling 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 Suspect Contaminated Soil

In general, contaminated soil may be re-used on-site. Contaminated or suspect-contaminated soil will be replaced in the same area and at a similar depth as where the soil was originally excavated. Exceptions may apply based on site-specific hazard situations. HDOH HEER Office guidance should be reviewed to ensure proposed re-use is in line with current guidance. The QEP will ensure that contaminated soil is not spread to uncontaminated areas of the site without prior approval from HDOH. *If the extent of contamination is known, attach a detailed location map (include with Figure 2) showing where contaminated soil is anticipated to be re-used. State if the soil will be covered or placed under a building/asphalt/concrete etc.*

7.2.1 Soil Sampling for Re-Use

*Soil excavated from the Site may be reused off-site. If soil is to be reused offsite, concentrations of COCs must be below the most conservative unrestricted EAL (unrestricted use, <150m from surface water, located above drinking water) **and** soil stockpiles must be sampled using multi-increment (MI) sampling methodology). If unrestricted **use is desired, sampling frequency must be completed** according to the HEER Office’s Guidance for Stockpile Characterization and Evaluation of Imported and Exported Fill Material (HDOH 2017) for **unrestricted use**. If soil concentrations are below the most conservative unrestricted EAL, but the sampling frequency of stockpiles was based on commercial/industrial reuse, the soil can only be reused at commercial/industrial sites.*

Soil excavated may be reused off-site at an appropriate site. If soil is to be reused offsite, the HEER Office needs to be contacted and soil reuse discussed. If the HEER Office agrees on the reuse, a soil agreement signed by the generating and receiving party must be submitted to the HEER Office prior to any reuse. *An example is included in Appendix B.*

Total Volume of Soil Proposed for Export (cy):	
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Stockpile sampling accordingly requires the following parameters: *{These parameters will be based on the types of chemicals at your sites and how you hope to use the stockpiled soil. Reference the Guidance for Stockpile Characterization and Evaluation of Imported and Exported Fill Material (HDOH 2017) to determine the appropriate sampling frequencies and volumes.}*

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

7.2.2 Stockpile Sampling for Disposal at a Disposal Facility

If soil will be disposed of at an appropriate permitted waste disposal facility the MI sampling requirements are as follows:

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

The soil will be disposed of at the following permitted site:

- *Name of Disposal Facility*

If in-situ soil sampling is planned to pre-characterize the soil prior to excavation, then please provide the following information in a separate Sampling and Analysis Plan submitted to and approved by HDOH prior to conducting the sampling.:

- *Number of decision units*
- *Size of decision units*
- *Map illustrating decision units*
- *Number of increments for each decision unit*
- *Number of bore holes for each decision unit or test pits, or other*
- *Estimated volume of soil that represented by each decision unit & MI sample.*
- *Free product or odor present?*

7.2.3 Record Keeping

A log of all soil that leaves the Site and its final disposition will be maintained by the QEP (Example in **Appendix C**). 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 construction. The report will be submitted to the HEER Office at the conclusion of the project. In addition, whenever soil is exported from the site, summary reports of the disposal records, including copies of documents, will be submitted to the HEER Office on a weekly or monthly basis, unless waived in writing by the HEER Office project manager. For all soil disposed of at a disposal facility a manifest with all required signatures will be submitted.

If soil will be imported to the site, then the QEP must collect and maintain similar records and provide them to the HEER Office for review and approval. Documentation that the import material is clean must be provided by the soil generator and a soil agreement must be signed between the generator and the site owner. If contaminated soil will be brought onto the site and used for fill, then the QEP must document where the contaminated soil will be used, the volume of soil, and COPC concentrations. This information must be incorporated into an EHE/EHMP for the site following the completion of the project and the contaminated soil must be managed for as long as it remains present at the site.

8.0 Groundwater Management Plan

Estimated Depth to Groundwater at Site:			
Proposed Maximum Excavation Depth:			
Estimated Direction of Groundwater Flow:			
Will Contaminated Groundwater be Encountered During this Project?	Yes	No	Unknown
Will Groundwater from this Site be Dewatered into the Sanitary Sewer System?			
Will Groundwater from this Site be Dewatered into the Storm Sewer System?			
Does the Contractor have a Dewatering Permit Issued by the County and/or HDOH Clean Water Branch?			
Is Free Product Known or Suspected to be Present at the Site?			

- If groundwater will not be encountered during this project, please state the following and delete the rest of this section:*

“The current construction plans do not anticipate encountering groundwater at this site; therefore, a groundwater management plan is not needed for this C-EHMP. If plans change or new information indicates that groundwater will be impacted, then this

C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.

- If groundwater at the site is not contaminated, but will be encountered during this project, please state the following and delete the rest of this section:*

*“Proposed construction plans at the site will require dewatering at the following location(s): _____ . These locations are depicted on **Figure 4**. Current construction plans do not anticipate encountering contaminated groundwater at this site. No contamination has been identified or suspected in groundwater at the property. Dewatering by re-infiltration at the site may be conducted, provided re-infiltration pits are located away from areas of known or suspected soil contamination (as depicted on **Figure 2** and **Figure 3**).*

Dewatering into a sanitary sewer or storm sewer still requires a permit from the County (sanitary sewer) and/or HDOH Clean Water Branch (storm sewer). A copy of the Dewatering Permit and effluent sampling requirements is included as an attachment to this C-EHMP. The QEP must ensure compliance with all requirements of this permit.”
{If there is no Dewatering Permit, simply state that current construction plans do not include dewatering into the sanitary or storm sewer.}

If plans change or new information indicates that groundwater at the site may be contaminated, this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”

– OR –

*“Known or suspected contaminated groundwater is present at the project site in the following area(s): _____ (as depicted on **Figure 2** and **Figure 3**). Proposed construction plans at the site will include dewatering at the following location(s): _____ (depicted on **Figure 4**). However, proposed dewatering and other construction activities will not occur in the area(s) where contaminated groundwater is known or suspected to be present. All dewatering will occur hydro-geologically upgradient to the contaminated groundwater plume.*

*Therefore, dewatering by re-infiltration at the site may be conducted, provided re-infiltration pits are located away from areas of known or suspected soil contamination (as depicted on **Figure 2** and **Figure 3**). Dewatering into a sanitary sewer or storm sewer still requires a permit from the County (sanitary sewer) and/or HDOH Clean Water Branch (storm sewer). A copy of the Dewatering Permit and effluent sampling requirements is included as an attachment to this C-EHMP. The QEP must ensure compliance with all requirements of this permit.*
{If there is no Dewatering Permit, simply state that current construction plans do not include dewatering into the sanitary or storm sewer.}

If plans change or new information indicates that groundwater at the site may be contaminated, this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”

- *The following is to be used if planned construction will encounter known or suspected contaminated groundwater:*

Groundwater contamination is known or suspected to present in the following area(s) of the project site: _____ *{may be included as bullets}*. These areas are depicted in **Figure 2** and **Figure 3**.

Known or suspected groundwater COPCs include the following: _____ *{may be included as bullets}* (also depicted in **Figure 2** and **Figure 3**).

Current construction plans include the following activities that will encounter groundwater: _____ *{may be included as bullets}*.

The current proposed construction activities are anticipated to encounter groundwater at the following location(s): _____ *{may be included as bullets}* (depicted on **Figure 4**).

Groundwater dewatering is anticipated to be conducted in the following location(s): _____ *{may be included as bullets}* (depicted on **Figure 4**).

This groundwater management plan is intended to ensure that contaminated groundwater encountered during construction is properly managed. Some COPCs may be detected through visual and olfactory observations (e.g., petroleum, chlorinated solvents); however, many COPCs are not identifiable through field observations (e.g., non-volatiles, metals etc.). Planning dewatering and groundwater management proactively - ahead of construction is essential. *In most instances, the HEER Office allows for re-infiltration of contaminated groundwater at the site, however, if de-watering will be into a sanitary sewer or storm sewer, then a Dewatering Permit is required from the County (sanitary sewer) and/or HDOH Clean Water Branch (storm sewer). If groundwater is temporarily stored in a frac tank or other container prior to re-infiltration, then sampling and treatment may be required in accordance with HDOH Solid and Hazardous Waste Branch requirements.*

8.1. Groundwater Management

Groundwater disturbed at the Site will be continuously monitored and documented by a QEP with at least five years' experience in environmental oversight associated with construction projects. Where contaminated groundwater may be encountered during excavation activities, appropriate response actions must be taken that conform with HDOH and EPA guidance, laws, and regulations. This includes proactive planning to ensure that workers have the appropriate level of PPE and that free product, sheen, and

groundwater are managed properly if dewatering is conducted. Task associated with properly managing groundwater include the following:

- Where groundwater is encountered, a QEP shall provide field oversight to direct appropriate dewatering if conducted, manage disposal of groundwater if necessary, and provide health and safety guidance related to potential exposure of workers to COPCs.
- Workers who may come into contact with contaminated groundwater must wear the appropriate level of PPE.
- Workers who may come into contact with contaminated groundwater must have required training (at a minimum, 40-hour HAZWOPER certification and current 8-hour annual refresher training).
- If free product is encountered it must be recovered to the extent practicable, which is further discussed in Section 9.0.
- If contaminated groundwater is discovered at a previously unknown source or location, the HDOH HEER Office must be immediately notified of its discovery.

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions. Remedial actions, including, but not limited to addition of oxygen release compounds (as appropriate for the COPC), aeration, and recovery of absorbents should be conducted when possible and described here.

Where trenches or excavation pits may constitute confined spaces, particularly where soil or groundwater COPCs include volatile chemicals, confined space entry permits may be required. Details about where and when confined space entry restrictions and permits are required should be briefly described here (with reference to the HASP) and further discussed in the Site-Specific HASP for this project.

8.1.1 Dewatering

Contaminated groundwater may be dewatered from one excavation into another (or into re-infiltration trenches/pits on site) as long as the following conditions are met:

- The excavations are within at least 200 feet of each other.
- The receiving excavation is wider than it is deep, is less than 10 feet in depth, and does not meet the definition of an underground injection control well.
- The groundwater within both excavations is contaminated. Contaminated groundwater cannot be discharged into a clean excavation.
- Any free product present in the excavation has been removed (see Section 9.0 below). Under no circumstances can free product be transferred from one excavation to another.

- The receiving excavation is greater than 150 meters from a surface water body, storm drain inlet, or sensitive environment (e.g. bird sanctuary, endangered species, beach, park).

Contaminated groundwater may also be dewatered into tanks or other temporary storage containers. If the water temporarily stored in tanks or storage containers is to be discharged (e.g., into the sanitary sewer, storm drain) it must be sampled and analyzed for the appropriate COPCs to determine the appropriate disposal or discharge options. The discharge of the water must be in compliance with the *{name of County}*, HDOH, and the United States Environmental Protection Agency regulations and applicable permits. If it is desired that the water contained within the tanks or storage containers be re-infiltrated into a nearby excavation, the HDOH Solid and Hazardous Waste Branch (SHWB) must be consulted to determine whether there are sampling or treatment requirements in accordance with their rules and regulations.

The location(s) of re-infiltration pits/trenches are depicted on Figure 5.

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions. Include details of how groundwater will be managed during construction activities. For example, include methods you will use to prevent mounding of groundwater that could spread groundwater contamination during onsite infiltration and cause potential vapor intrusion or other hazards offsite; what you will do to prevent terrestrial eco receptors such as birds from using infiltration ponds and to prevent mosquito breeding in ponds, how you will remove, sample, and dispose sediment at the bottom of the ponds i,;; how you will neutralize high pH caused by infiltration of water with concrete fines. Your site-specific groundwater management descriptions should include a description of how you will characterize water prior to re-infiltration onsite or disposal. Describe how you will collect water samples from holding tanks or pits, sampling frequency, sampling methods, and which COPCs will be analyzed. If sampling details are included in a separate SAP document, then please reference the SAP and include it as an attachment to the C-EHMP.

In addition to managing groundwater for construction purposes, steps should be taken to remediate contaminated onsite groundwater, when possible. Describe the measures you will use at your site here. Remedial actions may include but are not limited to: addition of oxygen release compounds (as appropriate for the COPC), aeration, and deployment/recovery of absorbents.

Dewatering into the sanitary sewer system or into the storm sewer is illegal, unless a Dewatering Permit is obtained from the County (sanitary sewer) and/or HDOH Clean Water Branch (storm sewer). Dewatering into a storm sewer requires sampling the groundwater for additional chemicals that may not be required by your permit. Advance coordination with the HEER Office is required to ensure the appropriate screening criteria are met prior to *discharge* *If a Dewatering Permit has been acquired for the site,*

then the requirements of the permit should be outlined here, and a copy of the permit and effluent sampling requirements should be included as an attachment. The QEP will be responsible for conducting all sampling required by the permit and ensuring compliance with the permit. Groundwater disposal requirements are further discussed in the next section.

8.2. Groundwater Disposal

- If groundwater will not be disposed of during this project, please state the following and delete the rest of Section 8.2:*

“The current construction plans do not anticipate disposal of any groundwater off- site. If plans change or new information indicates that off-site groundwater disposal will occur, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”

Generated groundwater must be treated and disposed of if re-infiltration within 200 feet of the area of generation is impracticable or if COPC concentrations are above appropriate site-specific EALs. Should disposal become necessary, the groundwater should be stored onsite in the appropriate containers, characterized (e.g., using generator knowledge, field screening, and/or laboratory analysis) to determine the disposal options, and disposed of properly at an HDOH permitted disposal facility.

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

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

Disposal Facility Name	
Facility Address	
Transporter Name	
Transporter Address	

9.0 Free Product Management Plan

The purpose of the free product management plan is to ensure proper handling and management of free product that may be encountered. Free product is generally encountered floating on the groundwater or at the capillary fringe, and typically presents as either free-flowing, black or brown, viscous product; a thin layer of black or brown product; a discontinuous layer of product (e.g., spots or globules); or a petroleum hydrocarbon sheen. In areas where groundwater level is tidally influenced there may be increase in the amount of free product at either high or low tide.

If groundwater sampling or investigation were not conducted prior to construction activities, then the geotechnical boring logs should be reviewed for evidence of free product or contamination.

Question	Yes	No	Unknown
Is free product known or suspected to be present at the site?			
Is the groundwater at the site tidally influenced?			
Is groundwater at the site confined?			
Will excavation activities at the site potentially encounter contaminated groundwater and free product?			

- If groundwater will not be encountered during this project, please state the following and delete the rest of this section:*

“The current construction plans do not anticipate encountering groundwater at this site; therefore, a free product management plan is not needed for this C-EHMP. If plans change or new information indicates that groundwater will be impacted, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”

- If free product is not known or suspected to be present at the site, but groundwater will be encountered during this project, please state the following and delete the rest of this section:*

*“Proposed construction plans at the site will encounter groundwater at the following location(s): _____. These locations are depicted on **Figure 4**. Current construction plans do not anticipate encountering free product at this site. No free product has been identified or suspected on groundwater at the property. If new information indicates that free product may be present at the site, this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”*

- *If free product is known or suspected to be present at the site, but excavation is not anticipated to encounter free product, please state the following and delete the rest of this section:*

*“Free product is known or suspected to be present at the project site in the following area(s): _____ (as depicted on **Figure 2** and **Figure 3**). Proposed construction plans at the site will include excavation to the groundwater table at the following location(s): _____ (depicted on **Figure 4**). However, proposed excavation(s) to the groundwater table will not occur in the area(s) where free product is known or suspected to be present. Therefore, a free product management plan is not necessary. If plans change or new information indicates that construction activities at the site may encounter free product, this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”*

- *The following is to be used if planned construction may encounter known or suspected free product:*

Free product is known or suspected to present in the following area(s) of the project site: _____ *{may be included as bullets}*. These areas are depicted in **Figure 2** and **Figure 3**.

Known or suspected free product is composed of the following COPCs: _____ *{may be included as bullets}* (also depicted in **Figure 2** and **Figure 3**).

Current construction plans include the following activities that may encounter free product: _____ *{may be included as bullets}*.

The current proposed construction activities are anticipated to encounter free product at the following location(s): _____ *{may be included as bullets}* (depicted on **Figure 4**).

Groundwater dewatering is anticipated to be conducted in the following location(s) that are known or suspected to have free product present: _____ *{may be included as bullets}* (depicted on **Figure 4**).

Planning free product management proactively in areas with a high potential of release ahead of construction is essential.

Free product should be expected to be encountered near gas stations, fuel terminals, refineries, harbors, airports, military bases, and pipelines.

9.1. Free Product Management

Where free product is encountered during construction activities, the appropriate response actions must be taken that conform with HDOH and EPA guidance, laws, and regulations. The anticipated response actions are summarized below.

- The QEP with at least five years' experience in environmental oversight associated with construction projects must provide environmental oversight whenever free product is encountered.
- The QEP should also provide health and safety guidance related to the potential exposure of the free product to the onsite workers. Additional health and safety guidance is included in the Site-Specific Health and Safety Plan (HASP) prepared for this project. A copy of the HASP is attached to this C-EHMP.
- The QEP must assess flammability, explosivity and asphyxiation hazards by using a 4- gas monitor. Measure LEL, carbon monoxide, carbon dioxide, and hydrogen sulfide in the work zone. *If workers will be required to enter the trench or excavation pit, then oxygen measurements are also required, and confined space entry requirements must be complied with. Confined space entry requirements for this project are detailed in the Site-Specific HASP.*
- The free product must be recovered to extent practicable. This may involve the use of absorbent pads/booms, oil-water separators, and/or vacuum trucks to skim free product off the water table. The following methods will be used to recover free product at the project site: *{modify as appropriate}*
 - *For sheens and small quantities of free product (less than ½", absorbent pads will be placed on the surface of the water. Pads will be removed and replaced daily or as needed. Used pads will be disposed of in 55-gallon solid waste drums. The location of waste drum storage is depicted on Figure 5.*
 - *Thicker layers of free product will be removed using a vacuum truck and transferred into an on-site oil water separator (OWS). The location of the on-site OWS is depicted on Figure 5. Oil from the OWS will be transferred in 55-gallon drums...etc.*
- Workers who may come into contact with free product must wear the appropriate level of PPE.
- Workers who may come into contact with free product must have required training (at a minimum, 40-hour HAZWOPER certification and current 8-hour annual refresher training).
- All oil-absorbent pads/booms, PPE, and other disposable equipment containing free product must be appropriately disposed of.
- Where dewatering is necessary and free product is floating on the water in the onsite infiltration pit(s), the product will be recovered to the extent practicable, and any absorbent material such as absorbent pads must be disposed of

properly. Please note, that free product may not be moved from one excavation to another and engineering measures must be taken to prevent the transfer of free product during dewatering (e.g., placing the intake of the pump at a level below the free product layer – deeper than the planned deepest part of excavation/sump, etc.). The following engineering measures will be used to prevent the transfer of free product during dewatering at the project site: *{modify as appropriate}*

- *List engineering methods at first dewatering location. (Depict location on appropriate Figures)*
- *List engineering methods at second location, etc. (Depict location on appropriate Figures)*
- If free product produces vapors that could adversely affect air quality, then the Vapor Management Plan (Section 11) should be followed. Please note, this may require that PPE be upgraded.

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions.

10.0 Storm Water Management Plan

Proactive actions must be taken to prevent storm water from coming into contact with contaminated groundwater and soil at the site. The actions listed below will minimize the potential for contaminating storm water.

- Place contaminated soil on plastic sheeting in a lined, bermed area to prevent storm water from contacting contaminated soil.
- Open excavations should be backfilled as soon as practicable to prevent storm water and direct precipitation from entering the excavation. When possible, open excavations should be bermed to prevent storm water run-off from entering the excavation.
- In the event of heavy rain, ensure that all stockpiles of contaminated soil are covered with plastic sheeting and substantially secured.
- Regularly monitor the weather throughout the day for signs of approaching storms and/or heavy rains.

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions. If the storm water management actions are covered in the NPDES form C Permit- the form should be attached to this plan.

11.0 Vapor Management Plan

- *If hazardous soil vapor will not be encountered during this project, please state the following and delete the rest of this section:*

“None of the COPCs identified or suspected to be present at the site contain significant volatile constituents that are anticipated to create a soil vapor hazard at the site during construction. Therefore, a vapor management plan is not needed for this C-EHMP. If new information indicates that hazardous soil vapors may be present, then this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting soil/groundwater disturbing activities or as soon as the change has been identified.”

-OR-

*“Potentially hazardous vapors are known or suspected to be present at the project site in the following area(s): _____ (as depicted on **Figure 2** and **Figure 3**). However, proposed excavation(s), depicted on **Figure 4**), will not occur within _____ feet of the area(s) where vapor hazards are known or suspected to be present. Therefore, a vapor management plan is not necessary. If plans change or new information indicates that construction activities at the site may encounter hazardous soil vapors, this C-EHMP will be revised and re-submitted to the HEER Office for review and approval at least 90 days prior to conducting groundwater disturbing activities or as soon as the change has been identified.”*

The purpose of the Vapor Management Plan is to identify VOC vapors and toxic gases that could adversely affect air quality during construction. Included are procedures to detect and mitigate potential fire and explosion hazards posed by explosive vapors. Below are the Chemicals of Potential Concern associated with potential vapors that may be encountered at the Site.

- *TPH-g*
- *TPH-d*
- *Benzene*
- *Toluene*
- *Methane (from anaerobic degradation of hydrocarbon contaminants)*
- *Hydrogen Sulfide (from anaerobic degradation of hydrocarbon contaminants)*
- *Modify COPCs as appropriate...*

Areas where soil vapor hazards are known or suspected to be present at the site are listed below and depicted in the Hazard Map(s) on **Figure 3**:

- *First location (COPC)*
- *Second location (COPC).*
- *Modify COPCs as appropriate...*

The principal hazards posed by volatilized COPCs are *direct exposure through inhalation, asphyxiation, flammability, and explosivity*. Where volatile COPCs are found

during construction activities, the concentrations of these vapors must be controlled in accordance with HDOH and U.S. Environmental Protection Agency (EPA) regulations and guidelines, and Occupational Safety and Health Administration (OSHA) rules and regulations. This includes proactive planning to ensure workers and the general public are not exposed to hazardous volatilized COPC concentrations and that workers have the appropriate level of PPE. Tasks associated with adequate and proper vapor management include the following: *{modify as appropriate}*

- A QEP with at least five years' experience in environmental oversight associated with construction projects must provide field oversight where COPC vapors may be present and/or are detected at concentrations above EALs, LELs and/or PELs. The QEP should provide health and safety guidance related to potential exposure of workers to the vapors.
- The QEP shall establish exclusion areas around the areas of known or suspected COPC vapors and only workers with appropriate PPE and training will be allowed to work within the exclusion areas. Exclusion areas are depicted on **Figure 5**.
- Workers who may come into contact with COPC vapors must wear the appropriate level of PPE.
- Workers who may come into contact with COPC vapors must have required training (at a minimum, 40-hour HAZWOPER certification and current 8-hour annual refresher training).
- Air monitoring will be conducted by the QEP during excavation.
- Air monitoring will also occur when workers are required to enter excavations. Where workers will enter excavations or trenches, confined space restrictions may also apply. Confined space requirements are described in detail in the Site-Specific HASP.
- The monitoring will include both workspace and perimeter measurements of COPC vapors.
- If warranted by air monitoring results, the QEP will notify onsite workers to upgrade PPE to include respiratory protection. Requirements for the use of respiratory protection, including medical monitoring, are described in detail in the Site-Specific HASP.
- Air monitoring will be conducted using _____ (*e.g., PID, 4 gas meter*).
- Air monitoring associated with confined-space entry will be described in the site-specific HASP for construction.

Why Is This Information Important?

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions. The site-specific information should include s details regarding when air monitoring will be initiated, the frequency that air monitoring samples will be collected, at what

concentration(s) are response actions triggered (e.g., upgrading PPE, stopping work, initiating vapor suppression, increased monitoring), etc.

The following soil vapor concerns should be assessed during construction planning and discussed in this section of the C-EHMP:

Acute Exposure and Explosive Hazards

EALs do not currently consider explosive hazards, acute toxicity, or asphyxiation hazards that are important for potential construction worker exposure. Vapor concentrations should be screened against 10% of the lower explosive limit (LEL) and permissible exposure limits (PELs). Mitigation measures and intrinsically safe tools need to be present if 10% of the LEL is exceeded. Engineering and Administrative Control measures for worker protection should be discussed in Section 13.0 and specifically addressed in the Site-Specific Health and Safety Plan (HASP).

11.1. Engineering and Institutional Controls

Methods to prevent vapor exposure are required during construction activities in areas where known or suspected COPC vapors may be present. The following administrative controls shall be established to protect workers and the public from COPC vapor hazards:

- Appropriate worker training (including 40-hour HAZWOPER and current annual 8-hour refresher) required for workers in areas with potential COPC vapor hazards, as depicted on the Hazard Map(s) in **Figure 3**.
- Establishment of Exclusion Area(s), as depicted on **Figure 5**.
- *List additional Institutional Controls*

The following engineering controls shall be established to protect workers and the public from COPC vapor hazards (Engineering Controls are depicted on **Figure 5**):

- Use of plastic sheeting on soil stockpiles
- Use of vapor suppressants
- Use of additional ventilation (*specify where*)
- *List additional Engineering Controls*

Please provide details regarding specific engineering methods and administrative controls to be used to manage and control vapors at the site.

12.0 Spill or Release Response

Releases, should they occur, must be reported 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 new contamination is

discovered that is different from any known previously reported releases, the release must be reported as described in the abovementioned regulations.

12.1. 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 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 *{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. In addition, monitor for explosive vapors using an LEL meter.
- 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. Do not attempt to stop a release from an active fuel pipeline.
- Protect sensitive ecological receptors threatened by the spill.

Please provide site-specific information and response actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions. Provide onsite notification procedures.

12.2. Release Reporting

In the event of a release of a hazardous substance that causes imminent threat to human health or the environment, the first call should be to 9-1-1. Example of releases requiring a call to 911 include, but are not limited to fuel or gas leaking from an active pipeline, an ammonia tank leak, or workers and/or the public becoming ill.

All releases must be reported to the HEER Office (808-586-4249 or 808-247-2191 after work hours) and the Local Emergency Planning Committee (LEPC) at *insert appropriate phone number*. 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 large penalties for not reporting a release.

If petroleum is observed on surface water, then 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

Please provide site-specific information and release reporting actions. The guidelines listed above are basic and are not intended to be comprehensive of all site conditions.

13.0 Worker Protection

A site-specific Health and Safety Plan (HASP) must be prepared for the site in accordance with the appropriate occupational health and safety regulations. These regulations and requirements include but are not limited to the use of the appropriate level of PPE and appropriate personal hygiene steps associated with the identified COPCs as the site. A copy of the Site-Specific HASP is attached to this C-EHMP. *{If a copy of the HASP is not available at the time that the C-EHMP is submitted for review and approval by the HDOH, please state that the HASP will be prepared and attached to the C-EHMP prior to the start of construction activities. If not attached to the C-EHMP, a copy of the HASP should be submitted to the HEER Office for our records. Although the HEER Office does not review and approve HASPs, we will be checking to ensure that the HASP includes details about site-specific COPCs and worker training requirements, such as HAZWOPER training.}*

Administrative Controls for Protecting Workers from COPC Hazards (further detailed in the HASP) include:

- 40-hour HAZWOPER training and current 8-hour refresher required for all workers who may come into contact with contaminated media.
- 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.

- *The QEP will establish Exclusion Areas during excavation activities that may encounter hazardous or explosive soil vapors.*
- *Confined Space Entry Permits are required for workers who will enter trenches or pits deeper than 3 feet.*
- *{add additional controls or modify the above as appropriate}*

Engineering Controls for Protecting Workers from COPC Hazards (further detailed in the HASP) include:

- The appropriate level of PPE shall be selected based on the potential hazards and 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 soil. At a minimum, Modified Level D PPE consisting of Tyvek suits, chemical-resistant boots, and nitrile gloves is to be required for workers directly exposed to contaminated soils within the trenches and excavations.
- Stanchions (delineators) and hazard tape shall be used to delineate exclusion areas where COPCs are present and access is restricted.
- Fans shall be placed around trenches and excavation pits where vapor hazards are present to increase air flow and redirect hazardous vapors away from workers.
- *{add additional controls or modify the above as appropriate}*

Please provide additional site-specific information about worker protection here. The information provided above is basic and is not intended to be comprehensive of all site conditions.

14.0 Decontamination

Prior to excavation activities, the Contractor and the QEP must designate areas for decontamination activities. The QEP must also evaluate and establish decontamination procedures for personnel, tools, equipment and vehicles, prior to construction. Decontamination procedures for personnel and BMPs to limit direct exposure to COPCs is also discussed in the Site-Specific HASP that is attached to this C-EHMP.

14.1. Decontamination of Tools and Personnel

Appropriate personal hygiene practices shall be adhered to at all times when handling potentially impacted soil. Washing facilities shall be made available on the jobsite 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 the impacted soil, 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 deposited in the site dumpster, or a municipal landfill.

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

- At the excavation location, physically remove soil adhering to the surface of the equipment using appropriate hand tools. Soil removed during this step should be placed back into the impacted area, excavation, or the appropriate stockpile following removal.
- Rinse off contaminated groundwater at the excavation location, allowing rinse water to drain back into the excavation or be collected in a container for proper disposal.
- While the tools are located at the excavation, water should be used to wash the surfaces of the tools that were exposed to impacted material. The water used to wash the exposed surfaces should be directed back to the impacted area or excavation and allowed to infiltrate.
- *{add additional procedures or modify the above as appropriate}*

During equipment decontamination, proper PPE shall be employed to minimize exposure to COPCs. Proper PPE should include Modified Level D PPE with nitrile gloves, rubber boots, waterproof Tyvek, and an appropriate face shield to protect against splash back during decontamination. The QEP shall designate Decontamination Areas for the donning and doffing of disposable PPE and for the cleaning of materials. Decontamination Areas are depicted on **Figure 5**.

The above may be modified as appropriate for the site conditions. Please provide additional site-specific information about personnel and tool decontamination here. The information provided above is basic and is not intended to be comprehensive of all site conditions. Personnel decontamination should also be addressed in the HASP.

14.2. Decontamination of Vehicles and Equipment

Vehicle and equipment decontamination should occur following the use of vehicles and equipment (to include haul trucks and heavy machinery) in direct contact with impacted soil. The equipment decontamination procedures are intended to describe methods for reducing and controlling the spread of site COPCs to unimpacted portions of the site or un-impacted materials, and to off-site locations.

Equipment and vehicles in direct contact with impacted soil must be decontaminated to remove any contaminated soil before they leave the work area. The decontamination of vehicles equipment must include the following:

- At the excavation location, physically remove soil adhering to the surface of the equipment using appropriate hand tools. Soil removed during this step should be

placed back into the impacted area, excavation, or the appropriate stockpile following removal.

- While the vehicle/equipment is located at the excavation, water should be used to wash the surfaces of the vehicle/equipment that was exposed to impacted material. The water used to wash the exposed surfaces should be directed back to the impacted area or excavation and allowed to infiltrate.
- *{add additional procedures or modify the above as appropriate}*

During equipment decontamination, proper PPE shall be employed to minimize exposure to COPCs. Proper PPE may include Modified Level D PPE with nitrile gloves, rubber boots, waterproof Tyvek, and an appropriate face shield to protect against splash back during decontamination. The Contractor and QEP shall designate Decontamination Areas for the decontamination of vehicles and heavy machinery. Decontamination Areas are depicted on **Figure 5**.

The above may be modified as appropriate for the site conditions. Please provide additional site-specific information about vehicle and equipment decontamination here. The information provided above is basic and is not intended to be comprehensive of all site conditions.

15.0 Recordkeeping and Reporting Requirements

Detailed records of all environmental activities conducted during construction should be kept. These records may include air monitoring results, stockpile sampling, soil segregation, soil and/or groundwater sampling methodologies and results, dewatering activities, free product recovery, vapor suppression, soil disposal or re-use, and any other environmental activities conducted in association with construction activities.

In addition to maintaining these records, within 30 days of the completion of ground disturbing activities a removal action report summarizing the environmental activities conducted during construction is to be submitted to HDOH for review and comment. Guidance for preparation of a removal action report can be found in Section 18 of the HEER Office Technical Guidance Manual. The report should also include copies of all disposal receipts, truck logs, and laboratory analytical results, as well as a map illustrating the approximate GPS location(s) where any contaminated soil was encountered and/or reused onsite.

Please provide additional site-specific information about recordkeeping and reporting requirements here.

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

16.0 References

{Insert references to previous site-specific documents, such as Phase II investigations, etc., and any other documents relevant to the preparation of this C-EHMP}

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

EXAMPLE: Appendix A - BMPs

EXAMPLE: Appendix B = Soil Acceptance Agreement

EXAMPLE: Appendix C – Soil Tracking Log

