Department of Toxic Substances Control

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SENT VIA ELECTRONIC MAIL

February 13, 2023

Mr. Matt Englhard
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11777 San Vicente Blvd #780
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APPROVAL OF SOIL MANAGEMENT PLAN FOR HANFORD FOUNDRY, 119 SOUTH ARROWHEAD AVENUE, SAN BERNARDINO, CALIFORNIA 92408 (SITE CODE: 401251)

Dear Matt Englhard:

The Department of Toxic Substances Control (DTSC) has reviewed the revised Soil Management Plan (SMP) dated February 6, 2023 prepared by Hazard Management Consulting (HMC) on behalf of Proficiency Capital LLC for the above-referenced site (Site). The SMP was reviewed pursuant to a Standard Voluntary Agreement (SVA) (Voluntary Cleanup Agreement, Docket Number HSA-A 04/05-001), entered into by DTSC and Kenneth C. Bussey Trust, Caston Family LP.

The Hanford Foundry Company Site (Site) is located at 119 South Arrowhead Avenue in San Bernardino, San Bernardino County, California. The Site occupies 10.5 acres of land. The Site is currently a vacant lot with sparse vegetation. The Site is bounded by Rialto Avenue to the north, Sierra Way to the East, Arrowhead Avenue to the west, and the Atchison, Topeka and Santa Fe Railroad tracks to the south. The Site lies within a predominantly commercial and residential area, although the area is zoned as light industrial. After Site characterization activities, the Site was deemed to be acceptable for use in commercial/industrial scenarios. A Land Use Covenant recorded with the County of San Bernardino in February 2007, placed a restriction on the Site to prevent sensitive use and required soil management for soil disturbance activities.

The SMP presents the procedures that will be used during Site grading to notify workers on the Site as to the presence of residual concentrations of constituents of concern in soils. The SMP provides guidance regarding the health & safety procedures that will be implemented to protect both workers at the Site and nearby residents; the segregation, management and disposal of soil containing elevated known chemicals of concern on Site; as well as responding to unknowns that may be encountered during grading.

DTSC hereby approves this SMP for use by the current and future owners and occupants when they conduct activities that will disturb the soil at the Site. This approval letter is not a waiver, variance, or termination of any of the LUC terms, but will serve to put in place a "pre-approved" SMP for implementation by current and future owners and occupants.

In the future, if DTSC determines that use of this pre-approved SMP is no longer appropriate, DTSC may terminate its approval of the SMP by providing notice of such termination to the then current owner of the property. At that time, the owner may seek a replacement pre-approved SMP, or may elect to wait to submit a new SMP when soil disturbance is planned and DTSC's prior approval of an SMP is required. However, in no instance shall there be any soil disturbance at the property without a valid DTSC approved SMP prior to such soil disturbance.

If you have any questions, please contact the Project Manager, Anthony Rosas, at anthony.rosas@dtsc.ca.gov , or you may contact me at maryam.tasnif-abbasi@dtsc.ca.gov.

Sincerely,

Ms. Maryam Tasnif-Abbasi
Unit Chief
Office of Brownfields

Peer reviewed by: Rana Georges, Senior Environmental Scientist (Specialist)

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SOIL MANAGEMENT PLAN

119 South Arrowhead Avenue
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February 6, 2023

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1.0 INTRODUCTION

This Soil Management Plan (SMP) has been prepared by Hazard Management Consulting, Inc. (HMC) for the property located at 119 South Arrowhead Avenue in the City of San Bernardino, California (the Site) (Figure 1). The Site was recently purchased, with plans to redevelop the Site with three commercial warehouses. The Site consists of two parcels (APN 013604110 and APN 013605154), that combined measure approximately 10.58 acres, and is currently a vacant lot occasionally used for parking.

Historically, the Site was occupied by the Hanford Foundry. The former Hanford Foundry Company operated from 1906 to 1986 and manufactured cement castings, oil castings and commercial pumps from steel, stainless steel, and high temperature metal alloys. In 1986, the company declared bankruptcy and a trust was formed in 1987 to liquidate assets and demolish all existing foundry buildings and appurtenances. The site remained vacant and undeveloped after 1988, once the former foundry buildings and appurtenances were demolished.

The Site received a conditional No Further Action (NFA) determination on February 28, 2007 from the Department of Toxic Substance Control (DTSC) that stated "that the Site does not appear to pose a threat to human health or the environment with the present use of the site, i.e. commercial/industrial." The determination continues that "no further action is necessary with the respect to investigation and remediation of hazardous substances at the Hanford Foundry Site, provided that: (1) the use of the site does not change from commercial/industrial, and (2) the site is not used for any of the sensitive uses identified in the Land Use Covenant."

The Land Use Covenant (LUC), dated February 23, 2007, states that "portions of the surface and subsurface soils within 10 feet of the surface of the Property contain hazardous substances, as defined in Health and Safety Code section 25316," but that the "Risk Assessment concluded there was no unacceptable cancer risk or non-cancer hazard to the indoor worker, outdoor worker, or the construction worker," with certain restrictions as listed in the LUC. These restrictions include (1) no sensitive uses at the Site (no residences, hospitals, schools, or day care centers), (2) all soil grading activities must be completed under a DTSC approved Soil Management Plan, (3) the owner shall notify DTSC at least 14 days prior to any ground disturbance activity, (4) no food or fiber crops will be grown or raised on the property, (5) no groundwater will be extracted at the Site for purposes other than site remediation or construction dewatering, and (6) the owner will allow DTSC access for inspection and monitoring under the LUC.

In 2012, the property was partially redeveloped for use as an overflow parking lot, under DTSC supervision, according to the restrictions of the NFA and the LUC. The property is now proposed to be fully redeveloped, with three commercial warehouses built on the Site. This redevelopment will meet the requirements of the NFA and LUC and all soil handling during grading and re-compaction will be completed under a DTSC approved SMP.

To determine whether special soil handling procedures would be necessary at the Site during future grading activities, two pre-grading soil investigations were completed by HMC in October 2021 and February 2022. The conclusions and recommendations of the 2021 (HMC, 2021) and 2022 (HMC, 2022) HMC investigations were as follows:

- The investigations confirmed historic investigations and the LUC, with volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), Title 22 Metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) confirmed to be present in shallow soils at the Site.

This SMP has be prepared to guide the grading effort the Site after completion of the removal of known commercial human health soil impacts, in accordance with the NFA and LUC requirements at the Site. The SMP presents the procedures that will be used during Site grading to notify workers on the Site as to the presence of residual concentrations of constituents of concern (COCs) in soils. The SMP provides guidance regarding the health & safety procedures that will be implemented to protect both workers at the Site and nearby residents; the segregation, management and disposal of soil containing elevated known COCs on Site; as well as responding to unknowns that may be encountered during grading.

2.0 IMPACTS TO FUTURE REDEVELOPMENT

The following section discusses the potential issues that could arise during development including grading activities. The South Coast Air Quality Management District's (SCAQMD's) Rule 1166 requires that any "VOC contaminated soil," which is defined as containing > 50 parts per million (ppm) VOC measured with a field instrument during grading, be monitored with special handling requirements and off-site disposal. Rule 1166 defines VOCs as any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds (see Rule 1166 for more information). If the grading process were to result in VOC contaminated soil being found, that soil would require off-site disposal per SCAQMD requirements.

Earlier Site investigations defined the potential impacts of Site contamination on future redevelopment activities. Based on the sampling conducted, there are only a limited number of known areas that will have to be managed prior to mass grading.

- Locations B2, F3, and G3 contain concentrations of PAHs (benzo[a]pyrene and dibenz[a,h]anthracene) that exceed commercial human health risk screening numbers,

- Locations H3, I3-C-20, and K1-B-20 contain concentrations of arsenic that exceed the Los Angeles Basin commercial human health risk screening number of 12 mg/kg, and

- Locations G3, I2, I3, and J1 concentrations of lead that exceed the DTSC commercial human health screening number of 500 mg/kg.

In addition, given the history of heavy manufacturing at the Site, the potential to encounter areas of unknown hazardous materials and sources in soil during grading activities is plausible. Section 4.2 discusses all compounds detected in soil at the Site during the pre-grading investigations. If soil is suspected to be potentially impacted (based on visual staining, odors, PID readings, or other observations) with unknown contaminants (e.g., metals or PCBs), the area will be delineated, and construction activity will cease in this area until further sampling and analysis can be conducted; if necessary, soils will be removed and/or stockpiled for disposal, confirmation samples will be collected, and work will resume in the area.

Federal and State hazardous waste regulations may impact the excavation process (i.e., grading) and emplacement of soils impacted by these materials exceeding predefined threshold criteria. In this case, the appropriate notifications will be made, and the soil will be handled according to the applicable Federal and State regulations at the time.

3.0 OBJECTIVE

The objective of this SMP is to document the procedures that will be used to guide the grading and redevelopment activities at each parcel in order to identify and properly manage both known hazardous soils and potentially unknown impacted soils.

4.0 ENVIRONMENTAL CONSIDERATIONS

Prior to the start of grading activities, all soil with known commercial human health impacts found within the grading and re-compaction zone will be removed and disposed of at an appropriate offsite facility in accordance with the LUC. However, during mass grading activities there is always a chance of encountering previously unknown impacted soil. The following procedures will be implemented while managing soils in these two categories.

4.1. KNOWN SOIL IMPACTS AND REUSE CRITERIA

Based on the pre-grading soil investigations conducted by HMC in 2021 and 2022, commercial human health impacts have been documented on the Site as shown on Figure 2. These areas will be excavated prior to the start of grading. The following table presents the action levels that have been selected for the known chemicals of concern on the Site, based on the screening criteria below:

Table 1. Action Levels for Known COPCs

Target COC	Action Levels	Basis for Action Level
Arsenic [1]	12 mg/kg	*Background Metals at Los Angeles Unified School Sites – Arsenic* (DTSC 2005)
Benzo[a]pyrene	1.3 mg/kg	DTSC Human Health Risk Assessment (HHRA) Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Dibenz[a,h]anthracene	0.31 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Lead	500 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022

Notes:

mg/kg – milligrams per kilogram

COC – constituent of concern

[1] Arsenic is a naturally occurring material and used in industrial processes and can be found in oil field waste. The background value for arsenic in southern California soils as established by the DTSC as part of the "schools program" is generally considered to be approximately 12 parts per million (ppm).

Soil exceeding the action level concentrations that are disturbed during grading will be excavated and disposed offsite prior to site redevelopment activities, in accordance with the LUC. There were no other parameters encountered during these investigations that would require removal based on the known concentrations. However, if they are encountered at higher concentrations then have been found to date, they will be treated as unanticipated soil impacts as described below.

4.2. UNANTICIPATED SOIL IMPACTS

There is the potential to encounter unanticipated subsurface features or soil conditions during grading of an historical industrial Site. This SMP presents the procedures in the event that an unanticipated issue is discovered during grading. The following table summarized proposed action levels for other detected compounds encountered during the 2021 and 2022 HMC pre-grading investigations that might potentially be encountered as unknown impacted soils. These action levels are based on federal and state commercial human health screening levels, where available.

Table 2. Action Levels for Detected Compounds in Soil

Potential COPC	Action Level	Source
Antimony	470 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Arsenic	12 mg/kg	*Background Metals at Los Angeles Unified School Sites – Arsenic* (DTSC 2005)
Barium	220,000 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Cadmium	79 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Chromium	--	No screening value available.
Cobalt	350 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Copper	47,000 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Lead	500 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Molybdenum	5,800 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Nickel	11,000 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Silver	5,800 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update

Potential COPC	Action Level	Source
Vanadium	5,800 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Zinc	350,000 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
Mercury	4.4 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
TPH – Gasoline Range	2,000 mg/kg	Commercial/Industrial Shallow Soil Exposure – 2019 SFRWQCB Environmental Screening Levels
TPH – Diesel Range	1,200 mg/kg	Commercial/Industrial Shallow Soil Exposure – 2019 SFRWQCB Environmental Screening Levels
TPH – Motor Oil Range	180,000 mg/kg	Commercial/Industrial Shallow Soil Exposure – 2019 SFRWQCB Environmental Screening Levels
PCB-1260*	0.99 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
1,1-Dichloroethane	16 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
1,2-Dichloroethane	2.0 mg/kg	Composite Worker Soil Table – USEPA Regional Screening Levels, November 2022 Update
1,1,1-Trichloroethane	7,200 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Benzo(a)anthracene	12 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Benzo(b)fluoranthene	13 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Benzo(k)fluoranthene	130 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Benzo(g,h,i)perylene	--	No screening value available.
Benzo(a)pyrene	1.3 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Chrysene	1,300 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Dibenz(a,h)anthracene	0.31 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Fluoranthene	18,000 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022
Indeno(1,2,3-cd)pyrene	13 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022

Potential COPC	Action Level	Source
Pyrene	13,000 mg/kg	DTSC HHRA Note 3 – Screening Level for Commercial/Industrial Soil, Revised May 2022

Notes:
* If TSCA regulated soil is encountered, USEPA will be consulted for oversight.
mg/kg – milligrams per kilogram
COPC – constituent of potential concern

5.0 PROGRAM PARTICIPANTS

5.1. ENVIRONMENTAL CONSULTANT

HMC will act as the environmental consultant and provide field oversight and management services for the SMP. HMC personnel will include the following Environmental Program Manager (EPM) and Environmental Field Coordinator (EFC:).

- EPM - Mark S. Cousineau, Hazard Management Consulting, (949) 361-3902 or (949) 689-5165.
- EFC - To be Determined (TBD)

5.2. CONTRACTOR

The general contractor for the project will be designated prior to the start of future soil management activities.

5.3. OWNER'S PARTICIPANTS

The Owner's Project Director is:

- Matt Englhard, Proficiency Capital, (949) 842-3074

6.0 INDIVIDUAL RESPONSIBILITIES

6.1. ENVIRONMENTAL CONSULTANT'S PROGRAM MANAGER

The EPM will perform for the following tasks:

- Monitor the work of the EFC;
- Communicate field activities to the Owner's Project Director;
- Communicate with the EFC to investigate unknown features and other unknown environmental conditions, if encountered;
- Evaluate results of all soil sampling conducted;
- After consultation with the EFC and the Owner's Project Director, characterize, delineate, and supervise the proper management of unknown features, and other unanticipated environmental conditions;
- Report sample results to DTSC for COCs that exceed the soil reuse criteria; and
- Prepare reports of field activities.

6.2. ENVIRONMENTAL FIELD COORDINATOR

The EFC will perform the following tasks:

- Monitor grading operations visually and with the appropriate monitoring equipment (e.g. a organic vapor analyzer [OVA] or a handheld x-ray fluorescence [XRF]) to assess potential unknowns in the field and respond to requests based on questions and findings from the contractor's representative;
- Provide oversight of the implementation of the SMP and Health & Safety Plan (HASP) including air monitoring;
- Collect soil samples and arrange for laboratory analyses if needed;
- Maintain records of soil sample locations;
- Report suspected unknown features and other unanticipated environmental conditions to the EPM. The EPM will initiate and approve all non-emergency contacts with the appropriate agencies; and
- Supervise activities related to investigating and remediating unknown features and other unanticipated environmental conditions.

6.3. CONTRACTOR'S FIELD COORDINATOR

The Contractor's Field Coordinator shall be responsible for the following tasks:

- Coordinate with the EPM regarding identification and removal of impacted soil or other unknown structures found during grading.
- Ensure that a certified SCAQMD dust control supervisor is present on the Site, in accordance with SCAQMD Rule 1466.

7.0 ACTIVITIES BEFORE GRADING

The Owner's Project Director and the EPM will provide the Contractor and Site workers with this SMP prior to implementation of any applicable field activities. A kickoff meeting will take place with all parties involved in the movement of soil to review the components of the plan. Furthermore, DTSC will be notified at least 14 days prior to the implementation of an applicable field activities, in accordance with the LUC.

8.0 HEALTH AND SAFETY

A HASP that will govern the work is included in Appendix A. Contractors are required to have their own HASP that at a minimum includes the provisions of this HASP in addition to whatever additional health and safety procedures are necessary and required for their specific activity.

All applicable federal, state, and local regulations and codes relating to health and safety shall be adhered to by the Contractor. The Contractor shall adhere to all sections of California Occupational Safety and Health Administration (OSHA) regulations contained in Title 8 of the California Code of Regulations (CCR) as they apply to the Site activities. Applicable requirements may include but are not limited to the following:

- Injury and Illness Prevention Program (8 CCR 1509 and 8 CCR 3203)
- Hazardous Waste Operations and Emergency Response (8 CCR 5192)
- Hazard Communication (8 CCR 5194)
- Personal Protective Equipment (8 CCR Article 10)
- Respiratory Protective Equipment (8 CCR 5144)
- Control of Noise Exposure (8 CCR 5095-5100)
- Excavations (8 CCR 1503 and 8 CCR 1539- 1547)
- Fire Prevention and Suppression Procedures (8 CCR 4848)
- Portable Fire Extinguishers (8 CCR 6151)
- Cleaning, Repairing, Servicing, and Adjusting Prime Movers, Machinery, and Equipment Lockout/Tagout (8 CCR 3314)
- Medical Services and First Aid (8 CCR 3400).

9.0 SOIL MANAGEMENT ACTIVITIES

The activity taking place that is subject to this SMP is the over excavation and compaction of shallow soil for the development of future buildings, footings, and parking areas of the Site. Soil excavation and grading operations will be conducted in accordance with the following site-specific soil management protocols, which have been developed after considering the Site history and previous subsurface investigations. These protocols are intended to be followed during all grading activities and cover both known and, if encountered, unanticipated environmental conditions at the Site. The EFC will periodically inspect the work locations to assess potential unknowns and monitor general grading practices. The Contractor's Field Coordinator will notify the EFC in the event that any odorous or discolored soil is encountered. Procedures to be followed if odorous or discolored soil is encountered are presented in Section 9.3.

It is anticipated that most of the soil will not require offsite disposal and will be reused on the Site, under the existing LUC. The EFC will be on the Site to assist in segregating impacted soil from non-impacted soil and assisting in the selection of potential disposal options.

9.1. KNOWN CONDITIONS

All known soils that are disturbed and exceed commercial human health risk values will be excavated and disposed of offsite prior to the start of grading in accordance with the LUC. Confirmation samples will be collected from sidewalls and the bottom of the excavations. Once all confirmation samples within the re-compaction horizon are below the established action level, soil disposal and grading activities will begin at the Site. Residual concentrations of Site constituents in soil found below the re-compaction horizon will be remain in place in accordance with the current NFA and LUC.

9.2. AIR AND DUST MONITORING

Soil at the Site will require VOC monitoring in accordance with SCAQMD Rule 1166, VOC Emissions from Decontamination of Soil. Soils will be monitored for the presence of VOC-impacted soil and a VOC-impacted soil mitigation plan approved by the SCAQMD Executive Officer will be required if VOC-impacted soil is encountered during grading and excavation work. A copy of the plan must be on the Site during the entire excavation period, and the provisions for monitoring and reporting under the Rule 1166 permit/plan must be implemented. The following vapor or odor mitigation measures may be implemented if real-time air monitoring exceeds an action level or if odors are encountered that requires mitigation from a health and safety perspective:

- Cover subject soil with clean soil or plastic sheeting;
- Reduce the pace of work;
- Reduce size of area being excavated; and/or
- Apply vapor suppression.

Construction procedures or vapor/odor control measures may be altered based on observations of the effectiveness of such measures. Work must stop until such measures are improved, or additional or more effective measures are employed. Additional air monitoring may be conducted to confirm the effectiveness of emission reduction activities. Based on sampling conducted to date, only a limited

quantity of VOC contaminated soil is expected to be encountered. A Various Sites SCAQMD Rule 1166 Permit will be used at the Site if VOC contaminated soil is encountered. This permit will allow for up to 2,000 yards to be excavated and managed. If additional quantities are encountered, a Site Specific SCAQMD Rule 1166 Permit will be obtained.

Soil at the Site will also require dust monitoring in accordance with SCAQMD Rule 1466, Control of Particulate Emissions from Soils with Toxic Air Contaminants. Dust will be monitored at the excavation area, to ensure the safety of the workers, and at the perimeter of the Site, to ensure the safety of the public and to ensure that a public nuisance condition does not occur. Dust monitoring will be conducted using a monitor that meets the requirements of section (d) and Appendix 1 of SCAQMD Rule 1466. Dust monitoring measurements will be recorded on a Dust Monitoring Form or logged on the meters. In areas subject to SCAQMD Rule 1466, dust monitoring will occur upwind and downwind of the excavation. If dust measurements or visual dust exceed SCAQMD requirements/ action levels, then work will stop, or dust suppression/ mitigation will be applied until concentrations decline.

The Contractor shall be responsible for the mitigation of dust during construction activities. If elevated dust measurements or visible dust at the perimeter of the Site boundaries as a result of construction activities at the Site are observed, the Contractor shall enhance mitigation measures to eliminate the presence of visible dust at the Site boundary. Additional dust control measures that may be implemented, if necessary, include:

- Increased watering of the work area;
- Covering of stockpiles;
- Decreasing drop heights; and/or
- Use of dust palliatives.

The EFC will monitor Site conditions and evaluate what dust control measures (e.g., water application) will be implemented, as needed.

9.3. UNANTICIPATED ENVIRONMENTAL CONDITIONS

The EFC will monitor the grading activity and implementation of the SMP. The EFC will be tasked with observing the soil during grading, collecting field measurements with both OVA and handheld XRF, documenting soil source and destination locations, and collecting soil samples. The following process will be followed if unanticipated environmental conditions are encountered, including unusual odors, sustained elevated OVA readings (greater than 25 ppm), elevated XRF reading (greater than 5 times STLC screening level for the metals of concern), pH less than 2, unusual staining or discoloration, or other characteristics judged by the EFC to be not representative of previously assessed Site conditions.

1. The Contractor will discontinue work in the area immediately and notify the EFC. The suspect area will be delineated with caution tape to prevent unauthorized entry.
2. The EFC will notify the EPM who will communicate to DTSC that unanticipated impacted soil has been encountered.
3. The Contractor shall not move potentially impacted soil, or other materials, such as debris, from the suspect area to other parts of the Site unless otherwise directed by the EFC.

4. The EFC will direct the excavation and stockpiling of the suspected impacted soils. Suspected materials will be removed to a depth of planned grading activities.
5. Stockpile samples will be collected from the suspected impacted soil. All stockpile samples and excavation activities will be thoroughly documented. Soil sampling methodologies are included in Appendix B.
6. Suspected impacted soil samples will be analyzed for some or all of the following: VOCs plus oxygenates using United States Environmental Protection Agency (USEPA) Test Method 8260B, PAHs using USEPA Test Method 8270C, TPH carbon chain analysis using USEPA Test Method 8015B(M), Title 22 metals using USEPA Test Method 6010B/7471A, and PCBs using USEPA Test Method 8082. VOC samples will be collected using USEPA Method 5035. If necessary, additional analyses may be conducted.
7. Once the analytical results are obtained, the EPM will compare the results to the appropriate soil reuse criteria for the parcel from which the soil was sampled to assess whether further action is warranted and, if so, what action is appropriate under the circumstances, including further appropriate agency notifications.

9.4. SOIL STOCKPILING

Soil to be stockpiled from areas known to be impacted or soil that is potentially impacted based on field observations shall be segregated from other soils, placed on plastic sheeting and covered at the end of each workday. Stockpiled soil awaiting characterization shall be treated as impacted soil until results are obtained. Daily tarping/cover and dust control shall be provided. Storm water management practices shall be consistent with applicable rules and regulations, including those set forth by San Bernardino County, the City of San Bernardino, and DTSC.

9.5. OFF-SITE DISPOSAL

Soil to be disposed of off the Site shall be characterized to determine if it is a hazardous waste in accordance with CCR, Title 22, and to respond to the requirements of the accepting disposal facility (e.g., hazardous, non-hazardous, or recycling). All soil will be handled and disposed of according to current regulatory guidelines; excess impacted soils will not be transported from the Site to an unrestricted use Site.

9.6. IMPORTED FILL MATERIAL

Imported fill material must meet the minimum requirements for soil sampling and analysis outlined in the DTSC's October 2001 Information Advisory, Clean Imported Fill Material to avoid the placement of chemically impacted soil on the Site. The specific chemicals to be tested and the frequency of testing will be evaluated on a case-by-case basis determined by the EPM and other stakeholders. No imported soil may be used on the Site without the written consent of the EPM and other stakeholders. If a large quantity of import soil is required, the following sampling frequency will be used:

- 0-1000 yards 1 sample + 1/250 yards up to 1000 yards;
- 1,000-5,000 yards 1 sample/500 yards plus above; and,

- >5,000 yards 1 sample/1000 yards, plus above.

9.7. EQUIPMENT CLEANING

Track out of soil or other materials from the project Site is prohibited. Soil or other materials adhered to vehicles shall be removed via brushing or washing before exiting the Site.

If water is used for washing; it shall be collected and contained on the appropriate parcel of the Site. Sampling may be needed prior to disposal in compliance with any sewer discharge permit(s). Sampling and compliance shall be the responsibility of the Contractor.

9.8. SOIL SAMPLING PROCEDURES

Soil samples may be collected using hand tools or a direct push drill rig. Soil sampling and sample handling procedures are presented in Appendix B.

9.9. NOTIFICATIONS

Notification should be made to the appropriate agency depending on the environmental issue encountered. Potential notification scenarios may include (1) notification if an unknown underground structure (e.g., underground storage tank [UST] or sump) is encountered; (2) notification should other environmental issues be identified. Notification to the appropriate agency shall be made by the owner in coordination with the EPM.

10.0 REPORTING

Upon completion of grading and any other soil sampling or management activities, a report outlining the work undertaken will be prepared and submitted to the Owner, the City of San Bernardino, the County of San Bernardino, and DTSC. The report will provide a summary of the work conducted, results of confirmation sampling and will contain copies of all daily field logs including all OVA and XRF monitoring results, laboratory results, and manifests used to dispose of soil from the Site.

11.0 REFERENCES

California Code of Regulations. Title 22, Chapter 11, Article 3 – *Characteristics of Hazardous Waste*.

County of San Bernardino, 2007. *Covenant to Restrict Use Of Property – Environmental Restriction*. February 23.

Department of Toxic Substance Control (DTSC), 2007. *Conditional No Further Action Determination for Hanford Foundry Property, San Bernardino County, APNs 0136-041-10 and 0136-051-54*. February 28.

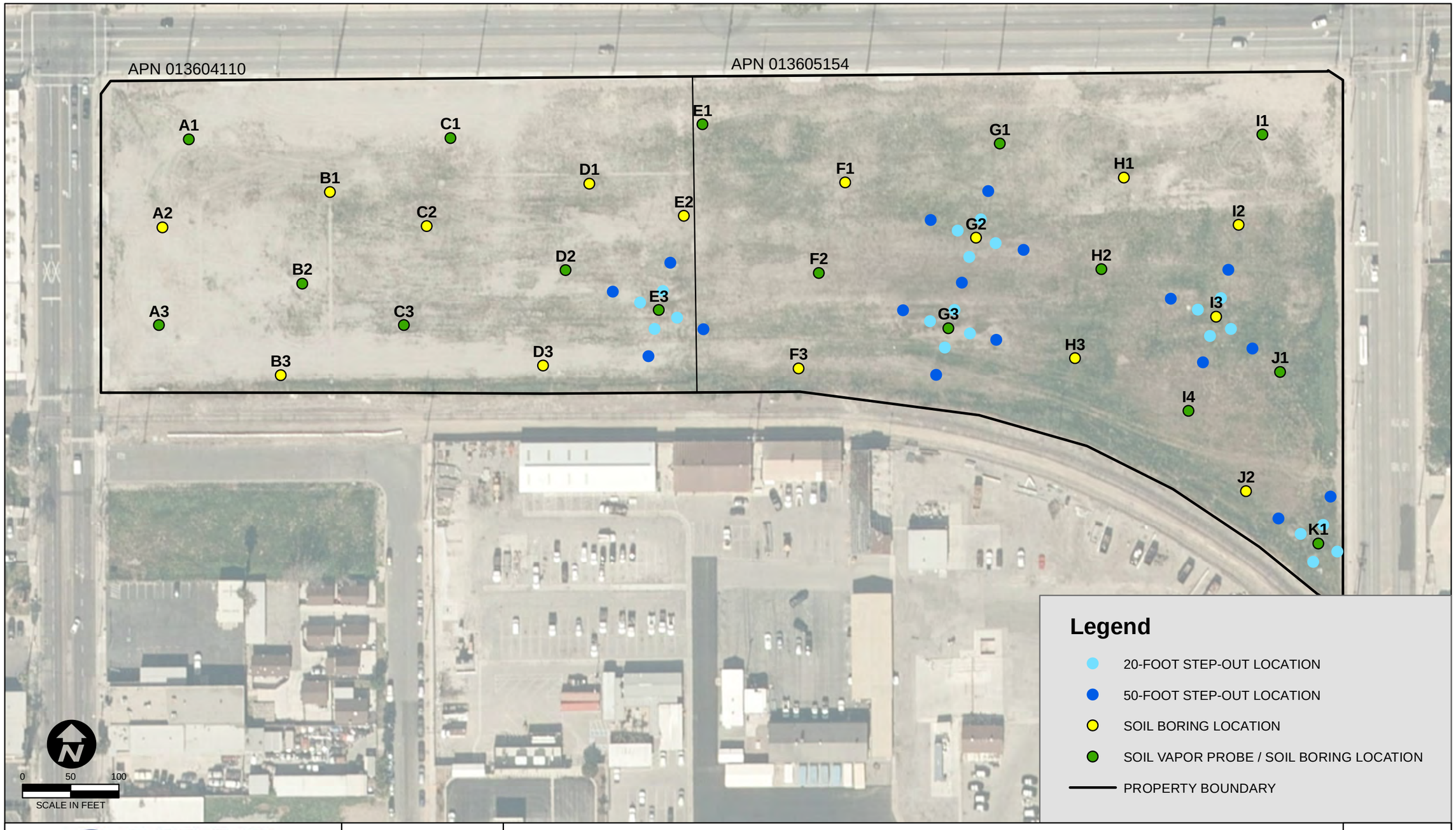
Hazard Management Consulting (HMC), 2021. *Phase II Site Investigation Report*, 119 S. Arrowhead Avenue, San Bernardino, California. November 10.

HMC, 2022. *Step-Out Soil Investigation Report*, 119 S. Arrowhead Avenue, San Bernardino, California. March 17.

Shaw Environmental Inc (Shaw), 2006. *Final Site Characterization Report*, Former Hanford Foundry Company Site, 119 South Arrowhead Avenue, San Bernardino, California. August 11.

Shaw, 2012. *Notice of Intent to Redevelop Property/Closed Property*, Former Hanford Foundry, 119 South Arrowhead Avenue, San Bernardino, California. March 29

FIGURES



HMC HAZARD MANAGEMENT CONSULTING

CHECKED BY: RB

DRAWN BY: MR

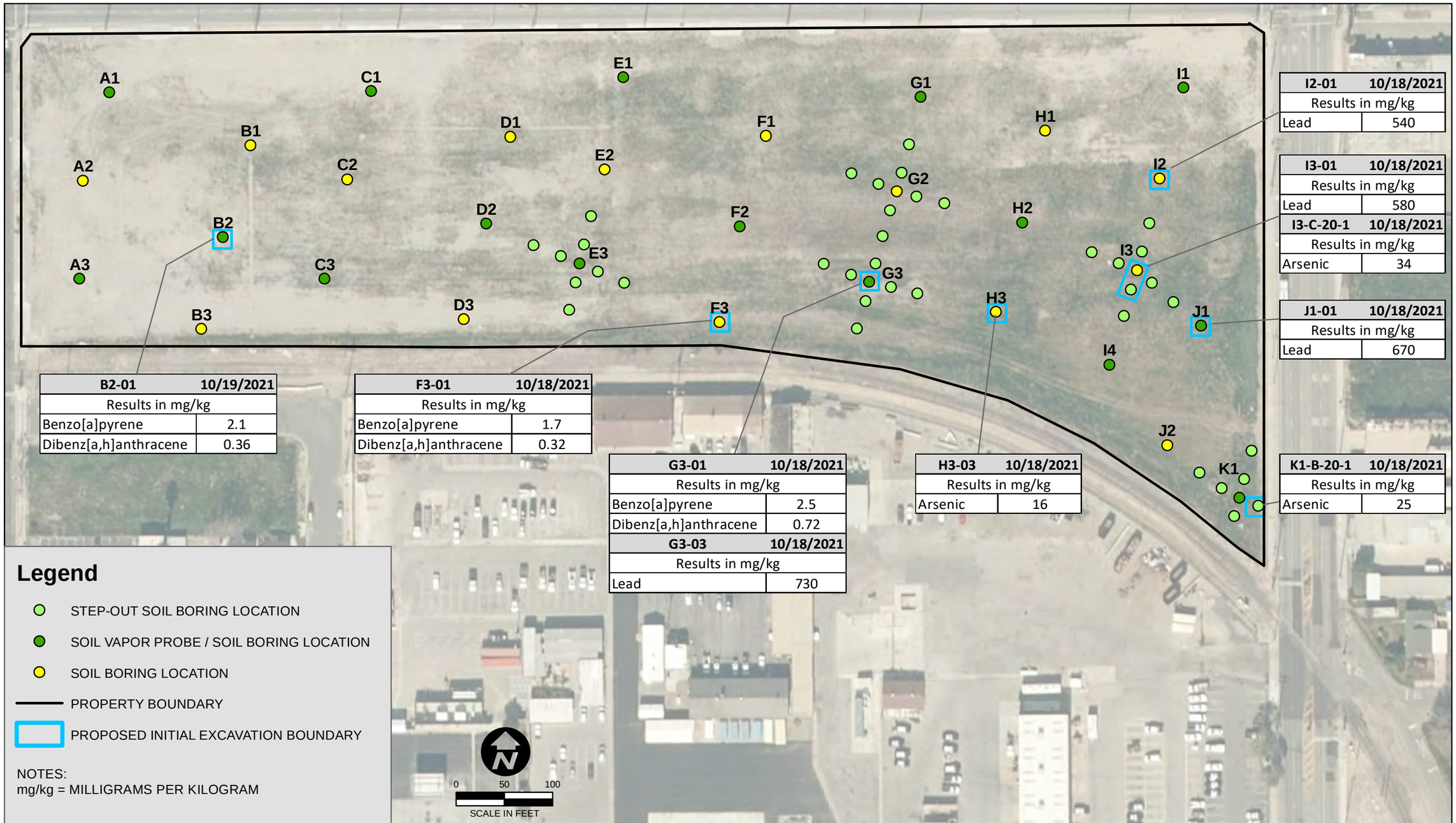
DATE: OCTOBER 2021

FILE NAME: PLATE X-STEPOUT SB LOCATIONS .MXD

SITE MAP

119 SOUTH ARROWHEAD AVENUE
SAN BERNARDINO, CA

PLATE: 1



B2-01	10/19/2021
Results in mg/kg	
Benzo[a]pyrene	2.1
Dibenz[a,h]anthracene	0.36

F3-01	10/18/2021
Results in mg/kg	
Benzo[a]pyrene	1.7
Dibenz[a,h]anthracene	0.32

G3-01	10/18/2021
Results in mg/kg	
Benzo[a]pyrene	2.5
Dibenz[a,h]anthracene	0.72

G3-03	10/18/2021
Results in mg/kg	
Lead	730

H3-03	10/18/2021
Results in mg/kg	
Arsenic	16

I2-01	10/18/2021
Results in mg/kg	
Lead	540

I3-01	10/18/2021
Results in mg/kg	
Lead	580

I3-C-20-1	10/18/2021
Results in mg/kg	
Arsenic	34

J1-01	10/18/2021
Results in mg/kg	
Lead	670

K1-B-20-1	10/18/2021
Results in mg/kg	
Arsenic	25

Legend

- STEP-OUT SOIL BORING LOCATION
- SOIL VAPOR PROBE / SOIL BORING LOCATION
- SOIL BORING LOCATION
- PROPERTY BOUNDARY
- PROPOSED INITIAL EXCAVATION BOUNDARY

NOTES:
mg/kg = MILLIGRAMS PER KILOGRAM

HMC HAZARD MANAGEMENT CONSULTING

CHECKED BY: KK

DRAWN BY: MR

FILE NAME: PROPOSED EXCAVATIONS - REVISED.MXD

DATE: JANUARY 2023

PROPOSED EXCAVATION LOCATIONS

119 SOUTH ARROWHEAD AVENUE
SAN BERNARDINO, CA

PLATE: 2

APPENDIX A

Zero Accidents
Safety - First and Always

HEALTH AND SAFETY PLAN

Soil Management Plan

119 S. Arrowhead Avenue
San Bernardino, California, 92408

May 6, 2022

HMC Project: Arrowhead

Prepared for:

119 Arrow, LLC

11777 San Vicente Boulevard Suite 780
Los Angeles, California 90049

Prepared by:

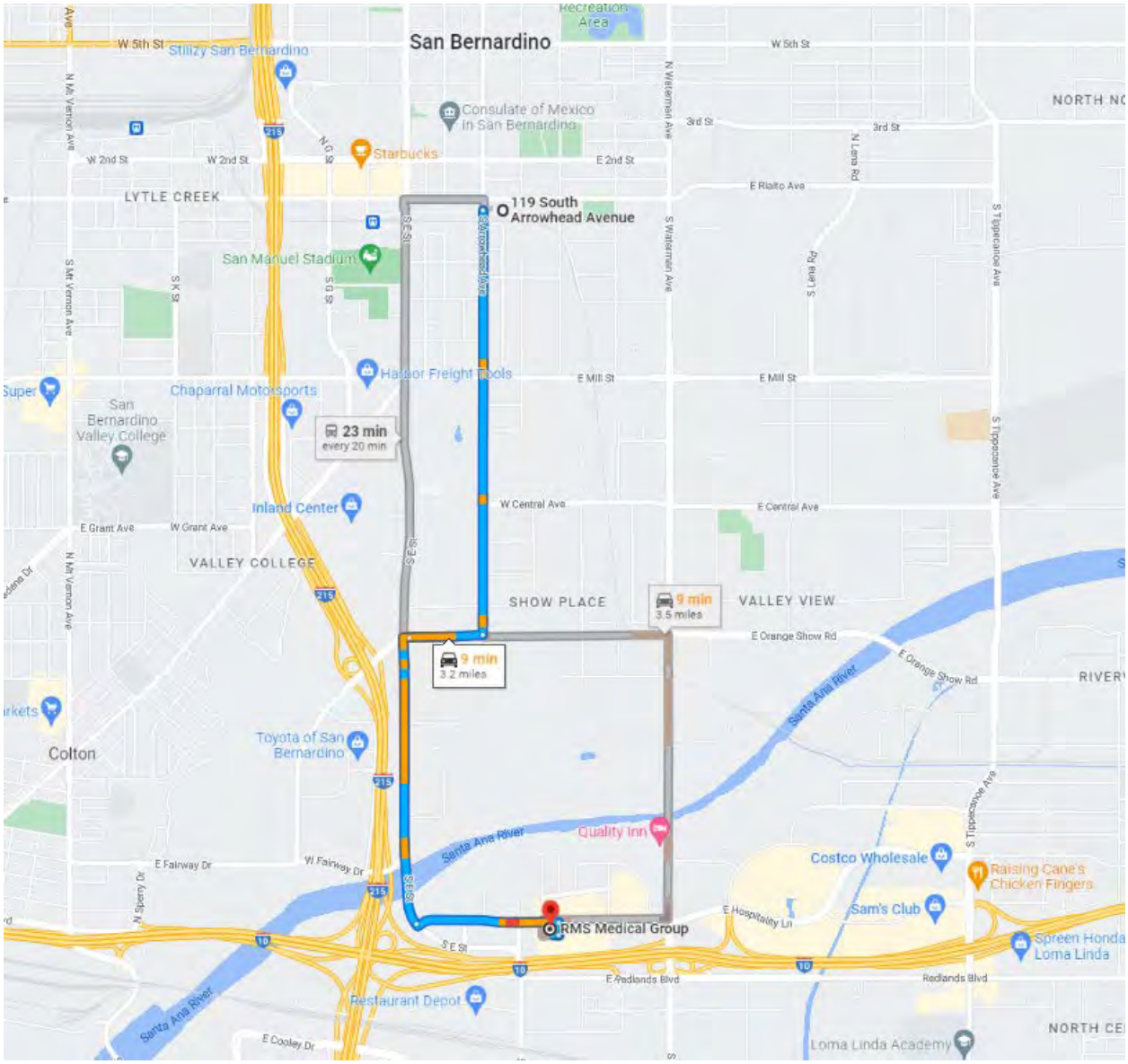
Hazard Management Consulting Inc.
211 West Avenida Cordoba, Suite 200
San Clemente, California 92672

HMC is dedicated to providing a safe and healthful environment for employees, contractors and subcontractors, and protecting our clients' employees and assets, as well as the public. The guidelines set forth in this Health and Safety Plan summarize the minimum mandatory standards, requirements, and expectations to ensure the protection and safety of all HMC Inc team members while conducting environmental consulting activities at the Project Site. Each contractor or subcontractor must assume direct responsibility for their own employees' health and safety. Please note: **You are the person most responsible for safety in the workplace. You are encouraged to fully accept this responsibility and to be continuously aware of the conditions and situations that may compromise safety. No job is so urgent that it cannot be conducted safely.**

Emergency Contact Information

Title	Name	Phone & Pager Number
Emergency – Call 911		
Ambulance		911
Police		911
Fire		911
Local Hospital	RMS Medical Group	(562) 933-2000
Emergency Coordinators	Melissa Robinson (HMC)	(909) 230-1115
Alternate Emergency Coordinator		
Project/Business		
Project Manager / Designated Health and Safety Officer (DHSO)	Mark Cousineau (HMC)	(949) 361-3902
Field Supervisors / Site Health and Safety Officer (SHSO)	Oscar Teller (HMC)	(714) 728-5285
Client Contact	Mark Cousineau (HMC)	(949) 361-3902

ROUTE TO HOSPITAL:



119 S. Arrowhead Avenue, San Bernardino, California, to RMS Medical Group, 115 E. Hospitality Lane #105, San Bernardino, California

1. Head south on S Arrowhead Ave towards W Hilda St
2. Turn right onto W Orange Show Rd
3. Use the left two lanes to turn left onto S E St
4. Use the left two lanes to turn left onto W Hospitality Ln
5. The destination will be on your right

HASP ACKNOWLEDGEMENT SHEET

All project staff must sign, indicating they have read and understand the HASP and other referenced documents. A copy of this HASP and other referenced documents must be made available for their review and readily available at the job site.

Employee Name/Job Title	Date Distributed	Signature

CONTRACTOR HASP ACKNOWLEDGEMENT SHEET

A copy of this safety plan shall be provided to contractors and subcontractors who may be affected by activities covered under the scope of this HASP. All contractors and subcontractors must comply with applicable OSHA, EPA, and local government rules and regulations.

Firm Name	Contact Person	Date Distributed

HEALTH AND SAFETY MEETING

ALL PERSONNEL PARTICIPATING IN THE PROJECT MUST RECEIVE INITIAL HEALTH AND SAFETY ORIENTATION. THEREAFTER, A BRIEF TAILGATE SAFETY MEETING IS REQUIRED AS DEEMED NECESSARY BY THE SITE SAFETY OFFICER (OR AT LEAST ONCE EVERY 10 WORKING DAYS).

Date	Topics	Name of Attendee	Firm Name	Employee Initials

VISITOR LOG

IT IS HMC's POLICY THAT VISITORS MUST FURNISH HIS/HER OWN PERSONAL PROTECTIVE EQUIPMENT. ALL VISITORS ARE REQUIRED TO SIGN THE VISITOR LOG AND COMPLY WITH THE SAFETY PLAN REQUIREMENTS. IF THE VISITOR REPRESENTS A REGULATORY AGENCY CONCERNED WITH SITE HEALTH AND SAFETY ISSUES, THE SITE SAFETY OFFICER SHALL ALSO IMMEDIATELY NOTIFY DHSO.

Name of Visitor	Firm Name	Date of Visit	Signature

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1.0 INTRODUCTION

This Health and Safety Plan document (HASP) has been developed to support assessment and remediation activities to be conducted by Hazard Management Consulting Inc (HMC) and sub-contractor personnel at the Project Site.

This HASP establishes the responsibilities, requirements, and procedures for the protection of personnel while conducting on-site work. Working conditions may necessitate modification of this plan. Except in emergencies, no deviations from this plan may be implemented without the prior notification and approval by the Project Manager with consultation from the Designated Health and Safety Officer (DHSO). The specific requirements of this HASP apply to HMC employees, contractors and subcontractors involved in implementing the described scope of work. It is not applicable to other contractors and/or site tasks unless specifically authorized in writing for such use by a designated HMC representative.

The health and safety protocols outlined in this plan are designed to ensure compliance with Federal, State and local regulations governing worker safety on hazardous waste sites. Incorporated in this HASP by either direct or indirect reference are all appropriate and applicable sections of the *HMC Safety and Health Program Manual*. In the case where an apparent conflict exists between what is presented in the HASP and the above referenced document the most conservative of the documents will initially be followed. The apparent conflict will be brought to the attention of the Project Manager and with consultation from the DHSO, and as appropriate the Client and/or Site Contact, a written resolution presented in the form of an addendum to this HASP prepared and presented to all field staff.

HMC's intent is to provide a safe and healthful work environment for all employees and subcontractors. This HASP has been developed to fulfill the following objectives:

- Perform a hazard assessment to identify and assess health and safety hazards associated with project tasks and activities.
- Specify and establish procedures and practices to provide a safe and healthful workplace for employees, subcontractors, and site visitors.
- Detail personal protective equipment needed to protect employees and subcontractors conducting field task activities.
- Instruct employees, subcontractors and site visitors on procedures to minimize the potential for injury or exposure to a hazardous condition.
- Train employees and subcontractors on the proper action to be taken if a hazardous condition cannot be avoided by engineering controls.
- Provide guidelines for emergency response for known hazards and hazardous situations.
- Establish procedures to minimize or prevent adverse impact to employees, subcontractors, site visitors and the surrounding environment and community in the event of a release of a toxic chemical or substance.

1.1 IMPLEMENTATION AND MODIFICATION OF THE HASP

This HASP and other referenced documents are to be read and understood by all on-site field personnel. Site personnel are required to complete and sign a Personnel Acknowledge Form indicating acknowledgment, agreement, acceptance, and understanding of the contents of all appropriate health and safety documentation including but not limited to this HASP and HASP addendums.

All persons entering the site will receive a safety and health indoctrination/overview of the site that discusses site health and safety issues. Site workers and long-term visitors are required to read this HASP and sign and date the log as having read and understood the provisions of the HASP. Before any field activities begin, weekly, to discuss HASP addendums, and/or as conditions warrant health and safety tailgate meetings will be held with on-site field personnel to discuss safety procedures and to familiarize personnel with the potential hazards of the site. The Site Health and Safety Officer (SHSO) will document all tailgate and/or other health and safety meetings in a logbook. The SHSO will conduct routine (e.g., daily) assessments of the work area and on-site field personnel to ensure that the documented health and safety procedures are implemented and adequate. If any operation, practice, and/or equipment are not adequate, based on the SHSOs assessment, the SHSO will document the item in a logbook and notify the DSHO. Operations will cease or the faulty equipment will be removed and replaced, as appropriate. Unacceptable practices and/or faulty equipment will be remedied immediately, and the HASP will be modified to correct any deficiencies in the effectiveness of the Plan.

As, and if, required this HASP may be modified. The HASP will be modified in writing by preparing an addendum. Each addendum will be reviewed and approved by the Project Manager with consultation from the DHSO.

1.2 PROJECT SPECIFIC TASKS COVERED BY THIS HEALTH AND SAFETY PLAN

This HASP covers the following environmental consulting activities to be conducted by HMC at the Project Site.

Tasks to be conducted include

- Conduct Tailgate Safety Meeting
- Mark and Clear Borehole Locations
- Drill, Sample, and Abandon Soil Borings
- Install Soil Vapor Probes
- Sample Soil Vapor Probes
- Manage Investigation Derived Waste

2.0 ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

2.1 ALL PERSONNEL

All field personnel are responsible for continuous adherence to health and safety procedures during the performance of any and all assigned work. In no case may work be performed in a manner that conflicts with the intent of this plan or the inherent health and safety cautions outlined in this HASP and other referenced documentation. **Please note that you are the person most responsible for safety in the workplace.** You are encouraged to fully accept this responsibility and to be continuously aware of the conditions and situations that may compromise safety. **No job is so urgent that it cannot be conducted safely**.

Any person who observes unsafe acts or conditions or other safety problems must immediately report observations/concerns to supervisory personnel (e.g., SHSO, DHSO, and Project Manager). If there is any dispute with regard to health and safety, the on-site HMC staff will attempt to resolve the issue and if the issue cannot be resolved, they will consult off-site technical staff and supervisors for assistance. The specific task or operation in question must be discontinued until the issue is resolved. No person may work in a manner that conflicts with the safety and environmental precautions expressed in this HASP. HMC employees are subject to progressive discipline and may be terminated for blatant or continued violations.

2.2 PROJECT MANAGER

The Project Manager is responsible for ensuring that the necessary personnel, equipment, and other applicable resources are available for this project and that the reporting, scheduling, and budgetary obligations for this project are met.

The Project Manager is ultimately responsible for ensuring that all project activities are completed in accordance with requirements set forth in this HASP and other referenced documentation. The Project Manager must perform at least one on-site safety review during the project. The Project Manager is responsible for ensuring that all incidents are reported and thoroughly investigated. The Project Manager must approve in writing any addenda or modifications to the HASP.

2.3 FIELD SUPERVISOR

The Field Supervisor is responsible for field implementation of the HASP in connection with the SHSO (there is some overlap of the health and safety responsibilities of the Field Supervisor and SHSO. In the case where these responsibilities are assigned to more than one individual is up to these individuals to coordinate their respective activities to ensure all their responsibilities are fully carried out and executed). This includes communicating site requirements to all on-site project personnel. The Field Supervisor is responsible for informing the SHSO and the Project Manager of any changes in the plan work elements, so that those changes may be properly addressed from a health and safety perspective. The Field Supervisor, as the on-site representative of HMC, is responsible for maintaining contact with the Client

and/or Site Contact, and the Project Manager. Along with the SHSO the Field Supervisor is responsible for coordinating and enforcing on-site health and safety activities for all HMC team members (inclusive of contractors, subcontractors, and visitors) on site at all times. The Field Supervisor reports to the Project Manager and works directly with the Client and Site Contacts.

Other responsibilities of the Field Supervisor include:

- Conducting tailgate safety meetings and maintaining attendance logs and records.
- Enforcing the requirements of the HASP. This includes performing daily safety inspections of the work site.
- Stopping work, as required, to ensure personal safety and protection of property, or where life or property-threatening noncompliance with safety requirements is found.
- Determining and posting routes to capable medical facilities, emergency telephone numbers, and arranging emergency transportation to medical facilities.
- Notifying local public emergency officers of the nature of the site operations and posting of their telephone numbers in an appropriate location.
- Observing on-site project personnel for signs of chemical or physical trauma.
- Ensuring that all HMC team field personnel have been given the proper medical clearance, ensuring that all personnel have met appropriate training requirements and have the appropriate training documentation on site, and monitoring all team members to ensure compliance with the HASP.

2.4 SITE HEALTH AND SAFETY OFFICER (SHSO)

The SHSO will have the responsibility and authority to implement and enforce the approved HASP, this includes modifying/halting work, and removal of personnel from the work area if conditions change and effect on-site/off-site health and safety matters. The SHSO serves as the main contact for any on-site emergency. The SHSO conducts daily inspections to determine if operations are being conducted in accordance with the HASP and Cal-OSHA/OSHA regulations. The SHSO is assigned to the Project Manager for the duration of the project but reports directly to the DHSO with operational issues. An open dialogue is kept between the SHSO and supervisory personnel of the project to ensure that safety issues are quickly recognized, addressed, and corrective action taken (as required).

The SHSO has the ultimate responsibility to stop any operation that threatens the health and safety of the team, client employees and assets, the surrounding community, or that causes significant adverse impact to the environment. Other responsibilities include, but are not limited to:

- Implementing all on-site health and safety procedures and operations.
- Observing work crew members for symptoms of on-site exposure or stress.
- Upgrading or downgrading, in coordination with the DHSO and the Project Manager, the levels of personal protection based upon site observations and monitoring results.

- Informing the Project Manager of significant changes in the site environment that require equipment or procedure changes.
- Arranging and ensuring the availability of first aid and on-site emergency medical care, as necessary.
- Determining evacuation routes, establishing, and posting local emergency telephone numbers, and arranging emergency transportation.
- Ensuring that all site personnel and visitors have received the proper training and medical clearance before entering the site.
- Establishing exclusion, contamination reduction, and support zones.
- Ensuring that the respiratory protection program is implemented.
- Ensuring that decontamination procedures meet established criteria.
- Ensuring that there is a qualified first-aid person on site.

2.5 DESIGNATED HEALTH AND SAFETY OFFICER (DHSO)

The DHSO is responsible for the development, implementation, and oversight of the Health and Safety Program and the HASP. The specific duties of the DHSO include:

- Providing technical input into the design and implementation of the site HASP.
- Advising on potential for worker exposure to project hazards along with appropriate methods and/or controls to eliminate site hazards.
- Working with, supporting, and providing consultation to, the Project Manager on health and safety issues to ensure a safe workplace is maintained throughout field activities and to ensure continuous compliance with the HASP and other referenced documents.

2.6 SUBCONTRACTORS, VISITORS AND OTHER ON-SITE PERSONNEL

Subcontractors are responsible for the health and safety of their employees and for complying with the standards established in this HASP and other referenced documentation. Subcontractors will report to the Field Supervisor. All subcontractors, visitors, and other on-site personnel must check in with the Field Supervisor prior to gaining access to the work areas, to verify that all appropriate entry requirements are met.

3.0 HAZARD ASSESSMENT

3.1 PHYSICAL HAZARD ASSESSMENT

The typical physical hazards that have been identified for the scope of work to be conducted under this HASP are listed below in Table 1. All buildings, structures, and overhead lines (if present) will be removed prior to the proposed soil management activities. Underground Services Alert (USA) will be notified at least two working days prior to the start of any digging or excavation to clear underground utility lines, as specified in Title 8 CCR Section 1541. Currently, additional safety consideration has been given to potential worker hazards associated with the COVID-19 pandemic. Appendix B provides a job safety analysis (JSA) of procedures to address this unique potential condition.

Table 1
Physical Hazard Assessment

Tasks	Hazard	Tasks	Hazard	Tasks	Hazards
All	Lifting	All	Fire, explosion	All	Noise
All	Electrical	All	Vehicular operation	All	Heat exhaustion
All	Material handling	All	Uneven terrain, slips, trips, falls	All	Underground and overhead utilities
All	Hand and power tools	All	Equipment and personnel decontamination	NA	Hot work, welding, cutting
All	Heavy equipment, excavation, drilling	All	COVID-19 infection or transmission	All	Poisonous plants and animals

NA = Not Anticipated but may occur.

3.2 CHEMICAL HAZARD ASSESSMENT

Based on discussions with site personnel chemicals of potential concern (COPC), which might be encountered during field activities include total petroleum hydrocarbons (TPH); various volatile organic compounds (VOCs, e.g., benzene, toluene, xylenes, ethylbenzene). Tables 2A and 2B lists the maximum chemical concentration detected in soil samples and soil vapor samples, respectively, obtained from the Project Site.

Table 2A
Summary of Contaminants Present in Soil

Chemical	Location	Maximum Concentration
Antimony	G3	17 mg/kg
Arsenic	H3	16 mg/kg
Barium	E1	86 mg/kg
Cadmium	G3	6.6 mg/kg
Chromium	G3	2,100 mg/kg
Copper	G3	760 mg/kg
Lead	G3	730 mg/kg
Molybdenum	G3	110 mg/kg
Nickel	G3	1,400 mg/kg
Silver	E1	3.5 mg/kg
Vanadium	H2	34 mg/kg
Zinc	F2	340 mg/kg
Mercury	E1	0.32 mg/kg
TPH – Diesel Range	H3	380 mg/kg
TPH – Motor Oil Range	H3	2,400 mg/kg
PCB-1260	I3	110 ug/kg
1,1-Dichloroethane	G3	9.3 ug/kg
1,2-Dichloroethane	G3	2.9 ug/kg
1,1,1-Trichloroethane	G3	42 ug/kg

Chemical	Location	Maximum Concentration
Benzo (a) anthracene	B2	1,700 ug/kg
Benzo (b) fluoranthene	B2	2,700 ug/kg
Benzo (k) fluoranthene	G3	1,400 ug/kg
Benzo (g,h,i) perylene	G3	2,200 ug/kg
Benzo (a) pyrene	G3	2,500 ug/kg
Chrysene	B2	2,100 ug/kg
Dibenz (a,h) anthracene	G3	720 ug/kg
Fluoranthene	B2	2,400 ug/kg
Indeno (1,2,3-cd) pyrene	G3	2,000 ug/kg
Pyrene	B2	2,600 ug/kg

mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram
TPH = total petroleum hydrocarbons
PCB = polychlorinated biphenyls

Table 2B
Summary of Contaminants Present in Soil Vapor

Chemical	Location	Maximum Concentration
1,1,1-Trichloroethane	G3	52,000 ug/m^3
1,1-Dichloroethane	G3	3,900 ug/m^3
1,1-Dichloroethene	G3	980 ug/m^3
1,2,4-Trimethylbenzene	F2	17 ug/m^3
1,2-Dichloroethane	G3	220 ug/m^3
Acetone	D2	34 ug/m^3

Chemical	Location	Maximum Concentration
Carbon Disulfide	C1	3.8 ug/m^3
Chloroform	G1	6.6 ug/m^3
Cyclohexane	E1	15 ug/m^3
Hexane	F2	4.7 ug/m^3
Isopropyl alcohol	F2	13 ug/m^3
m,p-Xylene	A1	18 ug/m^3
o-Xylene	G3	6.3 ug/m^3
Tetrachloroethene	H2	320 ug/m^3
Toluene	A1	120 ug/m^3
Trichloroethene	B2	9.6 ug/m^3
Trichlorofluoromethane	A3	16 ug/m^3

ug/m^3 = micrograms per cubic meter

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) will be required during the fieldwork. PPE levels will be based primarily on background hazard assessment data, work task requirements, and real-time monitoring data obtained by monitoring instrumentation (discussed in Section 6.0 of this HASP). The initial levels of protection anticipated for each task, based on existing site characterization data, are presented on Table 3.

Table 3
Anticipated Personal Protective Equipment Requirements

Task	PPE	Upgrade	Special Requirements for Upgrade
Task 1: Tailgate Meeting	Level D	Level C (OV +P100)	Notify SHSO or PM
Task 2: Mark and Clear Soil Boring Locations	Level D	Level C (OV+P100)	Notify SHSO or PM
Task 3: Drill, sample, and abandon soil vapor probes, soil borings and hand auger borings	Level D	Level C (OV +P100) 1/2 mask minimum	Notify SHSO or PM
Task 4: Collect soil vapor samples	Level D	Level C (OV +P100) 1/2 mask minimum	Notify SHSO or PM
Task 5: Manage investigation derived waste	Level D	Level C (OV +P100) 1/2 mask minimum	Notify SHSO or PM

OV+P100 = Organic vapor plus P100 pre-filter respirator cartridge

Only PPE that meets the following American National Standards Institute (ANSI) standards are to be worn.

- Eye protection - ANSI Z87.1
- Head protection - ANSI Z89.1
- Foot protection - ANSI Z41

Respiratory protective equipment must be NIOSH approved for the anticipated chemicals and hazards.

Level D PPE shall consist of:

- Hardhat
- Safety glasses (with side shields optional)
- Steel-toed work boots
- Traffic safety vest if traffic is present
- Long pants and shirt
- Work or protective gloves

Modified Level D in addition to the above may include:

- Level D PPE plus
- Nitrile gloves - N-dex for sampling (or another approved equivalent)
- Nitrile or rubber gloves - for chemical activities.
- Steel-toed, rubber boots - for activities inside the exclusion/regulated and decontamination areas.

5.0 EXPOSURE MONITORING

Exposure Monitoring will be conducted to assess hazard control measures that must be implemented. Assessing control measures involves characterization of the chemical, physical, and other safety hazards at the site using a PID in the breathing space. Hazard assessment is an on-going process. This section addresses the procedures for monitoring both chemical and physical hazards specific to the work tasks to be conducted.

5.1 AIR- MONITORING AND SAMPLING PROGRAM

An air-monitoring program will be implemented for monitoring petroleum hydrocarbons, volatile organic vapors, carbon monoxide, and dust in air. Data obtained from air monitoring will be utilized to assess proper levels of PPE in accordance with the action levels presented in Table 4 thereby ensuring worker safety and preventing off-site releases of hazardous substances in concentrations that threaten human health. The action levels are for air within the breathing zone of field personnel. The minimum requirements for the air-monitoring program are summarized on Table 5.

Table 4
Air Monitoring Action Levels and PPE Requirements

COC	Action Levels (ppm)	PPE / Action
TPH	<50 50 to 100 >100 ppm >200 ppm	Level D Level D – Notify SHSO or PM Level C – Notify SHSO or PM Level C – Notify SHSO or PM, Stop work, Leave area
Aromatic Volatile Organic Compounds	<50 50 to 100 >100 ppm >200 ppm	Level D Level D – Notify SHSO or PM Level C – Notify SHSO or PM Level C – Notify SHSO or PM, Stop work, Leave area
Benzene	<1 0.25 to 1 >1 >10 to 50 >50	Level D Level D – Notify SHSO or PM Level C - half mask respirator Level C - Full face respirator Notify SHSO or PM, Stop work, Leave area

COC	Action Levels (ppm)	PPE / Action
Halogenated Volatile Organic Compounds	<25 25 to 50 >50	Level D Level D – Notify SHSO or PM Level C – Notify SHSO or PM, Stop work, Leave area
Carbonyl Volatile Organic Compounds	<25 25 to 50 >50	Level D Level D – Notify SHSO or PM Level C – Notify SHSO or PM, Stop work, Leave area
Carbon Monoxide	<50 ppm >50 ppm	Level D Notify SHSO or PM, Stop work, Leave area
Dust (silica from concrete coring)	<0.025 mg/m^3 >0.025 mg/m^3	Dust Control/Level D Notify SHSO or PM, Stop work, Leave area
Dust (metals)	<10 mg/m^3 >10 mg/m^3	Dust Control/Level D Notify SHSO or PM, Stop work, Leave area

Table 5
Air Monitoring Program Minimum Requirements

Chemical of Concern	Instrument	Frequency	Special Equipment\Method
TPH and Aromatic Hydrocarbons and Volatile Organic Compounds	PID (or other equivalent direct reading instrument [DRI])	During activities that can disturb impacted soil, groundwater and/or surface water, and FHP. 1. At the beginning of the task. 2. When the task changes. 3. Indications of chemical exposure or release. 4. Every 30 minutes unless readings are less than 10% of action level. 5. Every 60 minutes if concentrations are less than 10% of the action level	Lamp 10.2ev

		6. 1 time per shift if non-detected.	
Benzene	PID, or Colorimetric Detector Tube	1. Monitor contaminant concentrations in the workers breathing zone with a PID as stated above. 2. A PID reading of one (1.0) unit above background sustained for a period of one (1) minute shall be further characterized using a colorimetric detector tube sensitive to 0.5-ppm benzene. 3. A colorimetric detector tube reading of one (1.0) ppm benzene or greater will be verified by a second measurement, at the end of a ten (10) minute interval. If a reading of greater than one (1.0) ppm benzene is detected periodic measurements will be taken. Continuous readings using the PID will be taken during this period. Refer to Section 6.1 of the HASP for more detailed procedures.	Lamp 10.2eV Benzene colorimetric detector tube
Carbon Monoxide	Electronic Detector	1. Monitor contaminant concentrations in the workers breathing zone with a CO detector prior to start of drilling. 2. Monitor contaminant concentrations in the workers breathing zone with a CO detector while drilling. 3. Monitor junctions in engine emission vent hosing and patch with duct-tape if necessary.	Electronic CO detector
Dust	Visual	No visual emissions permitted at boundary of worksite	

A portable photoionization detector (PID) with a 10.2 electron-volt (eV) ultra-violet radiation source will be used as the "front-line" instrument for monitoring petroleum hydrocarbons and volatile organic compounds in air (or other equivalent direct reading instrument [DRI]). The PID will be calibrated to isobutylene or hexane. In using a PID or other DRI an action level will be considered met or exceeded when the instrument reading exceeds the specific action level continuously for one (1) minute. Upon this condition, a second measurement will be taken at the end of a ten (10) minute interval.

Since benzene is considered most toxic compound and the benzene action level is the most conservative it will be used as the driver for assessing exposure and determining appropriate levels of PPE. The action level for benzene combines the occupational exposure standard for benzene listed in 29 CFR Part 1910.1028, and the ACGIH TLV-TWA. The following protocol will be used for monitoring exposure and establishing the appropriate level of protection for these exposures.

1. Monitor contaminant concentrations in the workers breathing zone with a PID (or other DRI) sensitive to aromatic compounds.
2. Level D protection is considered acceptable if instrument readings remain below one (1) unit above background.
3. An instrument reading of one (1.0) unit above background sustained for a period of one (1) minute shall be further characterized by taking a breathing zone air sample using a colorimetric detector tube. The colorimetric detector tube must be sensitive to 0.5-ppm benzene.
4. A colorimetric detector tube indication of one (1.0) ppm benzene or greater shall be verified by a second measurement, using a colorimetric detector tube, at the end of a ten (10) minute interval. As long as a reading of greater than one (1.0) ppm benzene is detected periodic measurements should be taken with the colorimetric detector tube. Continuous readings using the PID will be taken during this period.
5. Level C protection is required if colorimetric detector tube readings indicate benzene equal to or greater than one (1) ppm in the workers breathing zone. Alternatively, the work area may be evacuated until readings drop back to acceptable levels for a period of no less than 10 continuous minutes and/or engineering controls are instituted to ensure worker safety.
6. Level C protection with a half face respirator is considered acceptable if the colorimetric detector tube indicates greater than one (1.0) but less than ten (10) ppm benzene.
7. Level C protection with a full-face respirator is considered acceptable if the colorimetric detector tube indicates greater than ten (10) but less fifty (50) ppm benzene.
8. If levels of greater than 50 units above background with the PID or 50 ppm benzene using a colorimetric detector tube are detected work will stop and the work area evacuated. Periodic measurements will be taken and/or engineering controls instituted to ensure worker safety and prevent off-site releases of hazardous substances in concentrations that threaten human health. Work may resume when PID reading and colorimetric tubes indicated that benzene measurements have been reduced below 50 units/ppm.

5.2 EXPLOSION HAZARDS

Explosion hazards exist from the presence of volatile and potentially explosive hydrocarbon vapors in saturated soils and groundwater. Explosion hazards will not be monitored during work activities.

5.3 NOISE

Noise monitoring shall be performed in accordance with Cal-OSHA requirements. Action levels for noise exposure are provided on Table 6.

Table 6
Noise Monitoring Action Levels

Intensity (dBA)	Action
<85	Work may continue without change**.**
>85	Hearing protection required.

5.4 HEAT STRESS MONITORING

The stress of working in a hot environment can cause a variety of illnesses including heat exhaustion or heat stroke. Heat stroke can be fatal. Personal protective equipment can significantly increase heat stress. To reduce or prevent heat stress, frequent rest periods and controlled beverage consumption to replace body fluids and electrolytes may be required.

Additionally, quantitative physiological monitoring for heat stress may be conducted. Physiological monitoring for heat stress includes heart rate as a primary indicator. The frequency of monitoring depends on the ambient temperature, the level of protection used on-site, and the type of work being performed. To determine the initial monitoring frequency, after a work period of moderate exertion, use the information provided on Table 7.

Table 7
Heat Stress Monitoring Frequency

Adjusted Temperature*	Level D	Level C
90 ºF or above	after 45 minutes	after 15 minutes
87.5 to 90 ºF	after 60 minutes	after 30 minutes
82.5 to 87.5 ºF	after 90 minutes	after 60 minutes
77.5 to 82.5 ºF	after 120 minutes	after 90 minutes
72.5 to 77.5 ºF	after 150 minutes	after 120 minutes

^{o}F = temperature in degree Fahrenheit.
* Adjusted air temperature equals the observed temp + (13 x % sunshine); air temp measured with bulb shielded from radiant heat, percent sunshine is the time sun is not covered by clouds thick enough to produce a shadow (100% = no cloud cover and a sharp, distinct shadow; 0% = no shadows)

Physiological monitoring of heat stress will be conducted by counting the radial pulse during a 30 second period as early as possible in the rest cycle. If the heart rate exceeds 110 beats per minute, shorten the next work cycle by one third while keeping the rest cycle the same. At the next rest cycle, count the radial pulse during a 30 second period as early as possible in the rest cycle. If the heart rate again exceeds 110 beats per minute, shorten the next work cycle by one third while keeping the rest period the same. In addition, take the oral temperature of the worker.

On-site personnel shall be trained to recognize the symptoms of heat stress and the appropriate action to take upon recognition. Even though physiological monitoring is not always necessary, it is essential that personnel understand the significance of heat stress and its recognition. It is also important that personnel understand the difference between heat exhaustion and heat stroke. Some of the symptoms for heat exhaustion and heat stroke are provided in Table 8.

Table 8
Heat Exhaustion versus Heat Stroke Symptoms

Heat Exhaustion	Heat Stroke
Clammy skin	Staggering gait
Weakness	Mental confusion
Fatigue	Hot skin
Light headiness	Temperature rise (yet may feel chilled)
Fainting	Convulsions
Rapid pulse	Unconsciousness
Nausea (vomiting)	Incoherent, delirious

If a worker exhibits the symptoms of heat exhaustion conduct the following:

- Remove the victim to a cool and uncontaminated area. Elevate the victim's feet and allow him/her to rest.
- Remove protective clothing. Loosen tight or constrictive clothing.
- Cool the victim with cold cloths and give "sips" of cool water. Cool the temperature control areas of the body, forehead, back of neck and wrists

If a worker exhibits the symptoms of heat stroke immediately perform the following steps:

- Remove victim to a cool, uncontaminated area.
- Cool the victims' whole body with water compresses and/or rapid fanning.
- Give water to drink if conscious.
- Transport the victim to a medical facility for further cooling and monitoring of body functions.

HEAT STROKE IS A LIFE-THREATENING MEDICAL EMERGENCY!

6.0 MEDICAL MONITORING, SANITATION AND HYGIENE PRACTICES

6.1 MEDICAL SURVEILLANCE PROGRAM

Based on current data characterizing the site contamination and potential hazards to personnel involved in project activities, a project specific medical surveillance program is not required beyond that which is required under Title 8 CCR 5192 HAZWOPER. Employee exposure to airborne contaminants is not expected to approach the applicable Cal-OSHA action levels or permissible exposure levels under foreseeable work conditions.

Medical evaluations for the wearing of respiratory protection will be given to each worker required to wear a respirator in accordance with Title 8 CCR Section 5144. A certification by a licensed physician of fitness to wear respiratory protection is required for each worker entering the regulated area/exclusion zone if they are required to wear respiratory protection.

6.2 SANITATION AND PERSONAL HYGIENE

Sanitation and personal hygiene facilities are available at the site. Workers are expected and encouraged to wash their face and hands before leaving the site and before smoking, eating or taking breaks.

6.3 DRINKING WATER

Drinking water is unavailable at the site. Each employer shall bring drinking water to the site and keep it inside their vehicle or base of operations in accordance with Title 8 CCR Section 3395. The water will be kept cool to encourage personnel to drink. If temperatures exceed 75 °F, break periods will be provided to encourage people to drink water and metabolite supplements such as Gatorade.

7.0 TRAINING

All applicable federal, state, and local regulations and codes relating to health and safety shall be adhered to by the Contractor. The Contractor shall adhere to all sections of California Occupational Safety and Health Administration (OSHA) regulations contained in Title 8 of the California Code of Regulations (CCR) as they apply to the Site activities. Applicable requirements may include but are not limited to the following:

- Injury and Illness Prevention Program (8 CCR 1509 and 8 CCR 3203)
- Hazardous Waste Operations and Emergency Response (8 CCR 5192)
- Hazard Communication (8 CCR 5194)
- Personal Protective Equipment (8 CCR Article 10)
- Respiratory Protective Equipment (8 CCR 5144)
- Control of Noise Exposure (8 CCR 5095-5100)
- Excavations (8 CCR 1503 and 8 CCR 1539-1547)
- Fire Prevention and Suppression Procedures (8 CCR 4848)
- Portable Fire Extinguishers (8 CCR 6151)
- Cleaning, Repairing, Servicing, and Adjusting Prime Movers, Machinery, and Equipment Lockout/Tagout (8 CCR 3314)
- Medical Services and First Aid (8 CCR 3400).

The SHSO shall ensure that each site worker has a working knowledge of the HASP and other referenced documentation, and is responsible for conducting regular Tailgate Safety Meeting(s) (at the beginning of each shift, whenever new personnel arrive at the site, and as site conditions change, as tasks are added, revised, and/or changed, and as addendum to this HASP require). The typical Tailgate Safety Meeting will be brief and address only the most critical safety issues, such as the types of accidents most likely to occur, and areas where improvements need to be made with respect to health and safety. A more in-depth tailgate session will be held at the beginning of each week, whenever new personnel arrive at the site, and when new types of activities are undertaken. The physical hazards of concern will be identified at each meeting. Potential topics of discussion at these meetings include the following:

- Protective Clothing/Equipment (Task Specific).
- Chemical Hazards (Task Specific).
- Physical Hazards (Task Specific).
- Emergency Procedures.
- Hospital/Ambulance Route.
- Standard Operating Procedures.
- Other safety topics which are relevant to the site.

8.0 CONTINGENCY PLAN AND EMERGENCY EVACUATION PLAN

At least one person trained in first aid and CPR will be present on site at all times work is being conducted. First aid and blood borne pathogen supplies shall be available at the site at all times. Personnel shall be informed of the location of such supplies during the tailgate safety meeting. In the event of an emergency, personnel will immediately leave the work area and assemble at a prearranged area.

If a fire occurs, personnel shall assess the size and nature of the fire. If it is safe to do so, it shall be extinguished with a fire extinguisher. If it is not safe to extinguish with a fire extinguisher, the County Fire Authority will be contacted at 911.

In the event of a first aid emergency, if the injured person can self-administer first aid they should be encouraged to do so. If the person cannot self-administer first aid, the on-site qualified first aid person shall administer first aid if it is safe to do so. Personnel shall not endanger themselves to render aid to another person.

A cell phone will be easily accessible at the work areas for emergency notifications.

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9.0 DECONTAMINATION PROCEDURES

Establishment of decontamination procedures for personnel and equipment is necessary to control contamination and to protect field personnel.

9.1 EQUIPMENT DECONTAMINATION AND DISPOSAL OF CONTAMINATED MATERIALS

Equipment requiring decontamination may include excavation equipment, hand tools, soil and water sampling devices, and certain protective equipment. Tools and protective equipment shall be decontaminated using a soft bristle brush and a detergent (Alconox or TSP mixed in water) followed by two water rinses.

All materials and equipment used for decontamination must be disposed of properly. Disposable clothing, tools, buckets, brushes, and all other equipment that is contaminated will be secured in appropriately Department of Transportation (DOT) specification 55-gallon drums or other containers. Clothing that will be reused, but which is not completely decontaminated on the site, will be secured in plastic bags before being removed from the site. Contaminated wash water solutions shall be transferred into portable storage tanks, pending disposal. All soil cuttings produced during soil sampling will be centrally located for subsequent characterization and disposal.

Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals.
- Potential injury due to gross contamination on clothing or equipment.

For inhalation exposure cases, a qualified physician can only perform treatment. If the contaminant is on the skin or the eyes, immediate measures can be taken on-site to counteract the substance's effect. First aid treatment consists of flooding the affected area with copious amounts of water. The SHSO must assure that an adequate supply of running water or a portable emergency eyewash is available on-site.

When protective clothing is grossly contaminated, contaminants can possibly be transferred to treatment personnel and cause an exposure. Unless severe medical problems have occurred simultaneously with personnel contamination, the protective clothing should be carefully removed.

10.0 SITE AND TRAFFIC CONTROL PLAN

10.1 TRAFFIC CONTROL

Vehicular traffic is limited to onsite personnel and authorized contractors working onsite. Traffic control at the site is controlled through locked gates at the entrance/exit. All contractor personnel entering the site are required to have entry permissions.

Large machinery operating onsite will utilize warning methods and safety procedures as required under Title 8 CCR Section 1592, to protect onsite ground personnel.

APPENDIX A
CODE OF SAFE PRACTICES
General Construction Services Code of Safe Practices

1. All persons shall follow these safe practices rules, render every possible aid to safe operations, and report all unsafe conditions or practices to the foreman or superintendent.
2. Foremen shall insist on employees observing and obeying every rule, regulation, and order as is necessary to the safe conduct of the work and shall take such action as is necessary to obtain observance.
3. All employees shall be given frequent accident prevention instructions. Instructions shall be given at least every 10 working days.
4. Anyone known to be under the influence of drugs or intoxication substances which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job while in that condition.
5. Horseplay, scuffling, and other activities which tend to have an adverse influence on the safety or well-being of the employees shall be prohibited.
6. Work shall be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment.
7. No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose the employee or others to injury.
8. Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.
9. Employees shall be instructed to ensure that all guards and other protective devices are in proper places and adjusted and shall report deficiencies promptly to the foreman or superintendent.
10. Crowding or pushing when boarding or leaving any vehicle or other conveyance shall be prohibited.
11. Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their foreman.
12. All injuries shall be reported promptly to the foreman or superintendent so that arrangements can be made for medical or first aid treatment.
13. When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back shall be used.
14. Inappropriate footwear or shoes with thin or badly worn soles shall not be worn.

15. Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.
16. Employees shall cleanse thoroughly after handling hazardous substances and follow special instructions from authorized sources.
17. Work shall be so arranged that employees are able to face each ladder and use both hands while climbing.
18. Gasoline shall not be used for cleaning purposes.
19. No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.
20. Any damage to scaffolds, falsework, or other supporting structures shall be immediately reported to the foreman and repaired before use.
21. All tools and equipment shall be maintained in good condition.
22. Damaged tools or equipment shall be removed from service and tagged **"DEFECTIVE."**
23. Pipe or Stillson wrenches shall not be used as a substitute for other wrenches.
24. Only appropriate tools shall be used for the job.
25. Wrenches shall not be altered by the addition of handle extensions or "cheaters."
26. Files shall be equipped with handles and not used to punch or pry.
27. A screwdriver shall not be used as a chisel.
28. Wheelbarrows shall not be pushed with handles in an upright position.
29. Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used.
30. Electric cords shall not be exposed to damage from vehicles.
31. In locations where the use of a portable power tool is difficult, the tool shall be supported by means of a rope or similar support of adequate strength.
32. Only authorized persons shall operate machinery or equipment.
33. Loose or frayed clothing, or long hair, dangling ties, finger rings, etc. shall not be worn around moving machinery or other sources of entanglement.
34. Machinery shall not be serviced, repaired, or adjusted while in operation, nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.
35. Where appropriate, lock-out procedures shall be used.
36. Employees shall not work under vehicles supported by jacks or chain hoists, without protective blocking that will prevent injury if jacks or hoists should fail.
37. Air hoses shall not be disconnected at compressors until hose line has been bled.

38. All excavations shall be visually inspected before backfilling, to ensure that it is safe to backfill.
39. Excavating equipment shall not be operated near tops of cuts, banks, and cliffs if employees are working below.
40. Tractors, bulldozers, scrapers, and carryalls shall not operate where there is possibility of overturning in dangerous areas like edges of deep fills, cut banks, and steep slopes.
41. When loading where there is a probability of dangerous slides or movement of material, the wheels or treads of loading equipment, other than that riding on rails, should be turned in the direction which will facilitate escape in case of danger, except in a situation where this position of the wheels or treads would cause a greater operational hazard.

APPENDIX B

APPENDIX B

APPENDIX B

SOIL SAMPLING PROCEDURES

This appendix summarizes soil sampling procedures that may be used at the Site. The specific sampling procedure selected generally depends on the purpose of the sample. Soil samples will typically be collected with a trowel or hand auger as described in Section C.4. If unanticipated soil impacts are encountered and additional delineation is required, drilling methods will be considered as described in Sections B.2 and B.3.

D.1 SOIL SAMPLING FROM EXCAVATIONS, FILLS OR STOCKPILES

1. Soil samples collected from excavations, fills, or stockpiles for chemical analyses will be collected in laboratory-supplied glass containers or by using a slide-hammer-style sampler with 4-inch-long brass or stainless-steel tubes. Volatile organic compound samples will be collected using USEPA method 5035.
2. If a slide-hammer-style sampler is used the sampler will be washed between samples using an inorganic detergent followed by two tap water rinses and a deionized water rinse. Following retrieval of the sample, the sample tube will be removed from the sampler and the ends will be fitted with PVC end caps.
3. Each sample jar or tube will be labeled with the sample number and date.
4. Samples will be transferred to the analytical laboratory using standard chain-of-custody protocols. At least one chain-of-custody form will be used for each delivery group. The following information will be clearly written on each chain of custody form:
    - HMC project number;
    - Laboratory name, address, and phone number;
    - Date;
    - HMC project manager and phone number;
    - Sample identification;
    - Sample date and time;
    - Analysis requested, including U.S. EPA method number;
    - Preservation;
    - Sampler name and signature;
    - Special instructions;
    - Date results requested;
    - Date delivered to laboratory; and
    - Signature, date, and time for all subsequent changes in sample control.

A copy of the completed chain of custody form for each cooler will be sealed in a plastic bag and placed in the cooler. A copy will be retained by field personnel to be placed in

the project file. The cooler lid will then be secured with a numbered custody seal. The laboratory performing the analysis will be instructed to return a completed copy of the chain of custody with the analytical results.

D.2 DRILLING AND SOIL SAMPLING PROCEDURES

1. Borings will be drilled by a State-licensed drilling contractor with a truck-mounted drill rig equipped with hollow-stem augers.
2. The augers will be pressure washed or steam cleaned prior to drilling.
3. Soil descriptions, in general accordance with the Unified Soil Classification System, sample type and depth, and related drilling information, will be recorded on a boring log under the supervision of a registered geologist.
4. Soil samples will be collected using a split-barrel modified California sampler at intervals to be determined by the specific conditions being assessed.
5. The sampler will be washed between sampling intervals with an inorganic detergent; followed by two tap water rinses and a deionized-water rinse.
6. Soil samples will be collected in stainless steel or brass sampling tubes inside the sampler. Volatile organic compound samples will be collected using USEPA method 5035.
7. Following retrieval of the sampler, the second tube from the shoe of the sampler will be removed from the sampler and the ends will be fitted with PVC end caps. The sample will be labeled retained for potential laboratory analysis.
8. The soil in the first sample tube from the shoe of the sampler will be used to describe the soil.

D.3 GEOPROBE PROCEDURES

1. Points will be advanced to the specific intervals below ground surface to be determined by the specific conditions being assessed, using a Geoprobe sampling rig.
2. The Geoprobe points will be cleaned prior to sampling.
3. The plastic sample liner containing soil from the collected sample depth will be removed from the sampler and a six-inch portion of the plastic sampler containing the 2-to-3-foot sample will be cut, capped, and retained in an ice chest for chemical analyses. Volatile organic compound samples will be collected using USEPA method 5035.
4. The Geoprobe points will be washed prior to the start of work and between sampling intervals.

D.4 HAND-AUGERING PROCEDURES

1. Hand augered samples will be collected using a slide hammer hand sampler with 4-inch-long brass or stainless-steel sample tubes.
2. Hand-augering equipment will be washed between borings with an inorganic detergent, followed by two tap water rinses and a final deionized-water rinse.

3. Immediately after sample collection, the ends of the sample tubes will be fitted with PVC end caps. Volatile organic compound samples will be collected using USEPA method 5035.

D.5 SAMPLE HANDLING

1. The samples retained for chemical analyses will be placed in Ziploc bags and stored in an ice chest cooled using water ice or "blue" ice. Samples may be transferred to and stored in a refrigerator prior to delivery to the laboratory.

2. The samples will be delivered to a State-certified laboratory within one working day of collection, or a State-certified mobile laboratory will analyze the samples on-Site. Sample handling, transport, and delivery to the laboratory will be documented using chain-of-custody procedures, including the use of chain-of-custody forms.

D.6 SAMPLE LOCATION

1 All sample locations will be documented using to accuracy sufficient to meet the requirements of the specific Site conditions being assessed.

2 Sample locations and sample depths will be made by HMC or other designated field participants.

D.7 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

1 Trip Blanks: These samples are used to demonstrate that the samples have not been contaminated during transportation or at the laboratory. If VOC analyses are being conducted, two trip blanks (VOC vials containing high-performance liquid chromatography-grade water) will be present in each cooler received from the laboratory. These will be uniquely labeled in the field, recorded on the chain of custody for the cooler in which they are present, and returned to the laboratory for VOC analysis, as necessary.

2 Equipment Blanks: If non-dedicated sampling equipment is being use (e.g., hand auger, trowel) on equipment blank will be collected per day of sampling by pouring laboratory-prepared deionized water over the equipment and collecting a sample of the rinsate.

3 Temperature Blank: A temperature blank will be present in each cooler received from the laboratory; it will be used to record the temperature inside the cooler upon receipt by the laboratory.

4 A matrix spike/matrix spike duplicate (MS/MSD) sample pair will be collected at a rate of one per 20 samples. These samples will be designated on the chain-of-custody.

5 The laboratory will perform analysis on laboratory control spike samples in accordance with their internal Quality Assurance Plan.

6 Data provided by the laboratory will be reviewed for data representativeness, reproducibility, completeness, erroneous data, and discrepancies to evaluate the data usability. Data will be assessed in accordance with guidance from the EPA Contract Laboratory Program National Functional Guidelines.