

# **ENVIRONMENTAL HAZARD MANAGEMENT PLAN**

**FOR**

**Job No. F93C817A**

**CENTRAL MAUI REGIONAL SPORTS COMPLEX**

**PHASE 1**

**Wailuku, Maui, Hawaii**

**February 19, 2014**

**Prepared By:**

**Element Environmental**

## **SPECIAL PROVISIONS FOR CONSTRUCTION**

- 1. The Contractor shall be responsible for completing the work in accordance with all Federal, State, and Local regulations and guidance with respect to environmental concerns including munitions and explosives of concern (MEC) and unexploded ordnance (UXO). The Contractor shall prepare and submit a Work Plan (WP) and Site Safety and Health Plan (SSHP) prior to the start of work. The WP shall include the work procedures to be followed during excavation and grading, and transportation and disposal of excess soil and/or solid waste. The WP and SSHP shall also include the minimum personnel qualifications and training requirements for all personnel. The SSHP shall address MEC and UXO safety and shall include procedures to be followed should MEC and/or UXO be encountered on site.**
- 2. The Contractor shall be responsible for proper removal and disposal of any contaminated soil and solid waste in the soil piles encountered during the future re-development of the site as a public park. A Qualified Environmental Scientist shall be present during any grading/excavation activities to ensure proper handling and segregation of contaminated soil and solid waste, and to observe if any releases from the solid waste have occurred that would warrant further investigation and sampling.**
- 3. All future grading and excavation operations affecting surface and subsurface soil at the site shall be completed with MEC construction support, i.e., a UXO Monitor shall be present on-site during all intrusive work.**

The following specifications are attached for guidance:

### **ARTICLE I – HANDLING AND REMOVAL OF CONTAMINATED SOIL, SOLID WASTE, AND MUNITIONS/UXO ENCOUNTERED DURING CONSTRUCTION**

### **ARTICLE II – AMBIENT AIR MONITORING**

In general, the Phase II Environmental Site Assessment (ESA) identified the following environmental hazards:

#### **ENVIRONMENTAL HAZARDS:**

- 1. The Phase II ESA soil sample results do not exceed the State of Hawaii Department of Health (DOH) Tier 1 environmental action levels (EALs) for unrestricted land use.**
- 2. A total of 16 soil piles are located in various locations throughout the project site. Physical descriptions were recorded in the field notebook and the footprint of each soil pile was surveyed using a differential global positioning system (GPS) unit (See Table 4-2 and Figure 4-1 of the Phase II ESA).**

3. The soil piles, and surface and subsurface soils on-site may contain solid waste, including various building construction debris, wood debris, and metal debris.
4. The soil piles and surface and subsurface soils on-site may contain munitions and explosives of concern (MEC), including unexploded ordnance (UXO), which has been found at adjacent properties to the northeast and southwest of the project site.

**REFERENCE:**

**"Final Report, Phase II Environmental Site Assessment [ESA], Central Maui Regional Park, Kahului, Maui, Hawaii, TMK: (2) 3-8-007:101 (portion)" dated December 2013, performed for the State of Hawaii Department of Land and Natural Resources [DLNR], Division of State Parks**

**ARTICLE I – HANDLING AND REMOVAL OF CONTAMINATED SOIL, SOLID WASTE, AND MUNITIONS/UXO ENCOUNTERED DURING CONSTRUCTION**

**1.1 GENERAL**

(A) **SCOPE:** The General Instructions to Bidders, the General Conditions of Construction Contracts, and Special Provisions preceding these specifications shall govern this section of the work. Work to be completed under this article includes handling and removal of contaminated soil, solid waste, and munitions and explosives of concern (MEC), including unexploded ordnance (UXO), as required, from the project site. The Contractor shall perform work in accordance with 29 CFR 1910.120, 40 CFR 761, 49 CFR 171-180, HAR 11-451, all applicable regulations and the requirements specified herein.

(B) **REFERENCES:** The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

(1) **American Society for Testing and Materials (ASTM)**

ASTM D 4397 (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

(2) **Code of Federal Regulations (CFR)**

29 CFR 1910.120      Hazardous Waste Operations and Emergency Response

29 CFR 1910.145      Accident Prevention Signs and Tags

29 CFR 1926            Safety and Health Regulations for Construction

40 CFR 260            Hazardous Waste Management Systems: General

40 CFR 261            Identification and Listing of Hazardous Waste

40 CFR 262            Generators of Hazardous Waste

40 CFR 263            Transporters of Hazardous Waste

40 CFR 264            Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 265            Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 268            Land Disposal Restrictions

40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 107	Hazardous Material Program Procedures
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications Requirements and Emergency Response Information Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 177	Carriage by Public Highway
49 CFR 178	Shipping Container Specification
49 CFR 171-180	Department of Transportation Regulations for Shipping and Transporting Hazardous Materials

(3) Hawaii State Department of Health (DOH) Guidelines on Soil and Groundwater Contamination

Technical Guidance Manual for Underground Storage Tank Closure and Release Response, March 2000.

Hawaii DOH Technical Guidance Manual for the Implementation of the State Contingency Plan

Hawaii DOH Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater

Guidance Fact Sheet for Use When Petroleum Contamination is Encountered during Subsurface Soil Excavation

General Guidelines for Taking Action in the Course of Encountering Petroleum Hydrocarbon Contamination during Public Works Activities in Hawaii

Screening for Environmental Hazards at Sites with Contaminated Soil and Groundwater, Fall 2011 Updates (Revised January 2012). Prepared by Hawaii Department of Health Environmental Management Division, Hazard Evaluation and Emergency Response Office.

(4) State of Hawaii Administrative Rules

HAR 11-58 Solid Waste Management Control

- HAR 11-260 General Provisions
- HAR 11-261 Identification and Listing of Hazardous Waste
- HAR 11-262 Standards Applicable to Generators of Hazardous Waste
- HAR 11-263 Standards Applicable to Transporters of Hazardous Waste
- HAR 11-266 Standards for Management of Specific Hazardous Waste and Specific Types of Hazardous Waste Management Facilities
- HAR 11-268 Land Disposal Restrictions
- HAR 11-270 State Administered Permits: The Hazardous Waste Permit Program
- HAR 11-271 Procedures for Decision Making
- HAR 11-273 Standards for Universal Waste Management
- HAR 11-279 Standards for the Management of Used Oil
- HAR 11-280 Public Information
- HAR 11-281 Underground Storage Tanks
- HAR 11-451 State Contingency Plan

(5) Soil and Groundwater Testing Guidance

Test Methods for Evaluation of Solid Wastes, EPA/SW-846, 3rd ed.

(6) United States Army Corps of Engineers

Safety and Health Requirements Manual, EM 385-1-1, most recent edition.

1.2 SUBMITTALS

Submit under provisions of the construction contract.

(A) Pre-Project Submittals:

- (1) Site Safety and Health Plan; to be submitted within 14 calendar days of the Notice to Proceed
- (2) Work Plan (including Sampling and Analysis Plan); to be submitted within 14 calendar days of the Notice to Proceed

- (3) Worker Training Certification; to be submitted within 14 calendar days of the Notice to Proceed
- (B) Completion Submittals:
  - (1) Completion Report; to be submitted within 30 calendar days of receipt of the Certificates of Disposal from the disposal facility.
  - (2) Vehicle Decontamination Reports

### 1.3 DEFINITIONS

- (A) Certified Industrial Hygienist: Industrial hygienist hired by the Contractor and certified by the American Board of Industrial Hygiene (ABIH). The CIH shall have a minimum of five (5) years of experience in working at sites with contaminated soil/groundwater and solid waste. The CIH shall be present on-island during construction.
- (B) Chemical of Potential Concern (COPC): A term often used to refer to chemicals that are more likely to be found at a particular facility because they are the chemicals that the facility routinely handles. This term is often used to refer to environmental contaminants.
- (C) Contaminated Soil: Soil contaminated with petroleum hydrocarbons and other related contaminants such as heavy metals, PCBs, PAHs, and pesticides. Contaminated soil includes both non-grossly contaminated soil and grossly contaminated soil.
- (D) Contractor: The individual and/or legal entity and its subcontractors and employees of the contractor and subcontractor awarded the contract.
- (E) Contractor's Qualified Consultant: The qualified environmental scientist/engineer/ geologist hired by the Contractor to perform sampling and testing services as specified in the technical sections. The Qualified Consultant shall have a minimum of five (5) years of experience in working at sites with contaminated soil and groundwater.
- (F) Disposal Facility: A Private, City, State and/or Federal permitted facility approved by the State to dispose of contaminated materials.
- (G) Grossly Contaminated Soil: Soil that is determined by the Contractor's Qualified Consultant to be grossly contaminated by visual or olfactory evidence of petroleum staining.
- (H) Hazardous Material: Any materials regulated as such under Hawaii State Law (HAR 11-451). Hazardous materials may include soil, concrete/asphalt, or solid waste contaminated with petroleum hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), pesticides/herbicides, heavy metals, and/or polychlorinated biphenyls (PCBs).
- (I) Hazardous Waste: Any material defined as hazardous waste in 40 CFR 261.

- (J) **Hazardous Waste Facility:** A Federally-permitted facility equipped to dispose of hazardous waste.
- (K) **Munitions and explosives of concern (MEC):** includes unexploded ordnance (UXO), discarded munitions, or munitions debris.
- (L) **Non-grossly Contaminated Soil:** All soil from the project site that is **not** determined to be Grossly Contaminated Soil.
- (M) **Solid Waste:** Any material defined as solid waste in 40 CFR 261. Examples of solid waste that may be buried on-site, include, but are not limited to aluminum cans/foil, appliances (possibly a stove and water heater), computer monitor, plastic, trash, car hood/seats/tires/rims/parts, truck axles/bumper, carpet, window frames, roofing tiles, metallic debris / scrap metal, rebar, steel and wooden fence posts, wood debris, corrugated metal and wire, metal rack, steel and PVC piping, irrigation lines, concrete and CMU blocks/debris, construction debris (lumber, nails, bands, etc.), rocks, rubble, traffic bollards, and vegetative waste.
- (N) **DLNR Construction Engineer:** State of Hawaii DNLN construction representative for this project.
- (O) **State Parks Maintenance Engineer:** State of Hawaii DNLN State Parks Division representative for this project for work that pertains to contaminated soil//solid waste only.
- (P) **Toxic Substances Control Act (TSCA) Regulated Waste:** Any material defined as TSCA regulated waste in 40 CFR 761.
- (Q) **Transporter:** The individual and/or legal entity (may be the Contractor or a subcontractor) properly licensed and experienced in hauling contaminated material.
- (R) **Treatment Facility:** A State-permitted facility for the treatment of petroleum-contaminated material.
- (S) **Unexploded Ordnance (UXO):** As defined in 10 USC 2710 (e)(9), present in high enough concentrations to pose an explosive hazard (EM 385-1-1).
- (T) **UXO Monitor:** UXO Monitor hired by the Contractor and certified by the Department of Defense Explosives Safety Board. The UXO Monitor shall have a minimum of five (5) years of experience in working at sites with MEC. The UXO Monitor shall be present on-island during construction.

#### 1.4 **DESCRIPTION OF WORK:**

- (A) The work may include the removal and disposal of contaminated soil, solid waste and MEC/UXO excavated from the project site. Work to be done under this article includes providing environmental controls during project activities, specifically during excavation/removal, segregation, and stockpiling of contaminated soil and solid waste that may be encountered.



Solid waste present at the site in the soil piles (approximately 4-foot to 5-foot high berms created by site clearing by excavator) shall be removed and properly disposed. The Contractor's Qualified Consultant shall be present during the solid waste removal to visually observe if any releases from the solid wastes have occurred that warrant further investigation and sampling.

Although MEC was not observed during the Phase II Environmental Site Assessment, MEC was found during excavations on adjacent properties. All future grading operations shall be completed with MEC construction support.

**(B) Contaminated Soil Removal**

- (1) On-site soil, including soil from site grading shall not be considered contaminated. Upon excavation, soil shall be segregated under the direction of the Contractor's Qualified Consultant into two storage containment areas (i.e., holding cells), one for non-grossly contaminated soil and one for grossly contaminated soil. Excavated soils shall be examined by the Contractor's Qualified Consultant for visual and olfactory evidence of petroleum staining. Soil shall be considered grossly contaminated if any of the following is found: visual evidence of petroleum staining or olfactory evidence of petroleum contamination (i.e., photoionization detector readings for volatile organic compounds above ambient background).

The Contractor's Qualified Consultant shall be continuously onsite to inspect such soil and to expedite the segregation, testing, transportation, and disposal of the grossly contaminated soil. The Contractor shall be responsible for removal, handling, and disposal of contaminated soil. Grossly contaminated soil removal shall be performed with oversight from the DLNR Construction Engineer.

- (2) Grossly contaminated soil shall be segregated and stockpiled in a storage containment area designated and constructed by the Contractor. Grossly contaminated soil shall not be mixed or stockpiled with non-grossly contaminated soil. The Contractor shall be responsible for testing and proper disposal of both non-grossly and grossly contaminated soil and removal of the storage containment areas upon completion of work. The Contractor shall be responsible for handling, segregating, transport, disposal, and removal of containment areas for all contaminated soil.

**(C) Solid Waste Removal**

Solid waste buried on-site may be exposed during grading and/or excavation. Upon excavation, solid waste shall be segregated under the direction of the Contractor's Qualified Consultant into a storage containment area (i.e., holding cell) for solid waste.

The Contractor shall be responsible for removal, handling, and disposal of solid waste. Solid waste excavation shall be performed with oversight from the State Parks Division DLNR Construction Engineer.

1.5 QUALITY ASSURANCE:

- (A) Training: The Contractor's employees exposed to contaminated materials shall have completed 40-hour Hazardous Waste Operations and Emergency Response Health and Safety Training (which satisfies OSHA 29 CFR 1910.120) and annual 8-hour refresher courses.
- (B) Certified Industrial Hygienist (CIH): The Contractor shall obtain the services of an industrial hygienist certified by the American Board of Industrial Hygiene (ABIH) to certify training, and review and approve the Work Plan, including determination of the need for personal protective equipment (PPE) in performing removal work. The Contractor shall pay for the services of the CIH.
- (C) Site Safety and Health Plan (SSHP): The Contractor's CIH shall prepare and submit a SSHP for the contaminated material removal and disposal. The SSHP shall include protection of workers and the environment from contaminated material hazards and MEC. Specific protection requirements shall be determined by the CIH and, as a minimum, as specified herein.
- (D) Work Plan: Prepare and submit a work plan describing methods, techniques, and phases of dealing with the contaminated soil, solid waste, and MEC (UXO), including: a schedule to be employed in the grading/excavation, a sequence of operations, the method of grading/excavation, back trenching, public protection, stockpiling, hauling, and handling of the contaminated materials, transportation, disposal, and the proposed equipment to be utilized during all field activities. Ensure that work operations or processes involving contaminated materials are conducted in accordance with 29 CFR 1910.120, 40 CFR 761, 49 CFR 171-180, HAR 11-451 and the applicable requirements of this section, including but not limited to:
- (1) Obtaining advance approval of storage and/or disposal facilities.
  - (2) Notifying the DLNR Construction Engineer prior to commencing the operation.
  - (3) Reporting leaks and spills to the DLNR Construction Engineer.
  - (4) Maintaining a spill kit.
  - (5) Proper handling, shipping, and disposal of contaminated soil, solid waste, and MEC.
  - (6) Proper decontamination.
  - (7) Maintaining inspection, inventory, transport, and disposal records.
- (E) Sampling and Analysis Plan: As part of the Work Plan, prepare and submit a sampling and analysis plan. Describe field sampling and testing procedures, testing methods, and quality control procedures. For sample reports, indicate the

sample identification, the sample location, the sample date, the sample time, the sample method, the contamination level, the name of individual sampler, and the quality control procedures. Consultations, meetings, and follow up consultations may be required prior to acceptance of this plan. The Contractor shall be responsible for making any necessary revisions to this plan until deemed acceptable by the State of Hawaii.

- (F) **Training Certification:** Based on the applicable training requirements for job tasks to be provided, submit the applicable training certificates (generated by appropriate training providers) to the CIH for review. The certificates shall be signed and dated by the CIH and by each employee stating that the employee has received training.
- (G) **CIH Qualifications:** Submit the name, address, and telephone number of the industrial hygienist selected to perform the duties in the paragraph entitled "Certified Industrial Hygienist." Submit proper documentation that the industrial hygienist is certified, including ABIH certification number and date of certification and recertification. CIH must be located on the Island of Oahu or Maui during the project and must be provided by the Contractor.
- (H) **Vehicle Decontamination Verification:** Provide documentation verifying that all vehicles and containers were decontaminated prior to leaving the project or disposal site, were properly operating, and were covered. The documentation shall be prepared within 24 hours after removal of waste from the site. Submit three (3) copies to the DLNR Construction Engineer for review and approval.
- (I) **Completion Report:** Prepare a completion report containing the following items: analytical results including concentrations and sample locations, a diagram of the limits of the graded/excavated area with sample locations indicated (indicate reference benchmark used), a diagram of the limits of all the proposed stockpile holding cells, the volume of material excavated, chain of custody forms, signed certificates of disposal, waste shipment manifests for both hazardous and non-hazardous wastes, final disposition of all wastes along with weight/volume disposed, and description of the work completed. Submit three (3) copies to the DLNR Construction Engineer for review and approval.

#### 1.6 **POTENTIAL ADDITIONAL MONITORING/HEALTH AND SAFETY EQUIPMENT**

- (A) **MULTI-GAS METER:** To monitor explosion hazard and unsafe atmospheric conditions in the excavation area.
- (B) **PERSONAL PROTECTIVE EQUIPMENT (PPE):** As needed to ensure safety of on-site personnel. To be determined by CIH and specified in the SSHP.
- (C) **PHOTOIONIZATION DETECTOR (PID):** To monitor organic vapor in the breathing zone.
- (D) **GLOBAL POSITIONING SYSTEM (GPS) DEVICE:** A space-based satellite navigation system that provides location information.

#### 1.7 **EXECUTION**

- (A) **PROTECTION OF WORKERS AND THE ENVIRONMENT:** Protect workers and the environment from hazards in accordance with the SSHP and, as a minimum, as specified herein.
- (1) **Worker Safety:** Provide portable decontamination. Workers shall wear and use PPE, as recommended by the CIH, upon entering a control area. If PPE is not required by the CIH, specify in the Work Plan and SSHP. Keep work footwear inside work area until completion of the job. Have available extra sets of PPE required for use by the DLNR Construction Engineer and additional site visitors for inspection of work. Do not carry out contaminated material handling operations in confined spaces. Do not delay aid to a seriously injured worker for reasons of decontamination. All work must be conducted in accordance with the site-specific SSHP as well as applicable sections of OSHA 29 CFR 1910.
  - (2) **Control Area:** Establish a control area to prevent unauthorized entry of personnel. Fence off area and provide 29 CFR 1910.145 approved signs at approaches and around perimeter. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Allow only personnel briefed on the elements and trained as specified herein into the area. Do not permit food, drink, or smoking materials in the control area. Smoking is not permitted within 50 feet of the control area. Provide "No Smoking" signs as directed by the DLNR Construction Engineer.
  - (3) **Air Monitoring:** Conduct air monitoring around the perimeter of the site in accordance with Specification Article LXVII – Ambient Air Monitoring. If air monitoring results exceed regulatory action levels, work shall be stopped immediately and the CIH and DLNR Construction Engineer shall be notified. The Contractor through consultation with the CIH shall implement a change in work practices and/or engineering controls to reduce exposure levels at the perimeter of the site to below regulatory action levels.
- (B) **EXCAVATION PROCEDURES:** Notify the DLNR Construction Engineer at least 48 hours prior to the start of excavation/removal of contaminated soil, solid waste, and MEC (UXO). Use methods and equipment that result in minimal disturbance to remaining soil beyond the excavation limits. Remove and dispose of any material that becomes contaminated as a result of the Contractor's operation at no additional cost to the State of Hawaii. Stage operations to minimize the time the contaminated materials are exposed to the weather. Provide protection measures around the area of contaminated soil and solid waste to divert runoff of water from within the excavation boundaries. Runoff that comes in contact with contaminated soil and solid waste shall be retained onsite and shall not be allowed to drain into surface water bodies.
- (1) **Underground Utilities:** Locations of existing utilities depicted on the site drawings are approximate and other underground utilities may be present. The Contractor shall verify the location and elevation of the existing utilities indicated prior to starting construction. If utilities other

than those indicated are found, the Contractor shall immediately notify the State Parks Division Construction Engineer.

- (2) **Dust Control:** Maintain strict dust control at all times to prevent dust contaminated particles from becoming airborne. Sprinkle or treat the contaminated materials at the site and other areas disturbed by operations with dust suppressants or water as necessary. The Contractor shall ensure that runoff associated with dust control activities is retained onsite and is not allowed to drain into surface water bodies.
- (3) **Underground Structures/Objects:** The work area may contain pockets of grossly contaminated soil and groundwater and may include underground objects. Grading/excavation shall be performed in a manner that shall limit the potential for grossly contaminated material to be mixed with non-grossly contaminated soil.

#### 1.8 **CONFIRMATION SAMPLING AND ANALYSIS**

- (A) The DLNR Construction Engineer and Contractor's Qualified Consultant shall be present to inspect the removal of contaminated soil from the site. In the event that grossly contaminated soil is encountered, the Contractor shall be responsible for confirmation sampling as described in Section 40.4 above. After all soil suspected of being grossly contaminated has been removed, the excavation shall be examined for evidence of gross contamination to determine the presence of volatile and/or semi-volatile contamination by the Contractor's Qualified Consultant. Any remaining evidence of gross contamination shall be documented by the Contractor's Qualified Consultant and reported to the DLNR Construction Engineer.

#### 1.9 **PERMITS**

- (A) Prior to beginning grading/excavation work, the Contractor shall obtain all necessary federal, state, and county permit(s) for:
  - (1) Transporting contaminated material from the site to the treatment/disposal site.
  - (2) Any activities related to holding cell construction that requires permits.
  - (3) Handling, treatment, and/or disposal of construction dewatering effluent (that may be contaminated) by back trenching (i.e., re-infiltration trench).
  - (4) Handling of MEC (including UXO).

#### 1.10 **SAFETY BARRIERS**

- (A) Prior to beginning grading/excavation work, the Contractor shall provide, erect, and maintain temporary safety barriers and security devices to reasonably prevent public entry into active work areas and stockpile areas.

#### 1.11 **CONTAMINATED MATERIAL HOLDING CELLS**

- (A) Prior to beginning grading/excavation work, the Contractor shall construct separate holding cells for non-grossly and grossly contaminated soil and solid waste as follows:
- (1) The Contractor shall construct the holding cell liner from two (2) layers of 10 mil polyethylene sheeting.
  - (2) The Contractor shall lay down the polyethylene liner and secure the edges of the liner with a soil berm, stakes, or equivalent, to contain potential surface water runoff within the lined cells.
  - (3) The Contractor shall ensure that the holding cell is water-tight and that the berm is at least 1.5 feet above the ground surface. The polyethylene sheeting shall extend to the top of the berm. No overlaps, seams, joints, or defects shall be allowed in the polyethylene liner.
  - (4) Prior to placing material in the holding cells, the Contractor's Qualified Consultant shall approve cell construction quality and size.
  - (5) Prior to construction of holding cells, the State Parks Division shall approve the location of the holding cells. The holding cell location, construction materials, and layout shall be identified in the Work Plan.

#### 1.12 TRANSPORT OF CONTAMINATED SOIL AND SOLID WASTE TO HOLDING CELLS

- (A) The Contractor shall place material from the grading/excavations into separate holding cells for non-grossly and grossly contaminated soil and solid waste. If grossly contaminated soil is encountered, the Contractor shall be responsible for the construction of the holding cell(s), oversight of segregation, testing, handling, transport, and disposal, as directed in Section 40.4 above. Stockpiles shall be placed on polyethylene sheeting. In general, the following shall apply during transport of material to holding cells. (In the case of grossly contaminated soil, the Contractor's Qualified Consultant and the State Park's Division Construction Engineer shall be responsible for oversight and direction and may alter the parameters outlined below.)
- (1) The bed of the truck used for transporting the material shall be clean and capable of holding the material without spillage or leakage.
  - (2) The Contractor shall separate concrete and asphalt debris from the excavated material and properly dispose of the debris, as appropriate.
  - (3) The Contractor shall separate other solid waste from the excavated material and properly dispose of the debris, as appropriate.
  - (4) The Contractor shall employ a placement method that does not disturb or damage the polyethylene liner, and the driving of machinery onto the material is not allowed.

- (5) The Contractor shall leave the temporary excavated material stockpile area free of excess materials.
- (6) The Contractor shall moisten the material enough to minimize dust, if necessary but leave no standing water.
- (7) If dewatering is necessary, the Contractor shall adhere to all local, State, and Federal regulations regarding back trenching (i.e., re-infiltration trench).
- (8) At the end of each work day or if it begins to rain, the Contractor shall cover the excavated material stockpiles with polyethylene sheeting in a secure manner which shall prevent winds from blowing the sheeting from the piles. Stockpiles that are not in use shall remain covered with polyethylene sheeting to minimize odors and prevent runoff. No surface runoff shall be allowed to enter, flow through, or exit the stockpiles.

#### **1.13 TRANSPORTATION AND DISPOSAL**

The Contractor shall furnish labor, materials, and equipment necessary to store, transport, and dispose of contaminated soil, solid waste, and MEC in accordance with Federal, State, and local requirements. The Contractor shall prepare and maintain waste shipment records and manifests required by the Resource Conservation and Recovery Act (RCRA), U.S. Federal Department of Transportation (DOT), and State DOT. Any non-grossly contaminated and grossly contaminated soil and solid waste shall be properly disposed of at a State approved/permitted disposal facility. The Contractor's Qualified Consultant shall complete contaminated soil testing in accordance with the testing requirements of the disposal facility. The contaminated soil testing procedures shall be included in the Work Plan. The Contractor shall be responsible for obtaining acceptance of contaminated soil disposal at the disposal facility. Upon transportation and disposal, the Contractor shall submit copies of the waste shipment manifests for both hazardous and non-hazardous wastes and certificates of disposal to the State Park's Division Construction Engineer. The Contractor shall also include all waste shipment manifests and certificates of disposal in the Completion Report.

#### **1.14 MEASUREMENT AND PAYMENT**

The cost of contaminated soil and solid waste excavation, removal, transportation, and disposal shall be included in the unit price in the Proposal Schedule. The Contractor will pay for:

- (A) Cost of separating grossly and non-grossly contaminated soil, and solid waste including, but not limited to, concrete debris, metal debris, wood debris, and MEC removed as part of the demolition and removal work. Costs shall include physically separating material, loss of production, protective wear, safety plan, and other costs related to contamination.
- (B) Excavation of grossly contaminated soil and solid waste for site excavation/grading.

- (C) Excavation of non-grossly contaminated soil and solid waste for site excavation/grading.
- (D) Cost of separating grossly and non-grossly contaminated soil for site grading, including, but not limited to, physically separating material, loss of production, protective wear, safety plan, and other costs related to contamination.
- (E) Setup, maintenance, and removal of soil staging area, for non-grossly contaminated soils.
- (F) Setup, maintenance, and removal of soil staging area for grossly contaminated soils.
- (G) Setup, maintenance, and removal of staging area for excavated solid waste.
- (H) Setup, maintenance, and removal of staging area for removed MEC (UXO).

ITEM NO.	PAY ITEM	PAY UNIT
1.	Preparation of Planning Documents, inclusive of the Work Plan	LS
2.	Contractor's Environmental Qualified Consultant	LS
3.	Contractor's UXO Monitor	LS
4.	Solid waste disposal (1,700 cy) including setup, maintenance, and removal of staging area, loading, hauling and disposal.	LS
5.	Contaminated soil disposal (2,000 cy) including setup, maintenance, and removal of soil staging area, loading, hauling and disposal.	LS
6.	Disposal of MEC not covered by Army.	Allowance

**END OF ARTICLE**



## ARTICLE II – AMBIENT AIR MONITORING

### 2.1 GENERAL

#### A. SCOPE

The Contractor shall hire an American Board of Industrial Hygienists (ABIH) Certified Industrial Hygienist (CIH) to develop an air sampling program to monitor emissions during the excavation of contaminated soil/groundwater, sediment, concrete/asphalt, and solid waste. Air samples shall be collected upwind and downwind of the site to measure air concentrations of contaminants of concern at the boundaries to ensure the safety of nearby residents, the public, and air quality in nearby facilities.

#### B. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- (1) National Institute for Occupational Safety and Health, NIOSH Manual for Analytical Methods.
- (2) US Environmental Protection Agency, Toxic Organic Methods, TO - 14.
- (3) Screening for Environmental Hazards at Sites with Contaminated Soil and Groundwater, Fall 2011 Updates (Revised January 2012). Prepared by Hawaii Department of Health Environmental Management Division, Hazard Evaluation and Emergency Response Office.

#### C. SUMMARY

Testing and air monitoring shall be supplied by the Contractor for the purpose of:

- (1) Ensuring compliance with ambient air contaminant standards at the boundaries of the project;
- (2) Determining air concentrations of contaminants of concern downwind of the site during activities that may release these compounds to ambient air.
- (3) Comparing measured air concentrations with health based standards for indoor air quality and managing project activities to comply with air quality standards.

#### D. CERTIFIED INDUSTRIAL HYGIENIST

The Contractor shall employ the services of an ABIH CIH to develop an Ambient Air Sampling Plan and to oversee the implementation of the plan. The CIH shall have a minimum of 5 years of experience in the monitoring of air contaminants at hazardous waste sites and the evaluation of ambient and indoor air quality data for human health concerns. The CIH shall submit qualifications that list previous project experience to the State at the start of the project.

**E. SUBMITTALS**

The Contractor shall submit an Ambient Air Sampling Plan no later than 30 days prior to the initiation of excavation activities that expose contaminated soil/groundwater, sediment, concrete/asphalt, other solid waste debris, or groundwater on the project site. This plan shall detail the locations of air samples to be collected on the site at upwind and downwind locations, the methods and equipment to be used to collect the samples, the laboratory that will perform the analysis of the samples, the detection limits of the sampling and analysis procedures, the relevant federal and state air quality standards to be applied for each of the contaminants of concern, quality control procedures, the frequency and turnaround time for the collection and reporting of all results, and interpretations of all results in comparison to applicable air quality standards. The boundaries are defined as the limits of construction. The Ambient Air Sampling Plan shall include actions to be taken should sample results exceed air quality standards. The actions shall detail the corrective measures that will be implemented. The Contractor shall be responsible for making any necessary revisions to this plan until deemed acceptable by the State. The Contractor shall not start any excavation work until this plan has been accepted by the State.

**2.2 EXECUTION**

**A. CONTRACTOR RESPONSIBILITIES**

- (1) The Contractor shall be responsible for the design and implementation of an Ambient Air Sampling Plan to evaluate the air quality at the boundaries of the project during activities that may impact ambient air, such as excavation of contaminated soil/groundwater, sediment, concrete/asphalt, and solid waste debris; stockpiling of contaminated materials, pumping of contaminated groundwaters, and all other activities required to complete the work.
- (2) The Contractor shall report the results of each round of air sampling data to the DLNR Construction Engineer within 3 days of sample collection if technically feasible (i.e. laboratory analytical method can be completed in 24 hours). At a maximum, all air sampling data shall be reported to the DLNR Construction Engineer no later than 5 days from sample collection. These results shall be reviewed by the CIH and be compared to federal and state air quality standards applicable to the project as defined in the Ambient Air Sampling Plan.
- (3) If air quality sampling results exceed applicable federal and state air quality standards at the boundaries, then the Contractor shall take measures to reduce the air concentrations and restore the air quality to acceptable levels.
- (4) The Contractor shall conduct site activities in a manner that minimizes the impact to ambient air quality. This includes soil/groundwater, sediment, concrete/asphalt, and solid waste debris stockpiling, dust control, storage and handling of contaminated media, and all other activities required to complete the work.

**B. CERTIFIED INDUSTRIAL HYGIENIST RESPONSIBILITIES**

- (1) The CIH will review and approve the Ambient Air Sampling Plan and research and propose the federal and state air quality standards to be applied to the ambient air monitoring on the project site.
- (2) The CIH shall review all air sampling results and compare the results to the established air quality standards.
- (3) The CIH shall perform periodic inspections of the project activities and air sample collections to ensure compliance with the Ambient Air Sampling Plan and the established air quality standards.
- (4) The CIH shall work with the Contractor to manage site activities if air sampling indicates that unsafe air concentrations are being released from the site.

**2.3 MEASUREMENT AND PAYMENT**

Work performed under this section will be paid for at the lump sum price bid in the Proposal Schedule, complete in place.

ITEM NO.	PAY ITEM	PAY UNIT
1.	Ambient air monitoring	Lump Sum

**END OF ARTICLE**