# REMOVAL ACTION WORKPLAN

# BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT
# 7800 CARMEL STREET
# GILROY, SANTA CLARA COUNTY, CALIFORNIA
# (Site Code: 204305)


Prepared for:

GILROY UNIFIED SCHOOL DISTRICT

JANUARY 2020

padre
associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

January 31, 2020
Project Number: 1801-0725

Letitia Shen, Project Manager
Northern California Schools Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826-3200

Subject: Removal Action Workplan, Brownell Middle School Modernization Project
7800 Carmel Street, Gilroy, Santa Clara County, California
(Site Code 204305)

Dear Ms. Shen:

Padre Associates, Inc. (Padre), on behalf of Gilroy Unified School District, has prepared this Removal Action Workplan (RAW) for the Brownell Middle School Modernization Project located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site).

The RAW has been prepared based on the results of the Final Preliminary Environmental Assessment (PEA) dated July 2019 and the RAW scoping meeting held with the Department of Toxic Substances Control on September 25, 2019.

If you have any questions or comments, please contact the undersigned at (916) 333-5920.

Sincerely,
**PADRE ASSOCIATES, INC.**

PROFESSIONAL GEOLOGIST
ALAN CHURCHILL
No. 9378
STATE OF CALIFORNIA

Alan Churchill, P.G.
Project Geologist

Alan J. Klein, R.E.P.A., C.P.E.S.C., QSD/QSP
Senior Environmental Scientist

CC: Paul Nadeau, Director of Facilities Planning & Management, Gilroy USD
C. John Dominguez, President, School Site Solutions, Inc.

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**Brownell Middle School Modernization Project**
**Gilroy, Santa Clara County, California**
**(Site Code: 204305)**

## 1.0 INTRODUCTION

Padre Associates, Inc. (Padre), on behalf of Gilroy Unified School District (District), has prepared this Removal Action Workplan (RAW) for the Brownell Middle School Modernization Project located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site). The Project Site is identified on **Plate 1-1**: Site Location and **Plate 1-2**: Site Map.

The RAW is based on the results of the following documents prepared by Padre:

- *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305)* dated July 23, 2019; and
- *Results of Arsenic Soil Management Plan, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California* dated August 22, 2019.

The Preliminary Environmental Assessment (PEA) identified organochlorine pesticides (OCPs), arsenic, lead, and polychlorinated biphenyls (PCBs) in surface and shallow surface soil at concentrations exceeding U.S. EPA Regional Screening Levels (RSLs), DTSC-modified screening levels, or ambient background concentrations. DTSC approved the PEA in a Further Action Determination letter dated August 26, 2019. A copy of the letter is presented in **Appendix A**.

Due to the construction schedule for Phase 1 of the modernization project, arsenic-impacted soil was removed in accordance with a soil management plan (SMP) prepared by Padre. The SMP consisted of the removal and offsite disposal of approximately 95 cubic yards of arsenic-impacted soil. Confirmation soil sampling indicated that arsenic was no longer a COC in soil at the Project Site and further remediation was not warranted. Although the SMP activities were completed without DTSC oversight, the SMP results report was approved by DTSC in a letter dated August 26, 2019. A copy of the letter is presented in **Appendix A**.

This RAW includes a detailed engineering plan for conducting the selected response action (RA) for each chemical of concern (COC) and the goals to be achieved by the RA, as required by the California Health and Safety Code (H&SC) section 25323.1. The RAW is also consistent with the criteria specified in the H&SC section 25356.1(h).

## 1.1 REMOVAL ACTION OBJECTIVES

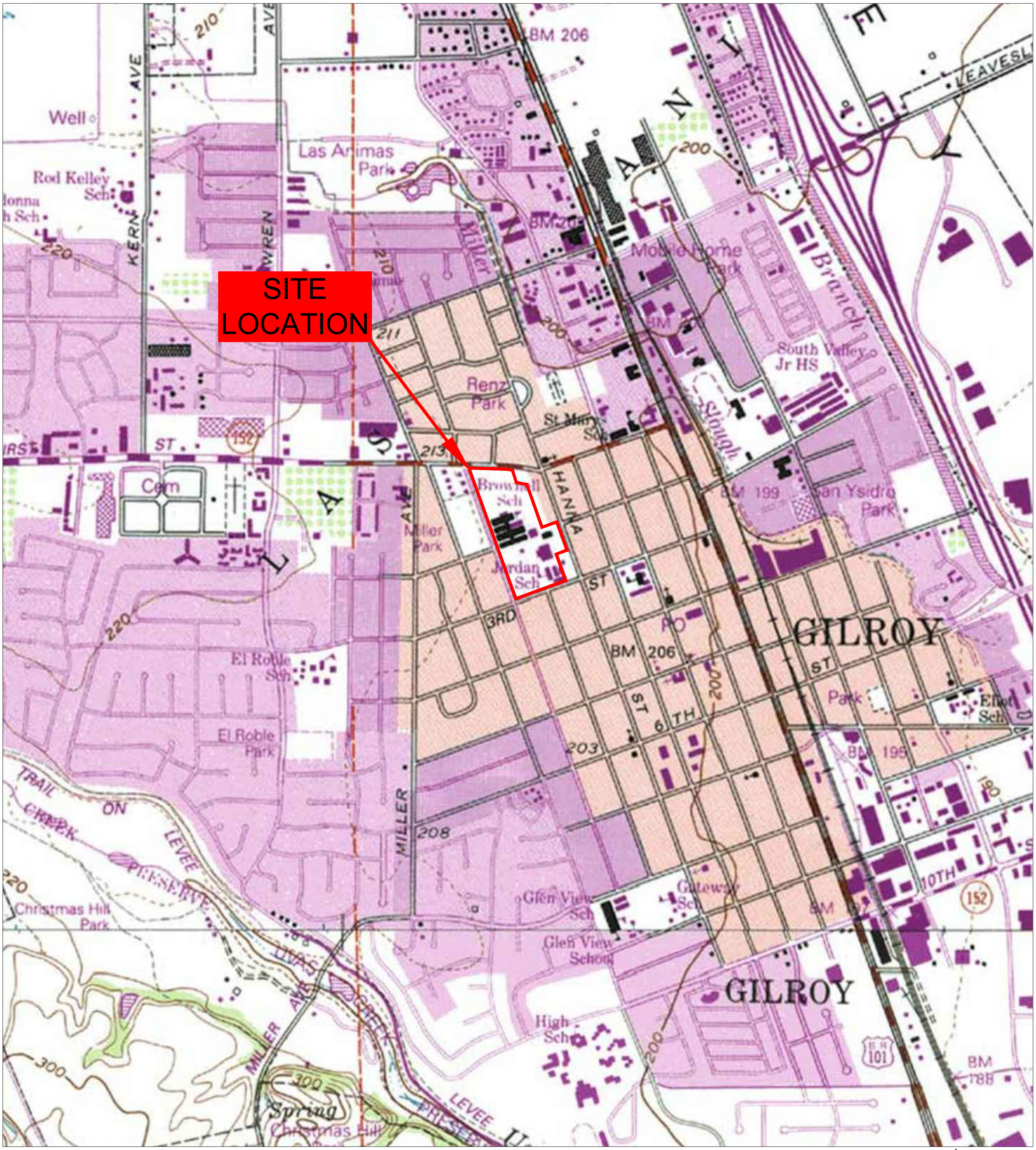
The removal action objectives (RAOs) have been established to be protective of human health and the environment. The RAOs include:

- Minimize exposure of humans to COC in soil through the inhalation, dermal absorption, and ingestion exposure pathways;

- Minimize potential for migration of COC from soil to other media;
- Establish Cleanup Goals (CGs) equivalent to U.S EPA RSLs or DTSC-modified screening levels; and
- Establish post-RAW site conditions that do not pose a significant risk to human health, safety or the environment.

## 1.2 PROJECT DESCRIPTION

The District plans to modernization the existing Brownell Middle School which will be completed in three phases. The first phase of the school modernization project consists of constructing new school buildings in the north playfield area of the school site. The student population and school staff will then move into the new buildings and the selected older school buildings will be demolished and removed. When completed the modernization project will consist of approximately 37 classrooms designed for approximately 1,000 students. Municipal water (domestic/irrigation) and sewer services will be provided to the school site by the City of Gilroy Public Works Department.




U.S.G.S. 7.5 MINUTE QUADRANGLE
GILROY, 1955 (photorevised 1993)

0 1500'
SCALE

**padre** associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 9/19/19 | AC | AJK |

PLATE 1-1

**SITE LOCATION**


padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

GOOGLE EARTH IMAGERY (05/18)

0 250
FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 9/19/19 | AC | AJK |

PLATE 1-2

**SITE MAP**

# 2.0 BACKGROUND

According to a review of historical documentation, portions of the Project Site have been used as a public-school site since the 1920s with the current Brownell Middle School being constructed in the 1960s. Additionally, the northern portion of the Project Site appears to have been used for agricultural purposes during the late 1930s to early 1940s.

In July 2019 a PEA was completed for the Project Site to investigate the potential for arsenic in soil from historical agricultural use; the potential for OCPs in soil from direct application of termiticides and/or ant control around the around the perimeters of building structures with wood components; the potential for lead in soil from weathering of lead-based paint from existing and former building structures; the potential for PCBs in soil from weathering of window caulking from existing building structures, and PCBs in soil from pad- and pole-mounted electrical transformers; naturally occurring asbestos (NOA) in soil from the weathering and deposition of ultramafic rock located within 10 miles of the Project Site; and volatile organic compounds (VOCs) in soil vapor from a nearby property reportedly experiencing an unauthorized chemical release to soil and/or groundwater. In summary, the results of the PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil above risk screening levels at the Project Site. Therefore, a response action to reduce or eliminate the potential impact of these constituents was recommended. DTSC approved the PEA in a Further Action Determination letter dated August 26, 2019, which is presented in **Appendix A**.

In August 2019 a soil management plan (SMP) was completed for the Project Site due to the construction schedule of Phase 1 of the modernization project. The SMP consisted of the removal and offsite disposal of approximately 95 cubic yards of arsenic-impacted soil. Confirmation soil sampling indicated that the concentrations of arsenic in soil remaining at the Project Site ranged from 3.3 to 9.2 milligrams per kilogram (mg/kg), which was below the established cleanup goal of 11 mg/kg. Therefore, arsenic was no longer considered a COC and further remediation for arsenic in soil at the Project Site was not warranted. Although the SMP activities were completed without DTSC oversight, the SMP results report was approved by DTSC in a letter dated August 26, 2019, which is presented in **Appendix A**.

## 2.1 SITE LOCATION AND DESCRIPTION

The Project Site is located at 7800 Carmel Street, in the City of Gilroy, in Santa Clara County, California. The Project Site consists of approximately 17.5 acres and is currently operating as the Brownell Middle School by the Gilroy Unified School District.

The Project Site is bordered to the north by First Street, beyond which is both commercial and residential property; to the east by Hanna Street, beyond which is residential property; to the south by Third Street, beyond which is a residential property; and to the west by Carmel Street, beyond which is Miller Park as well as a residential property.

### 2.1.1 Site Name, Address and Size

| | |
|---|---|
| Site Name: | Brownell Middle School Modernization Project |
| Site Address: | 7800 Carmel Street, City of Gilroy, California, 95020 |
| Site Size: | 17.5 acres |

### 2.1.2 Contact Person, Mailing Address and Phone Number

Mr. Paul Nadeau, Director Facilities Planning & Management
Gilroy Unified School District
210 Swanston Lane, Gilroy, California 95020
(669) 261-5901

### 2.1.3 Assessor's Parcel Numbers and Map

The County of Santa Clara identifies the Project Site to include Assessor's Parcel Numbers (APN): 799-20-013 (±2.1 acres) and 799-20-015 (±15.4 acres). A copy of the Assessor's Parcel Map is presented in **Appendix B**.

### 2.1.4 Ownership

The Project Site is owned and operated by the Gilroy Unified School District.

### 2.1.5 Township, Range, and Section

he Project Site is in Section 6, Township 11 South, Range 4 East, of the Gilroy, California USGS 7½-Minute topographic series, Quadrangle Map (1953, photorevised 1993). Approximate latitude and longitude are identified to be:

- Latitude (North): 37° 0' 41.4" (37.0115)
- Longitude (West): -121° 34' 40.08" (-121.5778)

## 2.2 OPERATIONAL HISTORY AND STATUS

According to historic aerial photographs, topographic maps and Sanborn maps, portions of the Project Site have been used as a public-school site since the 1920s. The current Brownell Middle School was built in the 1960s. The northern portion of the Project Site appears to have been used for agricultural purposes during the late 1930s to early 1940s. The Project Site is currently operating as the Brownell Middle School by the Gilroy Unified School District.

## 2.3 TOPOGRAPHY

Based on a review of the USGS 7.5-minute topographic quadrangle – Gilroy, California (1955, photorevised 1993), the Project Site lies at an approximate elevation of 206 feet above mean sea level (msl). The Project Site is relatively level, and the general topographic gradient and drainage of the Project Site is towards the southeast. Typically, rainfall would infiltrate into the exposed surface areas, and surface drainage from excessive precipitation would be expected to drain to adjacent streets. Miller Slough is located approximately 2,000 feet east of the Project Site.

## 2.4 GEOLOGY AND HYDROGEOLOGY

### 2.4.1 Regional Geology

The Project Site is located within the Coast Ranges Geomorphic Province of California. The Coast Ranges stretch approximately 600 miles from the Oregon border to the Santa Ynez River and are divided into two sub-provinces: the ranges located north of San Francisco Bay and those from the San Francisco Bay south to Santa Barbara County. The northern ranges lie east of the San Andreas Fault Zone, whereas most of the southern ranges are located to the west. The province contains many elongate ranges and narrow valleys that are approximately parallel to the coast, although the coast usually shows a somewhat more northerly trend than do the ridges and valleys. Therefore, some valleys intersect the shore at acute angles and some mountains terminate abruptly at the sea (Norris and Webb, 1990).

The dominant characteristic of the Coast Ranges is its division into elongate topographic and lithographic strips underlain by discrete basement rocks that are separated by profound structural discontinuities. The pattern extends east, and probably also west onto the sea floor. On the east, concealed beneath the Central Valley, is the enigmatic boundary between the Sierra Nevada basement and the Coast Range Franciscan. Most of the boundary between the Sierran and Franciscan basement lies beneath several thousand feet of late Mesozoic and Cenozoic sedimentary rocks in the Salinas Valley. North of the city of Red Bluff, the boundary emerges as the South Fork Mountain Thrust, which separates the Klamath Mountains from the Coast Ranges. Westward, the next major boundary is the San Andreas Fault Zone, which separates Franciscan basement from the granitic-metamorphic basement of the Salinian Block. South of Monterey, the Sur-Naciemento Fault Zone separates Salinian rocks from additional Franciscan basement to the southwest. Another boundary occurs farther west, offshore, where Franciscan basement is replaced by normal oceanic crust.

### 2.4.2 Site Geology

The Project Site lies within the southern Santa Clara Valley and is bounded by the Santa Cruz Mountains on the west and the Diablo Range on the east. The Santa Clara Valley is part an approximately 90-mile structural trough that includes the San Francisco Bay to the north and the San Benito Valley to the south. The Santa Clara Valley is a graben, which formed as a result of structural deformation related to the San Andreas and Hayward Faults as well as late Cenozoic orogenic processes. According to the *Geologic Map of the Gilroy Quadrangle, Santa Clara County, California* (Dibblee, 2005), the Project Site is underlain by Holocene-age alluvium (alluvial gravel, sand and clay of valley areas).

### 2.4.3 Soils

According to the United States Department of Agriculture, Soil Conservation Service's, *Soil Survey of Santa Clara County, California*, dated June 1958, approximately 90% of the surface soil at the Project Site consists of San Ysidro loam, 0 to 2 percent slopes, MLRA 14 and 10% of the surface soil at the Project Site consists of Pleasanton loam, 0 to 2 percent slopes, MLRA 14. San Ysidro loam consists of very deep, moderately well drained soils which formed in alluvium from sedimentary rocks. They are typically found on fan remnants and stream terraces. The native vegetation is annual grasses and forbs however, most areas have been cultivated. Typically, the surface layer is light brownish gray fine sandy loam to about 14 inches thick with few fine distinct mottles of brownish yellow. The next 14 inches are dark yellowish-brown clay, very firm, sticky and plastic. Permeability is very slow, and the available water capacity is moderately low. The runoff is slow to medium, the shrink-swell potential is considered high.

Pleasanton loam consists of deep, well drained soils which from mixed rock sources. They are found on nearly level or gently sloping alluvial fans and terraces. The native vegetation is annual grasses, forbs, and scattered oaks. Typically, the surface layer is grayish brown gravelly fine sandy loam about 21 inches thick. The next 27 inches are brown gravelly sandy clay loam. Permeability is moderate, and the available water capacity is moderately high. The runoff is slow the medium and the shrink-swell potential is considered moderate.

### 2.4.4 Groundwater

The Project Site is located in the Llagas subbasin, which is a structural depression filled with Pliocene to Holocene age unconsolidated and semi-consolidated valley fill materials (alluvium and alluvial fans). The sediments are a combination of gravels, sands, silts, and clays which overlay the Santa Clara Formation. The Santa Clara Formation is of Pliocene age and generally of fluviatile origin with an estimated maximum thickness of 1,800 feet. The overlying alluvium deposits include old alluvium, young alluvium, and alluvial fans ranging in age from Plio-Pleistocene age to Holocene age. Alluvium deposits can range in thickness from 3 to 125 feet and generally provide adequate yields in wells up to 100 feet deep. The operational storage capacity of the Llagas subbasin is estimated to be 150,000 acre-feet (DWR Bulletin 118).

Based on exploratory borings advanced as part of the geotechnical investigation conducted for the modernization project, groundwater was encountered in one boring at an approximate depth of 43 feet below ground surface (bgs) with signs of seepage observed at an approximate depth of 39 feet bgs (Earth Systems Pacific, 2018). It should be noted that regional groundwater pumping associated with agricultural production activities may influence groundwater depths and flow direction at various times of the year.

## 2.5 LAND USES, SENSITIVE RECEPTORS, ECOSYSTEMS AND CULTURAL RESOURCES

The Project Site is located at 7800 Carmel Street in Gilroy and according to the City of Gilroy Zoning Map (December 2012) is zoned as Park/Public Facility.

The Project Site consists of approximately 17.5 acres of located at 7800 Carmel Street the is zoned as Park/Public Facility. The Project Site is situated in the central portion of the City of Gilroy and is operated as Brownell Middle School. According to a review of historical documentation, portions of the Project Site have been used as a public-school site since the 1920s with the current Brownell Middle School being constructed in the 1960s. Additionally, the northern portion of the Project Site appears to have been used for agricultural purposes during the late 1930s to early 1940s.

The Project Site is bordered to the north by First Street, beyond which is both commercial and residential property; to the east by Hanna Street, beyond which is residential property; to the south by Third Street, beyond which is a residential property; and to the west by Carmel Street, beyond which is Miller Park as well as a residential property.

The proposed project is intended to modernize the existing Brownell Middle School which is designed to have 37 classrooms to support approximately 1,000 students. An Initial Study and Mitigated Negative Declaration (IS/MND) was prepared by School Site Solutions, Inc. The IS/MND evaluated environmental factors potentially affected by the modernization of the existing middle school and the removal action. According to the IS/MND, the school modernization project would result in less than significant impacts following implementation of prescribed mitigation measures. No potentially significant impacts were identified. The IS/MND is discussed further in Section 6.2.2.1 of this document.

## 2.6 METEOROLOGY

The project site is situated in Climate Zone 14, which includes inland areas of Northern California with some ocean influence. This zone has inland areas with warmer winter weather and cooler summer weather than surrounding areas due to marine air influxes (Clark, 1985).

The meteorological station (043417) located at the Gilroy Fire Department is approximately two miles east of the project site. Based on the 110-year period of record (1906 through 2016) at the station, the average maximum monthly temperature ranges from 59.8°F in January to 88.0°F in July (Western Regional Climate Center, 2017). The average minimum monthly temperature ranges from 37.1°F in December to 54.3°F in August. The average annual temperature ranges from 46.1°F to 74.3°F. The average monthly precipitation ranges from 0.05 inches in July and August to 4.7 inches in January. The total annual precipitation is 20.83 inches (Western Regional Climate Center, 2017). Winds predominately come out of the northwest, and are usually light to moderate, and can be up to 20 miles per hour.

## 2.7 PREVIOUS SITE ACTIONS

### 2.7.1 Phase I Environmental Site Assessment (Phase I)

Padre prepared the document titled *Phase I Environmental Site Assessment, Brownell Middle School Site Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California* dated May 2018. The findings of the Phase I ESA identified the following recognized environmental concerns (RECs) for the Project Site:

- Potential presence of arsenic from historic agricultural use;
- Potential presence of residual pesticides in soil from direct application of termiticides and/or ant control around the around the perimeters of building structures with wood components built prior to 1989;
- Potential presence of residual lead in soil from weathering of lead-based paint from building structures built prior to 1993 (school sites);
- PCBs in soil from weathering of caulking used in windowpanes containing PCBs in buildings built between 1950-1979; and PCBs in soil beneath pole-mounted electrical transformers installed prior to 1979;

- Potential presence of naturally occurring asbestos (NOA) in soil from the weathering and deposition of ultramafic rock outcrops located within 10 miles of the Project Site; and
- Potential presence of VOCs in soil vapor from a nearby property reported to have had an unauthorized chemical release to soil and/or groundwater.

### 2.7.2 Preliminary Environmental Assessment (PEA)

A PEA was completed for the Project Site and is documented in the Padre prepared report titled: *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California, July 2019*. DTSC approved the PEA in a Further Action Determination letter dated August 26, 2019. A copy of the letter is presented in **Appendix A**.

NOA was not identified in surface or subsurface soil samples at or above DTSC's screening level, and VOCs were not identified in the passive soil gas samples at or above their respective laboratory reporting limits or DTSC screening levels.

Arsenic concentrations ranged from 3.4 to 110 milligrams per kilogram (mg/kg) in soil samples collected from the Project Site. These concentrations exceeded background levels that were evaluated for the Project Site.

Lead concentrations ranged from 1.1 to 190 mg/kg in soil samples collected at the Project Site. A risk assessment was performed using the DTSC lead risk assessment spreadsheet model (*DTSC LeadSpread Version 8*). Based on the LeadSpread output, exposure to the lead concentrations detected at the Project Site could result in a 90th percentile blood lead concentration of 4.9 µg/dl in children which exceeds the Office of Environmental Health Hazard Assessment's (OEHHA) blood toxicity level of 1 µg/l.

The total risk identified in soil at the Project Site from the presence of arsenic, lead, OCPs, and PCBs was estimated to be $1.1 \times 10^{-3}$, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The total health hazard from the COC identified in soils at the Project Site was estimated to be 280, which provides an increased health hazard (i.e., >1).

The PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil at the Project Site. Therefore, a response action to reduce or eliminate the potential impact of these constituents was recommended.

Due to elevated concentrations of COCs (OCPs, arsenic, lead, and PCBs) identified in soil at the north playfield areas and around existing structures, Padre recommended further action to reduce or eliminate the impact of these contaminants. The recommended removal action is excavation, removal, and offsite disposal at an appropriate landfill facility. Site Model, data summary tables and associated plates from the PEA report is presented in **Appendix C**.

### 2.7.3 Soil Management Plan for Arsenic Impacted Soil (SMP)

Due to the construction schedule for Phase 1 of the modernization project, arsenic impacted soil located in the northeast portion of the Project Site was addressed as part of a soil management plan (SMP) prepared by Padre. A background concentration of 11 mg/kg for arsenic in soil was established based on a graphical and statistical evaluation of the arsenic data set. The SMP field activities were initially implemented on July 9, 2019 and completed on July 26, 2019.

The SMP consisted of the excavation, temporary storage (soil bins), waste profiling and off-site disposal of approximately 95 cubic-yards (cy) of arsenic-impacted soil. Confirmation soil samples were collected from the bottom and side walls of the excavation areas and were chemically analyzed by the analytical laboratory. Approximately 128 tons of soil classified as a non-hazardous waste solid was transported to Waste Connections' John Smith Landfill facility located in Hollister, San Benito County, California.

At the completion of the SMP, confirmation soil sample results indicated that the concentrations of arsenic in soil remaining at the Project Site ranged from 3.3 to 9.2 mg/kg. The 95% upper confidence level (UCL) for arsenic in soil at the Project Site was calculated to be 5.09 mg/kg. Therefore, arsenic was not considered a COC and further remediation for arsenic in soil at the Project Site was not warranted.

The results of the SMP were documented in the Padre report titled *Results of Arsenic Soil Management Plan, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County,* California dated August 2019. In a letter dated August 26, 2019, DTSC concurred with Padre's recommendation to remove arsenic as a COC at the Project Site. A copy of the SMP results report is presented as **Appendix D**.

# 3.0 NATURE, SOURCE, AND EXTENT OF CONTAMINANTS

## 3.1 NATURE AND SOURCE OF CONTAMINANTS

The results of the PEA identified and confirmed the presence of chlordane, dieldrin, PCBs and lead in soil at the Project Site requiring a response action. Chemical specific information is provided below:

CHLORDANE: Chlordane is a man-made chemical that was used as a pesticide in the United States from 1948 to 1988. From 1983 to 1988, chlordane's only approved use was to control termites in homes. The pesticide was typically applied to the soil around the foundations of buildings with wood components.

DIELDRIN: Dieldrin and Aldrin are the common names of two structurally similar compounds that were once used as insecticides with aldrin readily changing into dieldrin once it enters the environment. They are chemicals that are made in the laboratory and do not occur naturally in the environment. From the 1950s until 1970, aldrin and dieldrin were used extensively as insecticides on crops such as corn and cotton, however the USDA cancelled uses of aldrin and dieldrin in 1970. In 1972, however, EPA approved aldrin and dieldrin for killing termites. Use of aldrin and dieldrin to control termites continued until 1987. In 1987, the manufacturer voluntarily canceled the registration for use in controlling termites. The pesticide was typically applied to the soil around and near building structures.

PCBs: PCBs are man-made mixtures of up to 209 individual chlorinated compounds (known as congeners). PCBs are synthetic organic compounds. There are no known natural sources of PCBs. PCBs can exist as a vapor in air though they have no known smell or taste. Many commercial PCBs mixtures are known in the U.S. by the trade name Aroclor. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence that they build up in the environment and can cause harmful health effects. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices with capacitors, and old hydraulic oils. In recent years, the U.S. EPA has identified that caulking containing PCBs was used in many buildings, including school buildings, in the 1950s through the 1970s. The main school buildings at the Project Site were built in the 1950s and 1960s.

LEAD: Lead is a heavy, low melting, bluish-gray metal that occurs naturally in the Earth's crust; however, it is rarely found naturally as a metal. It is usually found combined with two or more other elements to form lead compounds. Metallic lead is resistant to corrosion (i.e., not easily attacked by air or water). When exposed to air or water, thin films of lead compounds are formed that protect the metal from further attack. Lead is easily molded and shaped and can be combined with other metals to form alloys. Lead and lead alloys are commonly found in pipes, storage batteries, weights, shot and ammunition, cable covers, and sheets used to shield us from radiation. The largest use for lead is in storage batteries in cars and other vehicles. Lead compounds are used as a pigment in paints, dyes, and ceramic glazes and in caulk. The amount of lead used in these products has been reduced in recent years to minimize lead's harmful effect on people and animals. Tetraethyl lead and tetramethyl lead were once used in the United States as gasoline additives to increase octane rating. However, their use was phased out in the United States in the 1980s, and lead was banned for use in gasoline for motor vehicles beginning January 1, 1996. Lead used in ammunition, which is the largest non-battery end-use, has remained fairly constant in recent years. However, even the use of lead in bullets and shot as well as in fishing sinkers is being reduced because of its harm to the environment.

## 3.2 EXTENT AND VOLUME OF CONTAMINANTS

The extent and volume of soil impacted by COCs at concentrations exceeding their respective risk screening levels has been calculated to be approximately 360 cubic yards (cy). The areas of concern (AOC) requiring a response action are presented on **Plates 3-1** through **3-3**. The vertical extent of soil contamination extends to depths of approximately 1.5 feet. The AOC has been designated into three sub-areas described below:

- AOC – 1: Classroom Building (45 cy);
- AOC – 2: Classroom Buildings (210 cy); and
- AOC – 3: Building H (Kitchen/Classrooms) (105 cy).

When compacted soil is excavated and stockpiled, the compacted soil is loosened, and depending on soil types the volume of stockpiled soil may increase (expansion factor). Additionally, excavated soil is transported and disposed of by weight (i.e., tonnage). The conversion from soil in cy to soil in tonnage is calculated as follows:

- Soil volume (cy) x expansion factor x conversion factor = Total tons

Whereas,

- wet weight of clay = 2,970 lbs/cy; and 2,000 lbs. = 1 ton.

Therefore,

- 360 cy x 1.1 (expansion factor) x 1.5 (conversion factor) = 594 tons of soil.

The estimated total weight of soil to be transported and disposed of at the appropriate landfill facility is calculated to be approximately 594 tons. Transporting soil using a truck and trailer combination would allow for approximately 20 tons per load. Therefore, the calculated quantity of truck and trailer loads is calculated as follows:

- 594 tons divided by 20 tons per load = 30 truck and trailer loads.

The locations of the removal action areas at the Project Site are presented on **Plates 3-1** through **3-3**. Additional excavation at the location of the removal action area may be necessary, based on the results of confirmation soil sampling as discussed in Section 7.7.2.

### 3.3 HEALTH EFFECT OF CONTAMINANTS

The identified COC and their health effects are discussed below:

CHLORDANE: Technical grade chlordane is toxic to humans by ingestion of contaminated food, skin absorption, and inhalation. Occupational exposure by dermal and inhalation routes may be significant. Chlordane is easily absorbed through the skin. Technical grade chlordane is a stimulant to the central nervous system, but its exact mode of action is unknown. The general symptoms are convulsions and tremors followed by depression. Cycles of excitement and depression may be repeated several times. Other symptoms are liver damage, anorexia and weight loss. The U.S. EPA has determined that chlordane is a probable human carcinogen (B2 classification).

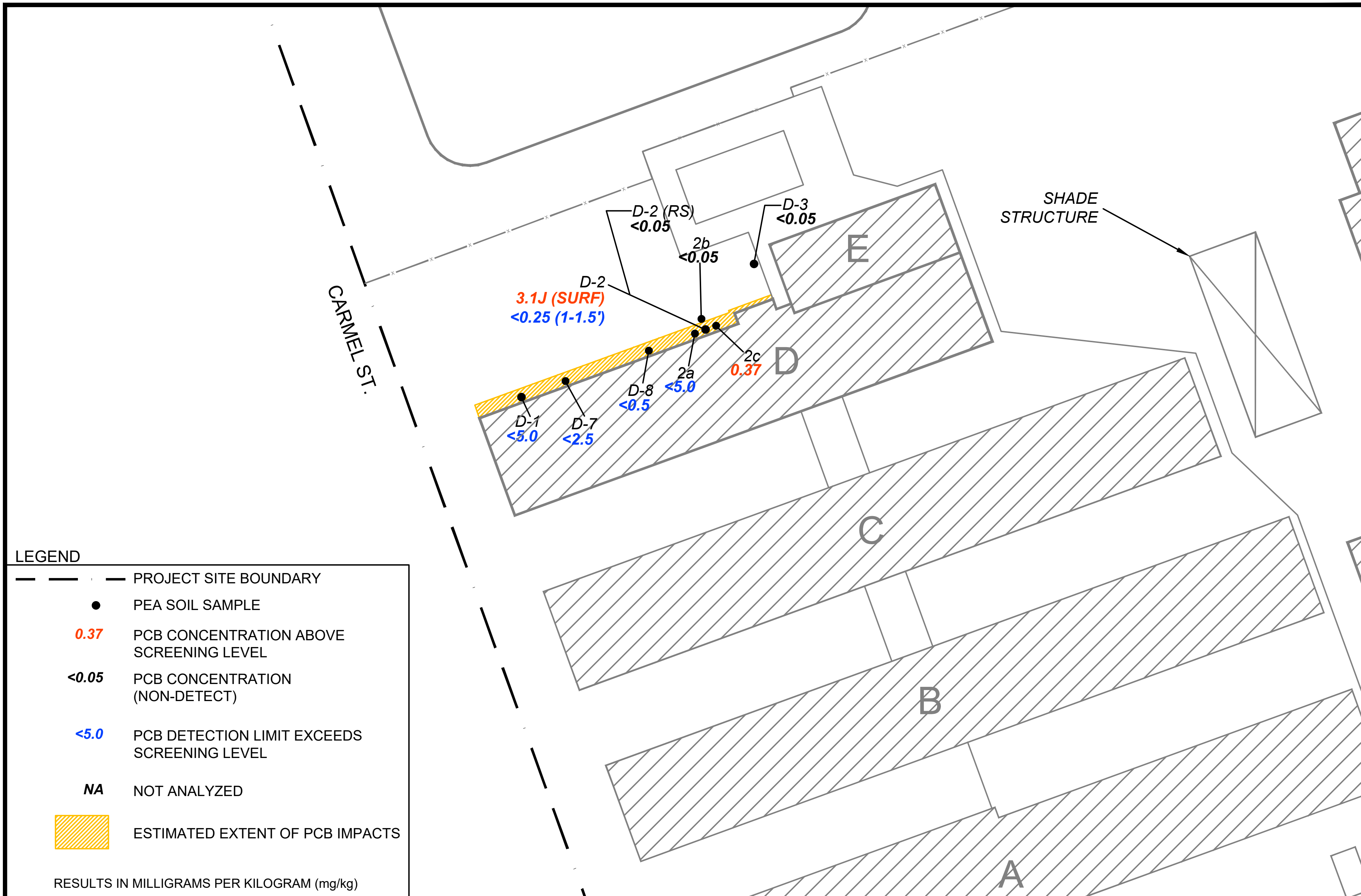
DIELDRIN: The U.S. EPA has classified dieldrin as a probable human carcinogen. Like chlordane, dieldrin persists in the environment and accumulates in fatty tissues of organisms, including humans. The target organs of dieldrin include the central and peripheral nervous systems as well as the liver. Some workers exposed to moderate levels of dieldrin in the air for a long time had headaches, dizziness, irritability, vomiting, and uncontrolled muscle movements. Animals exposed to high amounts of dieldrin also had nervous system effects. Long-term oral exposure of animals to dieldrin was associated with increased liver weight, liver damage and liver tumors (http://www.epa.gov/iris/subst/0225.htm). Exposure to dieldrin alters the dopamine system and increases neurotoxicity in an animal model of Parkinson's disease (http://www.fasebj.org/cgi/content/full/20/10/1695).

PCBs: The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. PCB exposures in the general population are not likely to result in skin and liver effects. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs. Animals that ate food containing large amounts of PCBs for short periods of time had mild liver damage and some died. Animals that ate smaller amounts of PCBs in food over several weeks or months developed various kinds of health effects, including anemia; acne-like skin conditions; and liver, stomach, and thyroid gland injuries. Other effects of PCBs in animals include changes in the immune system, behavioral alterations, and impaired reproduction. PCBs are not known to cause birth defects.

LEAD: The effects of lead are the same whether it enters the body through breathing or ingestion. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults to lead at work has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people. Lead exposure may also cause anemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children and ultimately cause death. Children are more sensitive to the health effects of lead than adults. A child who swallows large amounts of lead may develop anemia, kidney damage, colic (severe "stomach ache"), muscle weakness, and brain damage. In some cases, the amount of lead in the child's body can be lowered by giving the child certain drugs that help eliminate lead from the body. If a child swallows smaller amounts of lead, such as dust containing lead from paint, much less severe but still important effects on blood, development, and behavior may occur. In this case, recovery is likely once the child is removed from the source of lead exposure. At still lower levels of exposure, lead can affect a child's mental and physical growth. There is no conclusive proof that lead causes cancer (is carcinogenic) in humans. The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens based on limited evidence from studies in humans and sufficient evidence from animal studies, and the EPA has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans. IARC determined that organic lead compounds are not classifiable as to their carcinogenicity in humans based on inadequate evidence from studies in humans and in animals.

## 3.4 RECEPTORS POTENTIALLY AFFECTED BY THE SITE

A conceptual site model has been developed that identifies receptors that may be exposed to COC at the Project Site. The conceptual site model identifies the potential exposure pathways (i.e., ingestion of contaminated soils, inhalation of contaminated particulates, and dermal contact with contaminated soils) for the contaminated media at the Project Site. A copy of the Conceptual Site Model developed during the PEA is presented in **Appendix C**.

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0 60
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*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE 3-1

**AREA OF CONCERN**
**(AOC - 1)**


LEGEND

| | |
|---|---|
| — — — | PROJECT SITE BOUNDARY |
| ● | PEA SOIL SAMPLE |
| 82 | LEAD CONCENTRATION (above screening level of 80 mg/kg) |
| | ESTIMATED EXTENT OF LEAD IMPACTED SOIL |

RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

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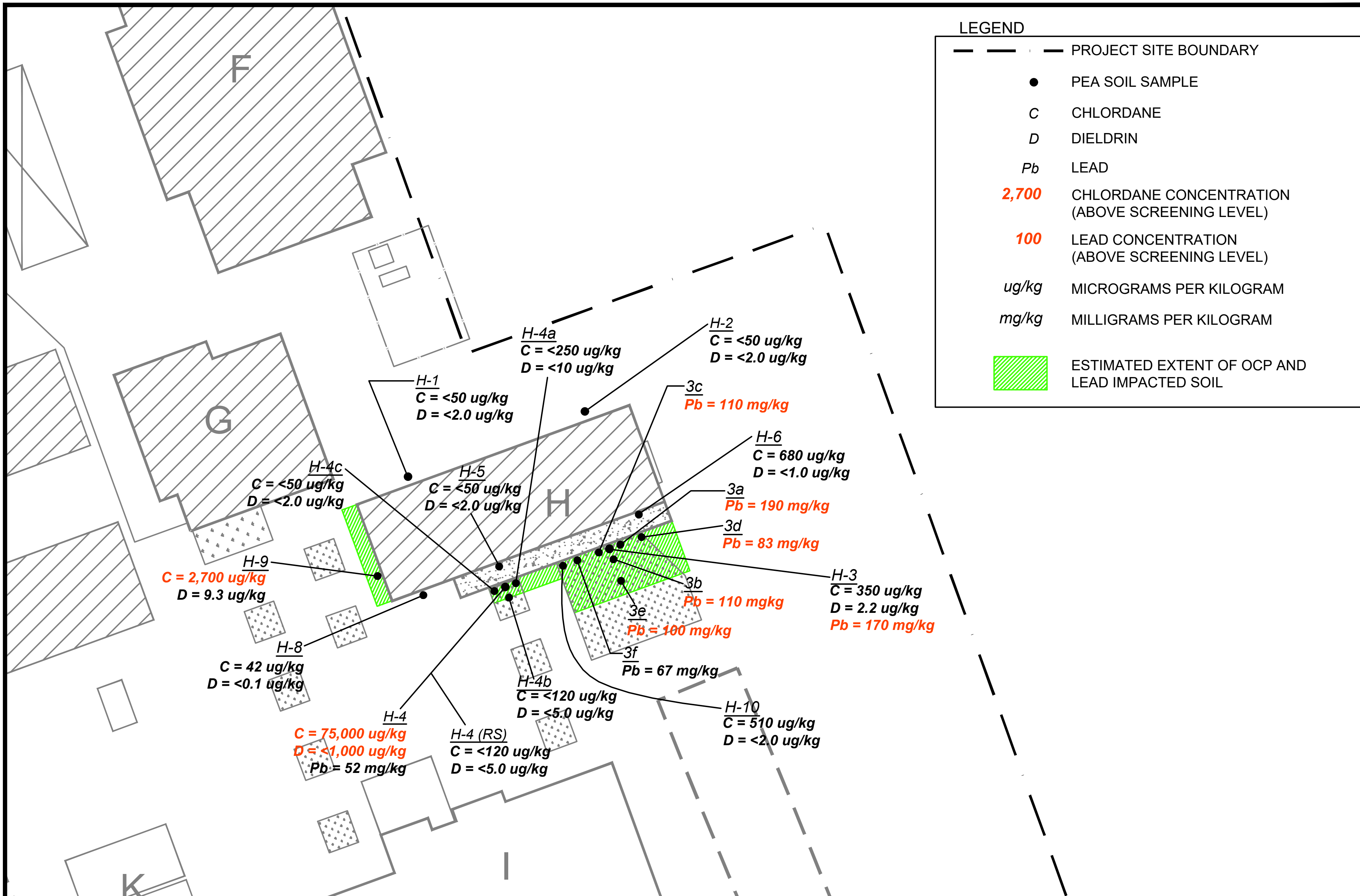
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/2/19 | AC | AJK |

PLATE 3-2

**AREA OF CONCERN (AOC - 2)**

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7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/1/19 | AC | AJK |

PLATE 3-3

**AREA OF CONCERN (AOC - 3)**

## 4.0 RISK EVALUATION AND PRELIMINARY CLEANUP GOALS

This section presents detailed information regarding development of cleanup goals (CGs) for the COC identified at the Project Site.

### 4.1 RISK EVALUATION

The DTSC-modified screening levels provided in Human Health Risk Assessment (HHRA) Note 3 dated April 2019 were used to conduct a screening-level human health risk assessment using the residential land-use scenario. Carcinogenic screening levels are typically based on a predicted excess long-term cancer risk of one in a million. Non-carcinogenic screening levels are based on maintaining the daily COC intake below the level at which deleterious health effects are considered possible.

In accordance with PEA guidance documents and DTSC's HHRA Note No. 4, dated October 2016, detected chemical concentrations in soil were evaluated as potential exposure point concentrations (EPCs). The maximum EPCs for the COC were evaluated. Additionally, the highest lead concentration was also evaluated using DTSC's lead risk assessment spreadsheet model (*DTSC LeadSpread Version 8*).

The EPCs were compared to their respective screening levels. The ratio of an EPC to the corresponding carcinogenic screening level was multiplied by 1E-06 to estimate the chemical-specific screening cancer risk. For noncarcinogens, the chemical-specific hazard index is the ratio of the EPC to the screening level based on noncarcinogenic effects. The risk screening equations are as follows:

For each carcinogenic chemical:

$$\frac{\text{Maximum Detected Concentration}}{\text{Screening Level}} \times 10^{-6} = \text{Cancer Risk}$$

For each non-carcinogenic chemical:

$$\frac{\text{Maximum Detected Concentration}}{\text{Screening Level}} = \text{Hazard Quotient}$$

The sums of the chemical-specific screening cancer risk and screening hazard index are the cumulative screening cancer risk and hazard index, respectively.

The total risk identified in soil at the Project Site from the presence of OCPs, lead, and PCBs was estimated to be $5.9 \times 10^{-5}$, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The total health hazard from COC identified in soils at the Project Site was estimated to be 4.6, which provides an increased health hazard (i.e., >1). Therefore, a response action to reduce or eliminate the potential impact of COC in soil at the Project Site is recommended.

Lead concentrations ranged from 1.1 to 190 mg/kg in soil samples collected at the Project Site. A risk assessment was also performed using the DTSC lead risk assessment spreadsheet model (*DTSC LeadSpread Version 8*). Based on the LeadSpread output using the highest concentration (170 mg/kg), exposure to lead concentrations detected at the Project Site could result in a 90th percentile blood lead concentration of 4.9 micrograms per deciliter (µg/dl) in children which slightly exceeds the Office of Environmental Health Hazard Assessment (OEHHA) blood toxicity level of 1 µg/l.

A comparison of the highest site concentration in soil for each COC to the appropriate screening level is presented in **Table 4-1**.

**Table 4-1: Comparison to Screening Levels**

| COPC | Highest Site Concentration (mg/kg) | Screening Level (mg/kg) |
|---|---|---|
| Chlordane | 75 | 1.7[(a)] |
| Dieldrin | 0.051 | 0.034[(a)] |
| PCBs | 3.1 | 0.24[(a) (c)] |
| Lead | 190 | 80[(b)] |

Notes:
mg/kg – milligrams per kilogram
(a) U.S. EPA RSLs (November 2019).
(b) DTSC LeadSpread Version 8.
(c) for Aroclor 1260 (only PCB identified during the PEA).

### 4.1.1 Environmental Screening Risk Evaluation

A detailed ecological screening evaluation was not performed as part of the PEA because portions of the Project Site have been used a public-school site since the 1920s, and the current Brownell Middle School was constructed in the 1960s. Natural wildlife areas were not noted at the Project Site during the course of the PEA. Therefore, based on the available information, there does not appear to be a significant pathway of exposure to nonhuman, sensitive ecological species.

## 4.2 VOLUNTARY CLEANUP AGREEMENT

Pursuant to Education Code section 17213.2(a), the District entered into a School Cleanup Agreement (Docket Number HAS-FY18/19-117) with DTSC on August 21, 2019. If the District is unable or unwilling to complete the response action as required, then DTSC will immediately notify the Office of Public School Construction and the California Department of Education.

## 4.3 CLEANUP GOALS

As discussed in Section 3.1, the identified COC in soil at the Project Site consist of chlordane, dieldrin, lead, and PCBs. RSLs are based on an excess cancer risk of one-in-a-million ($10^{-6}$) and/or a hazard quotient of 1.0 for non-cancer health effects. These thresholds are conservative and responsive to the overall protection of human health and the environment. The cleanup goal for each COC is presented Table 4-2.

**Table 4-2: Cleanup Goals (CGs)**

| COC in Soil | CGs (mg/kg) |
|---|---|
| Chlordane | 1.7[(a)] |
| Dieldrin | 0.034[(a)] |
| PCBs | 0.24[(a) (c)] |
| LEAD | 80[(b)] |

Notes:

mg/kg – milligrams per kilogram
(a) U.S. EPA RSLs (November 2019).
(b) DTSC LeadSpread Version 8.
(c) for Aroclor 1260 (only PCB identified during the PEA).

The cleanup goal will be considered achieved when the analytical results of confirmation soil samples collected from the excavation areas indicate that any residual concentrations of COC in soil are at or below their respective cleanup goal.

# 5.0 ENGINEERING EVALUATION / COST ANALYSIS (EE/CA)

This Engineering Evaluation / Cost Analysis (EE/CA) was conducted for the proposed response action (RA) at the Project Site in accordance with the U.S. EPA guidance titled "Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA (USEPA, 1993)". It was prepared as part of the RAW developed for the Project Site to aid in the evaluation of remediation alternatives for the mitigation of impacted soils at the Project Site.

The proposed RA at the Project Site has been determined to be a non-time-critical response, based on the risk evaluation and Project Site considerations. The proposed RA will be conducted in accordance with protocols of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) codified in Part 300 of Code of Federal Regulations, Title 40 (40 CFR 300). Under 40 CFR 300.415 of the NCP, an EE/CA is required to address the implementability, effectiveness, and cost of a non-time-critical RA.

This EE/CA will be used as the basis for the planned non-time-critical RA. As the lead agency, DTSC has final authority of the selected alternatives and the overall public participation activities.

## 5.1 REMOVAL ACTION SCOPE

This RAW outlines the remedy for addressing the presence of COC in soil at the Project Site. Approximately 360 cy of impacted soil will require a removal action. The goals and objectives of the proposed RA are presented in Section 1.1. The CGs for the identified COC are presented in Table 4-2, as described in Section 4.3.

## 5.2 IDENTIFICATION AND EVALUATION OF REMOVAL ACTION ALTERNATIVES

The purpose of the removal action is to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance at the Site. Based on historical patterns of remedy selection for sites where chlordane and lead are COC in soil the "No Action" alternative and three other common alternatives were identified. A screening process was then used to generally evaluate the applicability of options to treat or otherwise remediate the COC that drives risk at the Site, based on EE/CA evaluation criteria (effectiveness, implementability, and relative cost) and DTSC's project guidance (general scientific and engineering evaluation).

### 5.2.1 EE/CA Alternative Evaluation Criteria

The criteria listed below were used during this evaluation process.

<u>Effectiveness</u>

- Performance and reliability to eliminate or reduce the risk associated with the identified COC (in terms of toxicity, mobility, or volume) at the Project Site;
- Overall protection of public health and the environment (threshold factor);

- Compliance with applicable or relevant and appropriate requirements (ARARs) presented in Section 6.0 (threshold factor);
- Long- and short-term effectiveness (balancing factor);
- Reduction of toxicity, mobility, or volume through treatment (balancing factor); and
- Ability to meet the RAOs presented in Section 1.1 (threshold factor).

**Implementability**:

- Capability of the alternate with respect to administrative and technical feasibility to Project Site conditions, e.g., space limitations, equipment availability, resource availability, utility requirements, monitoring concerns, and operation and maintenance;
- Ability of the alternate to meet applicable federal, state, and local regulations and permitting requirements; and
- Ability of the alternate to meet the project schedule and facility operations requirements.

**Cost**:

- Assess the relative cost of each alternate based on estimated capital cost for construction or initial implementation and ongoing operational and maintenance (O&M) costs.

### 5.2.2 Description and Comparative Analysis of Removal Action Alternatives

A screening evaluation was conducted to assess removal technologies and process options for mitigating the impacted soil present at the Project Site. Based on the RAOs presented in Section 1.1, the following four (4) alternatives were identified and developed for the proposed RA at the Project Site

Most of the identified removal alternatives were considered for application at the Project Site but were screened out immediately without detailed evaluation. The screen-out decision was made based on past experience at other similar sites and on scientific consideration and engineering judgment, which indicated that they would either be ineffective in achieving RAOs, inappropriate technologies for remediating the elevated COC, or could not be implemented in a cost-effective manner.

#### 5.2.2.1 No Action

The “No Action” alternative does not meet the criteria of effectiveness. While the “No Action” alternative was not considered by DTSC, it was evaluated (as required under the NCP) as a baseline to which the relative benefits of the other alternatives could be compared.

#### 5.2.2.2 Excavation and Offsite Disposal

Excavation and offsite disposal is a well-proven, readily available technology that is a common method for remediating low volume contaminated properties. It is a relatively simple process, with positive results. Equipment and labor required for this alternative is readily available and commonly used for school construction activities.

Excavation involves the removal of soil containing elevated levels of identified COC. Excavation includes using loaders, backhoes, large diameter augers, and/or other appropriate equipment. Excavation operations may generate fugitive dust emissions. Therefore, suppressant foam, water spray and other forms of vapor and dust control may be required during excavation, and workers may be required to use personal protective equipment to reduce exposure to the COC. The depth of excavations may be limited due to physical constraints associated with the Project Site. Sloping excavation sidewalls may result in increased volume of soil requiring excavation. Confirmation soil sampling and analysis will be conducted to verify that CGs are met at the excavation bottom and sidewalls. Excavation would be an effective means for removing impacted soil from the Project Site and would be used in conjunction with appropriate disposal options. Off-site disposal involves removing impacted soil from the Project Site and transportation to an appropriate off-site disposal facility. This would be an effective means of removing COC impacted soil from the Project Site and meeting the RAOs for soil. Estimated costs for implementing an excavation and off-site disposal of impacted soil is approximately $180,000 to $220,000.

#### 5.2.2.3 Treatment

Bioremediation can be used to treat OCPs and PCBs in soil. A bioremediation program can be developed using proprietary biotechnology with soil amendments to enhance and elevate indigenous bacterial colonies for the destruction of recalcitrant organic contaminants such OCPs and PCBs in soil. The time to complete in-situ bioremediation activities for OCPs and PCBs to acceptable levels (below CGs) is estimated to require approximately four to five months to complete. Additionally, if fill material is also required to replace excavated soil, then associated costs can be approximately half of the cost for the traditional method of excavation and offsite disposal. Estimated costs for implementing a bioremediation program for OCPs and PCBs is approximately $400,000 to $450,000. However, since this bioremediation method is not effective for lead in soil, it is not considered a feasible option for meeting the RAOs for impacted soil at the Project Site.

#### 5.2.2.4 Engineering and Institutional Controls

Engineering controls (ECs) and institutional controls (ICs) can be used to reduce or eliminate potential exposure to COC in soil at the Project Site. ECs include development of a Capping System with paved areas, building foundations, and/or clean fill material, in conjunction with the development of an operation and maintenance (O&M) plan. ICs primarily consist of land-use covenants and deed notices/restrictions that provide information or notifications that residual contamination may remain on a property and identifies associated ECs to restrict access and exposure to contamination. ECs and ICs generally include the creation of a land-use covenant (LUC), which sets forth and defines land-use limitations. LUCs are recorded in the county in which the land is located and must continue in perpetuity unless modified or terminated in accordance with applicable law.

Estimated costs for implementing ECs and ICs are approximately $500,000 to $750,000, and annual O&M costs are approximately $15,000 to $20,000. Based on the relatively small volume of COC impacted soil, and the need for annual inspections, the establishment of ECs and ICs is not considered a feasible option for meeting the RAOs for impacted soil at the Project Site.

## 5.3 DESCRIPTION OF RECOMMENDED REMEDY

The recommended RA remedy, as deemed preferable by the District, consists of the excavation, transport, and off-site disposal of soil containing elevated concentrations of chlordane and lead at the Project Site. The activities that would be conducted to implement the RA activities are anticipated to be performed in three phases and are described below:

- Secure Project Site with chain-link fencing around property perimeter;
- Demolition of building structures, while leaving building foundations in-place;
- Excavation of approximately 45 cy of soil at the location of AOC - 1 (Phase 1) and temporarily storing the material in 20 cy bins for waste characterization;
- Excavation of approximately 210 cy of soil at the location of AOC – 2 (Phase 2) and temporarily stockpiling the material for waste characterization;
- Excavation of approximately 105 cy of soil at the location of AOC – 3 (Phase 3) and temporarily stockpiling the materials for waste characterization;
- Collect confirmation soil samples from the excavation areas and compare confirmation data to the CGs. If needed, excavate additional volume of soil until the CGs are met;
- Select and obtain landfill approval for soil disposal;
- Load, transport, and dispose of the excavated soil to the appropriate disposal facility; and
- Preparation of a removal action completion report (RACR).

## 5.4 COST ESTIMATE OF RECOMMENDED REMEDY

The recommended remedy is a removal action to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance, costing approximately $200,000. A summary of the estimated cost for the removal action is outlined below:

| | | |
|---|---|---|
| 1. | DTSC School Oversight Cost: | $ 46,000. |
| 2. | Preparation of a Removal Action Workplan (RAW): | $ 15,000. |
| 3. | Pre-construction Activities: | $ 5,000. |
| 4. | Environmental Contractor (air monitoring, soil sampling, waste profiling): | $ 40,000. |
| 5. | Removal Contractor (excavation, stockpile, loading): | $ 22,000. |
| 6. | Soil Transport and Disposal (non-haz): | $ 57,000. |
| 7. | Preparation of a Removal Action Completion Report: | $ 15,000. |
| | Total Cost Estimate: | $200,000. |

# 6.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The removal action objectives must be consistent with Applicable or Relevant and Appropriate Requirements (ARARs) (40 CFR Section 300.415). The following definitions are derived from the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Section 300.5).

*Applicable Requirements*: Are cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, removal action, location, or other circumstance at a Site.

*Relevant and Appropriate Requirements*: Are cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not "applicable" to a hazardous substance, pollutant, contaminant, removal action, location, or other circumstance at a Site, address problems or situations sufficiently similar to those encountered at the Site that their use is well-suited to the particular Site.

ARARs typically are separated into three categories: 1) Chemical-specific ARARs; 2) Action-specific ARARs; and 3) Location-specific ARARs, and are described below:

*Chemical-specific ARARs*: These are usually health- or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment.

*Action-specific ARARs*: These are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes.

*Location-specific ARARs*: These are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they occur in special locations.

The potential ARARs for the Project Site's COC and their selected remedy are presented below.

## 6.1 CHEMICAL-SPECIFIC ARARS

### 6.1.1 Risk Screening Levels

The U.S. EPA has developed risk screening levels (RSLs) for use in the human health risk screening process. Screening levels are used to evaluate carcinogenic (cancer causing) impacts and non-carcinogenic impacts (i.e., liver or kidney damage). Carcinogenic screening levels are typically based on a predicted excess long-term cancer risk of one in a million (1.0E-06). Non-carcinogenic screening levels are based on maintaining the daily COC intake below the level at which deleterious health effects are considered possible.

DTSC has developed modified screening levels for use in the human health risk screening process and are presented in Human Health Risk Assessment (HHRA) Note 3, updated April 2019. The cleanup goal for each COC will be the respective RSL.

### 6.1.2 Air Quality Management

The California Air Resources Board (ARB) and the U.S. EPA have adopted ambient (outdoor) air quality standards. These legal limits on ambient air pollution are designed to protect the health and welfare of Californians. The California Health and Safety Code Section 39606 provides the authority for the Bay Area Air Quality Management District (BAAQMD) to regulate ambient air pollution in the region of the Project Site. There are no BAAQMD permits required for the planned RA activities.

According to the BAAQMD the Project Site is exempt from the requirements of Regulation 8, Rule 40 because the soil is contaminated with non-volatile chemicals and is unrelated to underground storage tank activities (8-40 Sections 113 and 115). As part of the "Notification Only Program", the BAAQMD will be provided written notification of the planned excavation activities at least 5 days prior to the start of work.

On June 2, 2010, BAAQMD adopted Resolution 2010-06, which sets forth California Environmental Quality Act (CEQA) thresholds of significance guidelines. The guidelines indicate that for construction-related projects such as the proposed response action, best management practices should be used to address fugitive dust. Best management practices for fugitive dust control are discussed in Sections 7.5 and 7.6 of this report. The guidelines also set forth emissions criteria for reactive organic gasses, oxides of nitrogen, particulate matter in exhaust (PM10, PM2.5) and local carbon monoxide. Based on the temporary construction period and the implementation of best management practices for construction emissions minimization, the planned removal action is not anticipated to result in the generation of significant quantities of these criteria air pollutants.

Dust control measures and monitoring activities will be implemented at the Project Site. Measured total dust levels will be compared to site action levels. Site action levels are based on the Cal-OSHA permissible exposure levels (PELs) for each COC identified in soil at the Project Site. The PEL for total dust is 10 mg/m$^3$. Therefore, assuming that total dust is present at 10 mg/m$^3$ in air and contains the maximum concentration of each COC identified at the Project Site, then site worker exposure levels can be calculated as follows:

$$\text{Exposure Level (mg/m}^3\text{)} = \frac{\text{soil concentration (mg/kg) x total dust PEL (mg/m}^3\text{)}}{\text{1,000,000 (mg/kg)}}$$

Whereas, the dust exposure levels for each COC are as follows:

Chlordane: $0.00075 \text{ mg/m}^3 = \frac{75 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Dieldrin: $0.00000051 \text{ mg/m}^3 = \frac{0.051 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Lead: $0.0019 \text{ mg/m}^3 = \frac{190 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

$$\text{PCB (Aroclor 1260):} \quad 0.000031\ mg/m^3 = \frac{3.1\ mg/kg \times 10\ mg/m^3}{1{,}000{,}000\ mg/kg}$$

Comparing the calculated dust exposure levels for each COC to their respective PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Calculated dust exposure levels are presented in Table 6-1.

**Table 6-1: Dust Exposure Levels**

| Chemical of Concern | Calculated Dust Exposure Level(a) | CAL/OSHA PEL |
|---|---|---|
| Chlordane | 0.00075 mg/m$^3$ | 0.5 mg/m$^3$ |
| Dieldrin | 0.00000051 | 0.25 mg/m$^3$ |
| Lead | 0.0019 mg/m$^3$ | 0.05 mg/m$^3$ |
| PCBs | 0.000031 mg/m$^3$ | 0.5 mg/m$^3$ |
| Total Dust | --- | 10 mg/m$^3$ |

Notes:

PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 mg/m$^3$ total dust.

### 6.1.3 Health and Safety Plan (HSP)

All contractors will be responsible for operating in accordance with the most current requirements of Title 8, California Code of Regulations, Section 5192 (8 CCR 5192) and Title 29, Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120), Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). On-site personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in 8 CCR General Industry and Construction Safety Orders and 29 CFR 1910 and 29 CFR 1926, Construction Industry Standards, as well as other applicable federal, state and local laws and regulations. All personnel shall operate in compliance with all California OSHA requirements.

A site-specific health and safety plan (HSP) has been prepared for the Project Site in accordance with current health and safety standards as specified by the federal and California OSHAs. A copy of the HSP is included as **Appendix E**.

The provisions of the HSP are mandatory for all personnel of the responsible party (RP) and its contractors who are at the Project Site. The RP's contractor and its subcontractors doing fieldwork in association with this RAW will either adopt and abide by the HSP, or shall develop their own safety plans which, at a minimum, meet the requirements of the HSP. All onsite personnel shall read and sign the HSP prior to initiating activity at the Project Site.

## 6.2 ACTION-SPECIFIC ARARS

### 6.2.1 Waste Management

Excavated soil generated during Phase 1 of the RA will be temporarily stored in 20 cy bins pending waste characterization. Based on the estimated volume of soil to be excavated during Phase 1 (45 cy), three soil bins will be utilized. Each bin will be labeled, and one soil sample from each bin will be collected and made into a 3-point composite by the analytical for waste characterization.

Excavated soil generated during Phase 2 and 3 will be stockpiled onsite pending waste characterization. Based on the estimated volume of soil to be excavated during each phase (105 and 210 cy, respectively), the generated stockpiles will each contain less than 250 cy of soil. Each stockpile will be labeled and sampled for waste characterization by collecting one 4-point composite soil sample from each stockpile. Waste characterization samples from the bins and stockpiles will be chemically analyzed at a minimum for the following constituents, or as required by the permitted waste disposal facility:

- OCPs by U.S. EPA Method 8081A;
- CAM 17 Metals by U.S. EPA 6010/7000 series;
- PCBs by U.S. EPA Method 8082;
- Total petroleum hydrocarbons (TPH) by U.S. EPA Method 8015M; and
- Volatile organic compounds (VOCs) by U.S. EPA Method 8260.

Waste classification and landfill approval will be obtained prior to transporting soil off the Project Site. If detected concentrations of COC do not exceed the California total threshold limit concentration (TTLC), then the soil will be disposed of as a non-hazardous waste. If detected concentrations of COC exceed the TTLC, then the soil will be classified as a hazardous waste. The soil sample is then analyzed for the soluble threshold limit concentration (STLC) by the California Waste Extraction Test (WET) or the toxicity characteristic leaching procedure (TCLP), depending on the acceptance criteria of the landfill facility. If detected concentrations of COC exceed the STLC/TCLP then the soil will be classified as a RCRA-hazardous waste. The values for waste characterization are listed below:

| Compound | TTLC | STLC | TCLP |
|---|---|---|---|
| Chlordane | 2.5 mg/kg | 0.25 mg/L | 0.03 mg/L |
| Dieldrin | 8.0 mg/kg | 0.8 mg/L | (not applicable) |
| Lead | 1,000 mg/kg | 5.0 mg/L | 5.0 mg/L |
| PCBs | 50 mg/kg | 5.0 mg/L | (not applicable) |

The District will then be required to obtain a California EPA temporary identification number for the disposal of the waste. Persons who generate, transport or offer to transport, treat, store, or dispose of hazardous waste generally must have an identification (ID) number, which is used to identify the hazardous waste handler and to track the waste from its point of origin to its final disposal (referred to as “cradle to grave”). Instructions on how to obtain a temporary ID number can be found at the DTSC website: https://dtsc-web01.dtsc.ca.gov/epaid/default.aspx.

Compliance with the DTSC requirements of hazardous waste generation, temporary onsite storage, transportation and disposal is required. Any container used for onsite storage will be properly labeled with a hazardous waste label. Within 90 days after its generation, the hazardous waste will be transported offsite for disposal. Any shipment of hazardous wastes in California will be transported by a registered hazardous waste hauler under a uniform hazardous waste manifest. Land ban requirements will also be followed as necessary.

### 6.2.2 California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) is a statute that requires State and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. In response to the passage of the National Environmental Policy Act (NEPA) in 1969, the California Legislature passed the CEQA in 1970 as a system of checks and balances for land use development and management decisions in California. CEQA was subsequently codified into the Public Resources Code (division 13, section 21000 et seq.). The Resources Agency adopts and certifies certain regulations (known as CEQA Guidelines) to explain and interpret the CEQA law. These regulations were codified into the California Code of Regulations (CCR), title 14, chapter 3, section 15000 et seq.

CEQA is a self-executing statute with administrative procedures to ensure comprehensive environmental impact review prior to project approval. The Resources Agency does not enforce CEQA, nor does it review governmental actions for CEQA compliance. If necessary, the public may challenge a CEQA project decision in court. Where a State agency is the lead agency or a responsible/trustee agency, or where the project has statewide, regional, or area wide significance, such CEQA documents are required to be submitted to the State Clearinghouse within the Governor’s Office of Planning and Research for processing State agency review.

A CEQA project is defined as a California project that has a potential for resulting in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. CEQA applies to discretionary CEQA projects proposed to be carried out or approved by California public agencies, unless an exemption applies. Once an activity is determined as a CEQA project, the lead agency conducts a preliminary review to determine whether the project is exempt from CEQA.

A Final Initial Study and Mitigated Negative Declaration (IS/MND), dated July 2019 was prepared by School Site Solutions, Inc. and determined that the completion of the school modernization project would result in less than significant impacts following implementation of prescribed mitigation for the following issues: biological resources; cultural resources; geology and soils; hazards & hazardous materials; hydrology and water quality; and noise. The Governing Board of the District, as the lead agency, adopted the IS/MND on August 8, 2019. The Final

Notice of Determination (NOD) was filed with the County of Santa Clara on [date to be determined].

DTSC, as the lead agency, which approves or determines the need to carry out a response action (RA) for which a negative declaration was adopted (Gilroy Unified School District July 2019) will file a Notice of Determination (NOD) with the Office of Planning and Research (OPR) as per Public Resources Code (PRC) Section 21108 and Guidelines Section 150575(c). A list of these notices shall be posted weekly by OPR and each list shall remain posted for at least 30 days (PRC Section 21108(c)). On August 26, 2019, DTSC issued a "Further Action" determination, requiring an RA at the Project Site.

As part of its approval process for the project, DTSC has prepared a Draft Notice of Determination (NOD). Upon approval of this RAW, DTSC will file the NOD with the Governor's Office of Planning and Research (OPR). A copy of the Draft NOD is included as **Appendix F**.

Although a NOD is applicable for the removal action, the District is still required to comply with CEQA requirements for the school modernization project. The findings of the PEA and removal action are required to be reflected in the District's Initial Study/Mitigated Negative Declaration (IS/MND) for the school modernization project.

### 6.2.3 Stormwater Discharge

The State Water Resources Control Board (SWRCB), as part of the National Pollutant Discharge Elimination System (NPDES), has adopted a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity to address discharges of storm water runoff from construction projects that encompass one acre or more in total acreage of soil disturbances. Construction activities subject to the General Permit include demolition, clearing, grading, excavation, soil stockpiling, material storing, on-site staging, off-site staging, and other land disturbance activities (State Water Resources Control Board Order No.2009-0009-DWQ [as amended by Order No. 2010-0014-DWQ], National Pollutant Discharge Elimination System, General Permit No.CAS000002).

To obtain coverage under the General Permit, dischargers are required to electronically submit the Permit Registration Documents (PRDs), which includes a Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), and SWPPP Compliance Checklist, and mail the appropriate permit fee to the SWRCB. The SWPPP is required to specify Best Management Practices (BMPs) to prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving offsite into receiving waters. The discharger is required to obtain coverage under the General Permit prior to commencement of construction activities. When construction is complete or ownership has been transferred, the discharger is required to file a Notice of Termination with the appropriate California Regional Water Quality Control Board certifying that all State and local requirements have been met in accordance with the General Permit.

*The total acreage of the areas to be disturbed during the removal action is less than 1 acre (<1), therefore, an NPDES General Permit is not required for this RA.*

Although a SWPPP is not required for this project, best management practices (BMPS) will be implemented to reduce or eliminate sediment and other pollutants from entering existing storm water drains located in adjacent streets. Depending on weather conditions at the time of removal action activities, the following BMPs will be implemented as appropriate:

- Control of runoff from stockpiled soil by covering each pile with plastic sheeting and surrounding the stockpile with silt fencing and/or filter roll barriers;
- Temporary perimeter controls with silt fencing and/or filter roll barriers;
- Protection of storm drain inlets with filter fabric and sand/gravel bag barriers;
- Stabilized construction entrance/exit with truck tracking controls; and
- Post construction erosion control measures (i.e., landscape and/or hardscape ground cover).

### 6.2.4 Quality Assurance Project Plan (QAPP)

Quality assurance/quality control measures that will be used during project execution are documented in the QAPP included as **Appendix G**. The QAPP will assure that Project Site field and analytical data collected meet project Data Quality Objectives (DQOs) and RAOs to support decisions for utilization of the Project Site as an elementary school site.

### 6.2.5 Others

All necessary permits (State, County, and/or City) and approvals identified in this RAW will be obtained prior to any removal activities. Upon approval from DTSC, removal activities will be performed by a California certified contractor with oversight from a California-licensed professional geologist and/or civil engineer.

According to Education Code section 17213.2 (e), if a previously unidentified environmental concern is discovered at any time during the removal action and/or school construction process, the school district shall cease all construction activities at the Project Site, notify DTSC, and take the necessary response actions as required by DTSC.

## 6.3 LOCATION-SPECIFIC ARARS

### 6.3.1 Public Participation

DTSC has developed a public participation strategy to determine the level of public interest in the proposed RA and ensure that the local community is informed of the proposed RA at the Project Site. Through the planned community survey, community interviews and/or other public participation activities, DTSC will provide the community with opportunities to be involved in DTSC's decision-making process for the Project Site.

Based on expressed community interest or other factors, DTSC will hold a public comment period to accept comments on the proposed RA and, if appropriate (e.g., when there is high interest in the Site), a public meeting(s) to brief interested parties locally about the proposed RA during the public comment period, before approving the RAW. When a public comment period is planned, DTSC will determine its appropriate duration (0 to 30+ days). In general, DTSC will hold a 30-day public comment period.

#### 6.3.1.1 Community Assessment

The District complied with all public review and comment requirements for the PEA report pursuant to Education Code 17213.1(a)(6)(A). The District made the PEA report available for public review and comment from May 31, 2019 through June 30, 2019, and a public hearing was held on June 13, 2019 at the District's Board of Education meeting. No public comments were received regarding the PEA report. DTSC approved the PEA report in a letter to the District dated August 26, 2019.

A community assessment will be conducted through a baseline community survey and/or interviews of nearby community members (including contiguous property owners, residents, business owners, elected/local officials, DTSC mandatory mail list and other affected/interested parties). Pending the results of community feedback regarding the RAW, the compiled community concerns will be addressed in a Community Profile Report (described in Section 6.3.1.2) and a fact sheet (described in Section 6.3.1.3) for the Project Site.

Depending on community interest, as reflected in the community assessment conducted for the Project Site, a public meeting may be planned in conjunction with a 30-day comment period for the RAW. The length of the comment period and the decision to have a public meeting will be modified as appropriate.

#### 6.3.1.2 Community Profile Report

The DTSC will prepare the Community Profile Report (CPR). The CPR is based on the information from a variety of sources including file review, site visits, demographic data, community interest/concerns (including interest from elected or local officials) shown during the public comment period and public hearing held by the District on the PEA for the Project Site, similar or relevant community interest/concerns shown during previous public participation activities for other DTSC projects within the surrounding community, and likely or existing level of community interest/concerns identified for the Project Site through the community survey or interviews. A copy of the CPR is presented in **Appendix H**. If a copy of the CPR is not available by the time of the submittal of the revised Draft RAW, then a copy of the CPR will be made available in the information repositories along with the Draft RAW.

#### 6.3.1.3 Public Participation Activities

A public notice in the languages appropriate to the community will be published in local newspapers and posted at the Project Site. This notice will inform the community of the proposed soil cleanup RA at the Project Site and the availability of the Administrative Record file for public inspection during office hours at the Central Information Repository (in the DTSC regional office) and a temporarily established Information Repository (e.g., a local library or the school district office) listed below. Copies of documents pertinent to this RAW (e.g., reports of previous site assessments and investigations, this RAW, and related DTSC determination letters for the Project Site) will be placed in the following Information Repositories:

- Gilroy Union School District, District Office
  7810 Arroyo Circle, Gilroy, California 95020
  Contact: Paul Nadeau, Director of Facilities
  (669) 261-5901
  Open: 8am – 5:00pm (M-F)

- Department of Toxic Substances Control, Regional Records Office
  8800 Cal Center Drive, Sacramento, California 95826-3200
  Contact: Bobbi Jensen (916) 255-3779
  Open: 9am – 5pm (M-Th); By Appointment Only

- Gilroy Public Library
  350 West 6th Street, Gilroy, California 95020
  Contact: Branch Manager (408) 446-1677
  Open: Mon thru Wed (1pm – 9 pm) and Thurs thru Sat (10am – 6pm).

- DTSC – Envirostor, https://www.envirostor.dtsc.ca.gov/public/search?basic=True. At the "*Site / Facility Name*" line, type in "*Brownell Middle School*" (quotations not needed) and the site link will appear. Click on "*Report*" and the summary page for "Brownell Middle School Modernization Project" will appear. Click on "*Site Facility Docs*", where you can access project related documents.

A Fact Sheet has been prepared to provide information about the Project Site and the proposed response actions, including information concerning history, levels of contaminants found, possible health effects from contaminant exposures, proposed RA activities, precautions to minimize worker exposure, controls to reduce dust, truck route for offsite disposal of excavated materials, public participation activities, and contact information. This Fact Sheet will be circulated to a project mailing list that includes residents and businesses within a quarter of a mile of the Project Site, elected officials, special interest groups and DTSC's priority mailing list. A copy of the DTSC's Fact Sheet is presented in **Appendix I**. If a copy of the Fact Sheet is not available by the time of the submittal of the revised draft RAW, then a copy will be made available in the information repositories along with the draft RAW.

# 7.0 REMOVAL ACTION IMPLEMENTATION

Data from the PEA indicated the presence of COC in soil at concentrations exceeding risk screening levels. Site-specific CGs have been established for this RA and are presented in Section 4.3. An EE/CA for the removal is included in Section 5.0. The most effective removal action option has been determined to be the excavation, transport, and off-site disposal of soil containing elevated levels of identified COC.

Removal activities will be performed by a California-licensed contractor, with supervision of a California-licensed professional geologist and/or civil engineer. Information regarding the roles and responsibilities of environmental consultants and removal contractors as they relate to the response action is provided on **Plate 7-1**.

All removal, transportation, and disposal of soil will be performed in accordance with all applicable federal, State, and local laws, regulations, ordinances and requirements. Field operations shall follow the suggested operational guidelines to prevent cross-media transfer of contaminants, as specified in "Best Management Practices (BMP) for Soils Treatment Technologies" (U.S. EPA 530-R-97-007).

## 7.1 FIELD DOCUMENTATION

The RA contractor will be responsible for maintaining a field logbook during the course of the RA activities. The field logbook will serve to document observations, personnel onsite, equipment arrival and departure times, and other vital project information.

### 7.1.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated, and the time of entry noted in military time. All entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology, which might prove inappropriate. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed. No entries will be obliterated, erased, or rendered unreadable.

Entries in the field logbook will include the following for each fieldwork date:

- Project Site name and address
- Recorder’s name
- Team members and their responsibilities
- Time of arrival/entry on Project Site and time of departure
- Other personnel onsite
- A summary of any onsite meetings
- Quantity of impacted soils (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) excavated

- Quantity of impacted soils (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) temporarily stored onsite
- Quantity of excavated soils in truckloads (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) transported offsite
- Names of waste transporters and proposed disposal facilities
- Copies or numbers of manifests or other shipping documents (such as bill of lading and weight tickets) for waste shipments
- Quantity of import fill material in truckloads
- Deviations from this RAW and HSP
- Changes in personnel and responsibilities as well as reasons for the changes
- Levels of safety protection
- Calibration readings and equipment model for any equipment used

The following information will be recorded during the collection of each sample:

- Sample identification number
- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (i.e., matrix)
- Type of preservation
- Type of sampling equipment used
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.)
- Chain-of-custody form numbers and chain-of-custody seal numbers
- Transport arrangements (courier delivery, lab pickup, etc.)
- Recipient laboratory

### 7.1.2 Chain-of-Custody Records

Chain-of-custody records are used to document sample collection and shipment to laboratory for possible chemical analyses. All sample shipments for analyses will be accompanied by a chain-of-custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, chain-of-custody form(s) will be completed and sent with the samples for each cooler. The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until receipt by the laboratory, the custody of the samples will be the responsibility of the sample collector. See the QAPP for more detailed information (Appendix G).

The shipping containers in which samples are stored (usually sturdy cooler or ice chest) will also be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping. All custody seals will be signed and dated.

### 7.1.3 Photographs

Photographs will be taken of the excavation area(s), confirmation sample collection locations, and other areas of interest at the Project Site to document the RA. The photographs will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be recorded in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

## 7.2 SITE PREPARATION AND SECURITY MEASURES

Prior to mobilization for the proposed RA, site preparation activities may include Project Site inspections, surveying, boundary staking, sampling, demarcation of hot spots, improvement of access roads, utility connections or disconnections, and fencing installation.

### 7.2.1 Delineation of AOCs

The areal limits of the AOCs will be delineated by the RA consultant prior to the commencement of removal activities by the RA contractor. The delineation of the AOCs is based on the results of the PEA. The AOCs are identified as the Exclusion Zone and will be distinguishable in field by signage, barricades, fencing, staking, flagging, and/or non-toxic high visibility paint.

### 7.2.2 Utility Clearance

Clearance of remaining utilities and other hazardous underground obstacles will be conducted prior to initiating any soil excavation activities. Such possible obstacles may include water, electrical, gas, oil, communication cable, phone cable, TV cable, and sewer lines. At a minimum, the utility clearance will include a 48-hour notification of the local Underground Services Alert (USA).

### 7.2.3 Security Measures

Appropriate barriers and dust/privacy fencing will be installed prior to beginning the excavation process to ensure that all work areas are secure and safe. To ensure trespassers or unauthorized personnel are not allowed near work areas, security measures will include, but are not limited to:

- Posting notices directing visitors to the manager of the Site.
- Maintaining a visitor's log. Visitors shall have prior approval from the Site manager to enter the Site. Visitors shall not be permitted to enter the Site without first receiving site-specific health and safety information from the Site safety coordinator.
- Installing barrier fencing to restrict access to sensitive areas such as exclusion zones.

- Providing adequate Site security to ensure unauthorized personnel have no access to work areas and/or impacted materials.
- Before leaving the Site, all personnel must sign out in the visitor's log.
- Maintaining a safe and secure work area, including areas where equipment is stored or placed, at the close of each workday.
- Equipping all Site access gates with locking devices that will be locked during non-operation activities.
- Limiting access to the Site to authorized personnel only.

Persons requesting site access will be required to demonstrate a valid purpose for access and if access to work areas and/or impacted materials is planned, provide appropriate documentation to demonstrate they have received proper training required by the site-specific HSP (see Appendix E).

#### 7.2.4 Contaminant Control

To prevent any potential exposure of material to the adjacent properties, the following measures will be implemented during the course of soil excavation activities:

- The RA will be conducted when the RAW is approved by DTSC.
- The RP will take necessary steps to minimize impact to the community. Because air monitoring procedures (see Section 7.5) will be implemented during excavation activities, the covering of windows and doors at the nearby residences and/or commercial businesses is not warranted or anticipated. RA activities will not be conducted during the un-favored hours reasonably raised by the community concerns. Community members will be informed prior to initiation of any removal activities.

#### 7.2.5 Cultural Resources Consideration

The Project Site is not located with an area of identified cultural resources significance (see Section 2.5). However, prior to excavation, all contractors and subcontractors will be informed of the potential for discovering important paleontological, prehistorical, or historical resources below the ground surface and the legal consequences for damaging or destroying such resources. If any such resources are found, then all field activities shall halt within the area in question and a qualified paleontological or cultural resources specialist shall evaluate the situations and make recommendations for further action.

In the event of discovery or recognition of any human remains at the Project Site, there will be no further excavation or disturbance of the area in question or any nearby area reasonably suspected to overlie adjacent human remains until:

- The County Coroner has been informed and has determined that no investigation of the cause of death is required, and
- If the remains are of Native American origin, then the descendants from the deceased Native Americans will be required to make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code section 5097.98, or

- The Native American Heritage Commission was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.

### 7.2.6 Biological Resources Consideration

The Project Site is not in an area of biological resources significance (see Section 2.5).

### 7.2.7 Noise Control

Noise-generating construction operations will be limited to between the hours of 8am to 6pm, Monday through Friday, and 9am to 5pm on Saturday. There shall be no start-up of machines or equipment before 7:30am (M-F) and 8:30 (Sat), and there shall be no cleaning or servicing of machines or equipment past 6:30pm (M-F) and 5:30pm (Sat). Construction activities will be prohibited on Sundays and federal holidays. Construction equipment will be properly maintained and equipped with noise reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds will be closed during equipment operation. When not in use, motorized construction equipment will not be left idling. Trucks waiting in the on-site staging area to be loaded with soil for off-site transport, will not sit idling for more than five minutes. If this is the case the driver will immediately shut down the engine until it is ready to be loaded.

### 7.2.8 Permits and Plans

As discussed in Section 6.8, all necessary permits or approvals will be obtained prior to the implementation of the RA.

## 7.3 WORK ZONES

The field activities will be divided into three work zones 1) exclusion zone; 2) decontamination zone; and 3) support zone/staging area. Based on the modernization schedule, the RA is planned to be performed in three phases. The work zones for the different phases of the RA are illustrated on **Plates 7-2** through **7-4**. The general elements of each of these work zones are described below:

### 7.3.1 Exclusion Zone

The exclusion zone includes the excavation areas; soil stockpiling areas; and soil loading areas for hauling off-site. The exclusion zone will be clearly identified in the field with a combination of caution tape, temporary fencings and/or barricades. Only authorized personnel will be allowed to enter the exclusion zone.

### 7.3.2 Decontamination Zone

A decontamination zone will be established at the Project Site. The decontamination zone is where soil, debris, and dust will be removed from equipment, transportation vehicles, and personnel leaving the exclusion zone. Decontamination of equipment and vehicles may consist of brushing and/or high pressure washing depending on weather conditions during the removal action. Decontamination of personnel may include the removal and disposal of personnel protection equipment (i.e. tyvek suites, rubber gloves, etc.).

### 7.3.3 Support Zone / Staging Area

A support zone / staging area will be established to provide for administrative and support functions (command post, first aid station, rest area, etc.) necessary to keep the field activities operating smoothly. The RA contractor shall provide potable water and wash facilities for the field personnel in this location.

## 7.4 EXCAVATION

For AOC – 1 the soil will be excavated and temporarily stored in 20 cy covered bins prior to being waste profiled and transported off-site for disposal. The completed excavations will be sampled to confirm that the removal action has met the DTSC approved cleanup goals (Section 4.3). The soil bins and stockpiles will be sampled and profiled for waste classification and approval for disposal at an appropriate landfill facility. The soil bins and stockpiles will then be loaded into truck and trailer combinations for transported to the approved facility. The excavation areas, soil bins, and soil stockpile areas will be fenced-off and will contain the appropriate signage to prevent any pedestrian and/or site visitor traffic from entering. During off-work hours the entrance to the Project Site will be locked. The work zone for AOC-1 is presented on **Plate 7-2.**

For AOC – 2 and AOC – 3 the soil will be excavated and temporarily stockpiled prior to being waste profiled and transported off-site for disposal. The work zones for AOC-2 and AOC-3 are presented on **Plates 7-3** and **7-4** respectively. The overall excavation plan is presented on **Plate 7-5**.

Soil excavation activities will be performed by licensed hazardous materials contractor and personnel with training in hazardous waste operations (40-hour OSHA Training and up to date 8-hour OSHA Refresher Training). In addition, California OSHA's Construction Safety Orders (especially 8 CCR 1539 and 1541) will be followed, as appropriate.

### 7.4.1 Trenching, Excavation, and Confined Space Entry

Occupational Safety and Health Administration (OSHA) standards require safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4-feet or deeper. Trenches 5-feet deep or greater require a protective system. If less than 5-feet deep, a competent person may determine that a protective system (benching, sloping, shoring or shielding) is not required.

Confined space is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and is not intended for continuous employee occupancy.

The estimated depth of planned excavations at the Project Site is approximately 1.5 feet. Therefore, the need for a protective system and/or confined space entry requirements are not anticipated. If confined space entry is needed, work will stop, and the health and safety plan will be revised to address this development.

### 7.4.2 Soil Staging and Storage Operations

Excavated soil generated during Phase 1 of the RA (AOC-1) will be temporarily stored in three, 20 cy bins that will be situated near the excavation. During non-excavation hours, the soil bins will be covered and locked at the end of each workday.

Excavated soil generated during Phase 2 and 3 (AOC-2 and AOC-3) will be staged near the central portions of the Project Site. Based on the estimated volume of soil to be excavated during each phase (105 and 210 cy, respectively), the generated stockpiles will each contain less than 250 cy of soil. During non-excavation hours, the excavated soil stockpile will be covered with plastic sheeting to prevent dust generation and/or run-off during rain events. Additional field applications may involve installation of other physical barriers that minimize the movement of materials from the Project Site by wind, water, or any other mechanism.

The temporary onsite storage of excavated soil will be secured and properly labeled until offsite transportation and disposal are ready for loading. In no case, will the waste storage be longer than 90 days after its generation. Storage of any hazardous waste longer than 90 days after its generation may require a permit or approval from DTSC.

### 7.4.3 Waste Segregation Operations

Each soil stockpile will be labeled and sampled for waste characterization and classification per the requirements of the waste disposal facility. One four-point composite soil sample will be collected from each stockpile and submitted to the analytical laboratory to be chemically analyzed for OCPs, CAM 17 metals, PCBs, VOCs and TPH (as described in Section 6.2.1) and any additional analyses as required by the permitted waste disposal facility.

### 7.4.4 Decontamination Procedures

Excavation equipment, transportation vehicles, and personnel leaving the exclusion zone will enter the decontamination zone. The decontamination zone will be used to remove soil, debris, and dust from equipment, transportation vehicles, and personnel prior to leaving the work zones. The decontamination of equipment and transportation vehicles includes dry and wet methods. Dry methods are the primary means of decontamination and consist of brushing and scraping to remove soil, debris, and dust. If dry methods are not effective, wet methods may be used such as steam cleaning and/or pressure washing. Washtubs with soap and water and rinse tubs will be provided for the cleaning of re-useable hand-held equipment.

Decontamination of personnel may include the removal and disposal of PPE (i.e. tyvek suites, rubber gloves, etc.). Disposable equipment intended for one-time use will be package for proper disposal.

Prior to leaving the Project Site all truck loads will be inspected to ensure that the exterior of trucks is clean and clear of excess soil and debris, and that each truck load is properly covered. Each truck load will maintain the necessary documents for transport and disposal of the waste. A documentation of each truckload will be recorded in the field logbook, which will be maintained for the duration of the removal action activities.

### 7.4.5 Excavation Plan

The excavation plan has been designated into three areas of concern (AOCs) to be removed in three phases and are identified as follows:

- AOC – 1: Classroom Building (45 cy);
- AOC – 2: Classroom Buildings (210 cy); and
- AOC – 3: Building H (Kitchen/Classrooms) (105 cy).

The total depth of each AOC is approximately 1.5-feet, resulting in an estimated total; volume of 360 cy of excavated soil. The locations of the AOCs are presented on **Plate 7-5**. The locations of the excavated soil staging areas are presented on **Plate 7-2** through **7-4**.

Each AOC will be demarcated with white marking paint by the RA environmental consultant. The RA contractor will use a backhoe or excavator to remove contaminated soil from the AOCs. Soil excavated from AOC-1 (Phase 1) will placed directly into 20 cy bins.

Soil removed from AOC-2 (Phase 2) and AOC-3 (Phase 3) will be excavated using a backhoe or excavator in conjunction with a front loader to transport contaminated soil from the AOCs. The front loader will transport excavated soil to the soil staging area, where stockpiles of less than 250 cy will be created, covered with plastic and labeled.

Excavation areas and the soil staging areas will be controlled to avoid dust generation using water as a dust suppressant as discussed in Section 7.6. Additional excavation may be necessary depending on the results of confirmation sampling, as discussed in Section 7.7.2.

## 7.5 METEOROLOGICAL AND AIR MONITORING

This section details the meteorological and air monitoring strategy and methodologies that will be used at the Project Site during the soil RA. The strategy and methodologies are designed to achieve several goals:

- Identify and measure the air contaminants generated during the earth moving activities to assign the appropriate personal protective equipment (PPE) and safety systems specified for those activities.
- Provide feedback to site operations personnel regarding potential hazards from exposure to hazardous air contaminants generated through site activities.
- Identify and measure air contaminants at points outside of the earth moving activity zones. Air monitoring will be conducted during work activities to measure potential exposure of sensitive receptors to site chemical constituents, as a result of earth moving activities.

### 7.5.1 Meteorological Monitoring

Ambient weather conditions including temperature, relative humidity, wind speed, and wind direction, will be monitored onsite during earth moving activities by the RA environmental consultant using a portable weather meter and windsock. The meteorological equipment will be checked and recorded every hour during earth moving activities.

### 7.5.2 Site Air Monitoring

Air monitoring will be performed during all Project Site activities in which contaminated soils are being handled or disturbed. During earth moving operations dust levels will be monitored at the following locations:

- One upwind location;
- One exclusion zone location; and
- Two downwind (fence line) locations.

Air/dust monitoring locations will change daily in accordance with excavation location and wind direction. Dust levels will be monitored using particulate meters (Thermo Scientific PDR 1500 or equivalent). The particulate meters will be operated in data logging mode and used to measure and record real-time airborne dust concentrations. The locations of the meters will be determined each day by the Site Safety Manager or designated personnel and will be based on the daily prevailing wind direction. The particulate meters will be checked approximately every 15 to 20 minutes during the course of earth moving activities. Each time the meters are checked, the difference between the average upwind dust concentration, and the average downwind dust concentrations, will be compared to the CARB ambient air quality standard of 0.05 mg/m$^3$ for total dust (24-hour average for PM10). This standard has been selected as the fence line action level and as previously described in Section 6.1.2, is protective of the public community health. Dust control measures will be implemented to comply with these standards, as needed. Site air monitoring action levels are presented in **Table 7-1**.

#### 7.5.2.1 Site Worker Air Monitoring

As previously described in Section 6.3, dust exposure levels for each COC were calculated. Comparing the calculated dust exposure levels for each COC to their respective PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Dust control measures as described in Section 7.7 will be implemented when total dust levels reach within 50% of the Cal-OSHA PEL for total dust. Therefore, the site action level within the exclusion zone will be 5 mg/m$^3$. Air monitoring action levels to be implemented during the RA activities are presented in **Table 7-1**.

**Table 7-1: Site Air Monitoring Action Levels**

| Chemical of Concern | Calculated Dust Exposure Level[(a)] | CAL/OSHA PEL | Exclusion Zone Action Level (50% of PEL) | Fence Line Action Level [(b)] |
|---|---|---|---|---|
| Chlordane | 0.00075 mg/m$^3$ | 0.5 mg/m$^3$ | --- | --- |
| Dieldrin | 0.00000051 | 0.25 mg/m$^3$ | --- | --- |
| Lead | 0.0019 mg/m$^3$ | 0.05 mg/m$^3$ | --- | --- |
| PCB | 0.000031 mg/m$^3$ | 0.5 mg/m$^3$ | | |
| Total Dust | --- | 10 mg/m$^3$ | 5 mg/m$^3$ | 0.05 mg/m$^3$ |

Notes:

PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 mg/m$^3$ total dust.
(b) – California ambient air quality standard (24-hour average for PM10).

## 7.6 DUST CONTROL PLAN

The RA contractor will implement appropriate procedures to control the generation of airborne dusts during the course of the soil removal activities. Such procedures will include, but will not be limited to the following:

- The Project Site air monitoring professional will monitor dust levels in the locations outlined in Section 7.5.2, and will have the authority to stop-work in the event that onsite activities generate dust levels in excess of the California ambient air quality standards for particulate matter (0.05 mg/m$^3$). Additionally, dust control measures will be taken if visible dust emissions are observed from the point-of-origin. Generation of dust during the removal operations will be minimized as necessary with the use of water as a dust suppressant. The water will be available via a water truck or a metered discharge from a fire hydrant located proximate to the Project Site. The RA contractor will control dust generation by spraying water prior to daily work activities, during excavation/loading activities (as necessary to maintain concentrations below action levels), and at truck staging locations. Watering equipment will be continuously available to provide proper dust control.
- The air monitoring professional will monitor onsite meteorological instrumentation and/or coordinate with offsite meteorological professionals to identify conditions that require cessation of work. If wind speeds become elevated, initially, the increased application of water suppressant (water) will be employed. If an uncontrollable condition occurs (e.g. exceeding action levels for COC), all removal activities will cease, stockpiled soil(s) will be covered, and the excavation areas will be covered, if

necessary. Work activities will not resume until conditions are stabilized or mitigation and/or effective engineering control measures are implemented, and conditions are found acceptable to proceed.

- Padre will provide measurement of airborne dust levels at locations outlined in Section 7.5.2 using real-time, data-logging particulate monitors (Thermo Scientific PDR 1500 or equivalent). These instruments will be calibrated daily and monitoring information posted daily and discussed with Site workers. The monitors will be visually read every 20 minutes. In consultation with DTSC, the frequency may be changed based on-site conditions and newly available data. Additionally, the particulate meters will be set to log dust levels over 5-minute periods.
- During the course of all soil disturbing activities (including excavation, truck loading, soil tilling activities) dust levels will be monitored at one location upwind of the exclusion zone; one location within the exclusion zone; and two locations downwind and outside the work zone, with one located closest to the nearest residences.
- Dust control measures will be increased in the event particulate concentrations exceed 0.05 $mg/m^3$ and/or if visible dust emissions are observed from the point-of-origin.
- Perimeter fencing will be equipped with wind/dust/privacy screens for added off-site dust control.

## 7.7 SAMPLING AND ANALYSIS PLAN

### 7.7.1 Waste Profiling Sampling

Excavated stored in bins and/or stockpiled will be profiled for acceptance by the selected disposal facilities. Waste characterization will include chemical analysis for OCPs, CAM 17 metals, PCBs, VOCs and TPH. An acceptance letter from each selected disposal facility will be obtained before any excavated soil leaves the Project Site. Upon request, additional documentation will be provided to DTSC pertaining to waste disposal profiles and waste disposal acceptance prior to any offsite shipments of waste.

It is anticipated that soils excavated from the Project Site will be managed (handled, transported and disposed of) as: (**Select all that are applicable**)

☐ a hazardous waste requiring compliance with requirements of land ban restrictions.

☐ a hazardous waste requiring no compliance with requirements of land ban restrictions.

☐ a PCB waste (>50 ppm).

☒ a non-hazardous and non-PCB waste.

### 7.7.2 Confirmation Sampling

Confirmation soil samples will be collected when the extent of planned excavation activities have been completed. Soil samples will be collected from the bottom and side walls of each excavation trench. In general sampling of the excavation bottom will be conducted at a frequency of one sample for every 250 square feet of excavation bottom or a minimum of one sample for every excavation bottom less than 250 square feet. Sidewall confirmation sampling will be conducted at a frequency of one sample for every 20-25 linear feet of continuous sidewall or one sample per sidewall if less than 25 linear feet. Excavation floor confirmation soil samples will be collected from approximate depths of 0 to 6 inches. Additionally, the sidewall soil confirmation samples will be collected at a depth of approximately 6 inches from the top edge of the sidewalls. If the confirmation soil samples do not meet the established cleanup goals, additional rounds of over-excavation and reconfirmation sampling may be necessary until all cleanup goals have been met. Proposed confirmation sample locations are presented on **Plate 7-6**.

Over-excavation may be necessary if the established cleanup goals are not met. Over-excavation at identified locations will generally consist of an additional lateral excavation of 5-feet for sidewall samples, and an additional vertical excavation of 1-feet for bottom samples. The actual lateral distances and vertical depths will be based on the reported concentrations of COC and will be discussed in consultation with the DTSC Project Manager prior to performing any over-excavation activities. Confirmation soil samples for over-excavations will be conducted at a frequency of one sample every 150 square feet from the excavation bottom and one sample every 15 linear feet from the excavation sidewalls, as needed. The soil samples will be collected at a depth of 6 inches from the top edge of the sidewalls.

**Soil Sample Collection**

Soil samples will be collected in pre-cleaned 2-inch x 6-inch stainless steel sampling sleeves using hand-held sampling equipment. The sample sleeves will be sealed with plastic end cap, initialed, labeled with the time and date of collection, project number, and a unique sample identification number, and then placed on ice, in a cooler, for delivery to the analytical laboratory under chain-of-custody protocol.

**Decontamination Procedures**

Handheld field equipment that comes into contact with potentially contaminated soil will be decontaminated consistently so as to assure the quality of samples collected. Disposable equipment intended for one-time use will not be decontaminated but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used will be decontaminated using the following procedures:

- Non-phosphate detergent and tap water wash, in a 5-gallon plastic tub, using a brush;
- Deionized/distilled water rinse, in a 5-gallon plastic tub; and
- Final deionized/distilled water rinse in a 5-gallon plastic tub.

## 7.8 TRANSPORTATION PLAN FOR OFF-SITE SOIL DISPOSAL

The waste material will be profiled, and approval will be received before soil is transported off-site for lawful disposition. The soil bins and stockpiled soil will be loaded into trucks, transported and properly disposed of at an approved landfill. Based on the analytical results gathered during the RAW, it is anticipated that the removed soil will be disposed of as non-hazardous waste.

Final determination of the disposal facility will be based on approval from the landfill. Once the disposal facility is selected, copies of waste profile reports used to secure disposal permission from the landfill will be provided to DTSC and included in the removal action completion report. In addition, compliance with the land disposal restrictions and land ban requirements for hazardous wastes will be documented and provided once it is determined which disposal facility will be used.

Excavated soil is transported and disposed of by weight (i.e., tonnage). Cubic-yards of soil are converted to tons by multiplying the in-situ soil volume by an expansion factor of 1.1, and a conversion factor 1.5 to obtain the soil amount in tons.

Whereas:

- In-situ soil volume (cy) x 1.1 (expansion factor) x 1.5 (conversion factor) = tons
- 360 cy x 1.1 (expansion factor) x 1.5 (conversion factor) = 594 tons.
- 594 tons ÷ 20 tons per load = 30 truck and trailer loads.

Based on the PEA soil analytical results and proposed excavation activities, the excavated soil is anticipated to be disposed of as a non-hazardous waste. The following waste facilities have been identified to accept and store and/or treat non-hazardous soil generated from the removal activities:

Landfill Facility (Non-Hazardous)

| | |
|---|---|
| John Smith Road Landfill | Kirby Canyon Recycling and Disposal Facility |
| 2650 John Smith Road | 910 Canyon Creek Golf Drive |
| Hollister, California 95023 | Coyote (in San Jose), California 95037 |
| (831) 637-4515 | (408) 779-2206 |

Detailed information on waste transportation and disposal is described in the Transportation Plan presented in **Appendix J**.

## 7.9 BACKFILL AND SITE RESTORATION

The Project Site is considered to be a balanced cut and fill site, therefore the need for import fill material is not anticipated. Construction material (sand, gravel, etc.) used for building pads, utility trenches, and paved surface areas will be imported.

Clean imported fill material will be verified in accordance with the current DTSC *Information Advisory on Clean Imported Fill Material* dated October 2001. A copy of the DTSC advisory is presented in **Appendix K**. Pre-construction and post-construction erosion control BMPs will be implemented as required.

## 7.10 VARIANCE OR EXPLANATION OF SIGNIFICANT DIFFERENCES (ESD)

After the RAW is approved and finalized, new information may be received or generated that could affect the implementation of the remedy selected in this RAW (as specified in Section 5.3) or could prompt the reassessment of that remedy. Appropriate actions should be taken to address the newly developed situations (which are deviated from or are not covered by the approved RAW). New information may include:

- A change in scope, performance or cost of the selected remedy; and
- Advances in remediation science and technology which may impact the remedy selection.

Within 24 hours after discovering the new information the responsible party will:

- Notify DTSC by telephone call and/or email;
- In consultation with DTSC, take an appropriate action.

### 7.10.1 Fundamental, Significant or Minor Changes

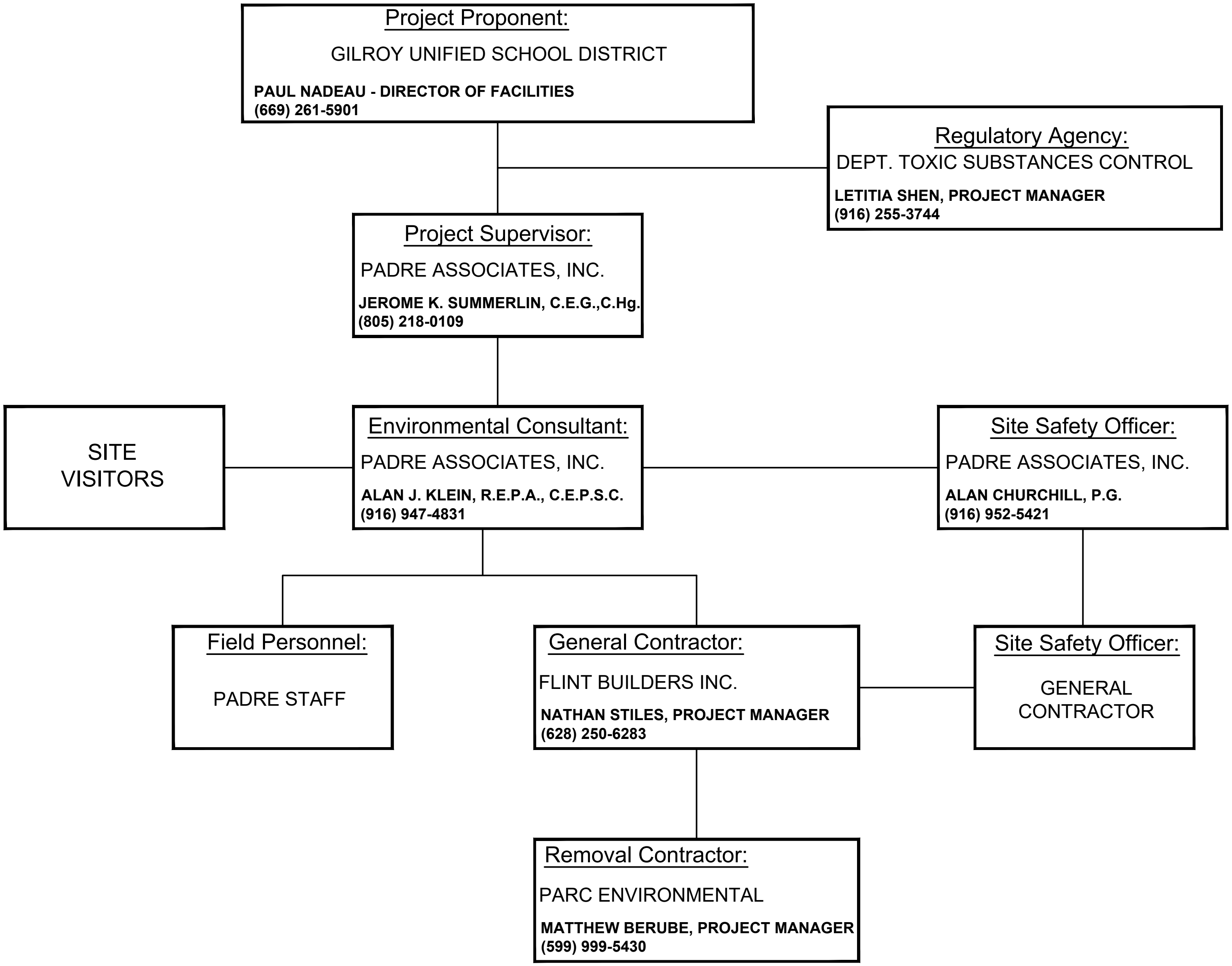
Based on an evaluation and depending on the extent or scope of modification being considered, one of the following three types of change may be classified, determined and followed: minor changes, significant changes or fundamental changes.

Under CERCLA, 42 U.S.C. Section 9617(c), Section 117(c) requires that, if the removal action being undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an explanation of the significant differences (ESD) and the reasons such changes were made. An ESD, rather than ROD amendment, is appropriate where the adjustments being made to the ROD are significant but not fundamentally alter the remedy with respect to scope, performance, or cost. For this project the Removal Action Workplan is the ROD.

### 7.10.2 ESD Process

The consultant will coordinate activities with DTSC when an ESD is necessary. DTSC will determine the appropriate CEQA approach for changes to the Project.

# REMOVAL ACTION WORKPLAN

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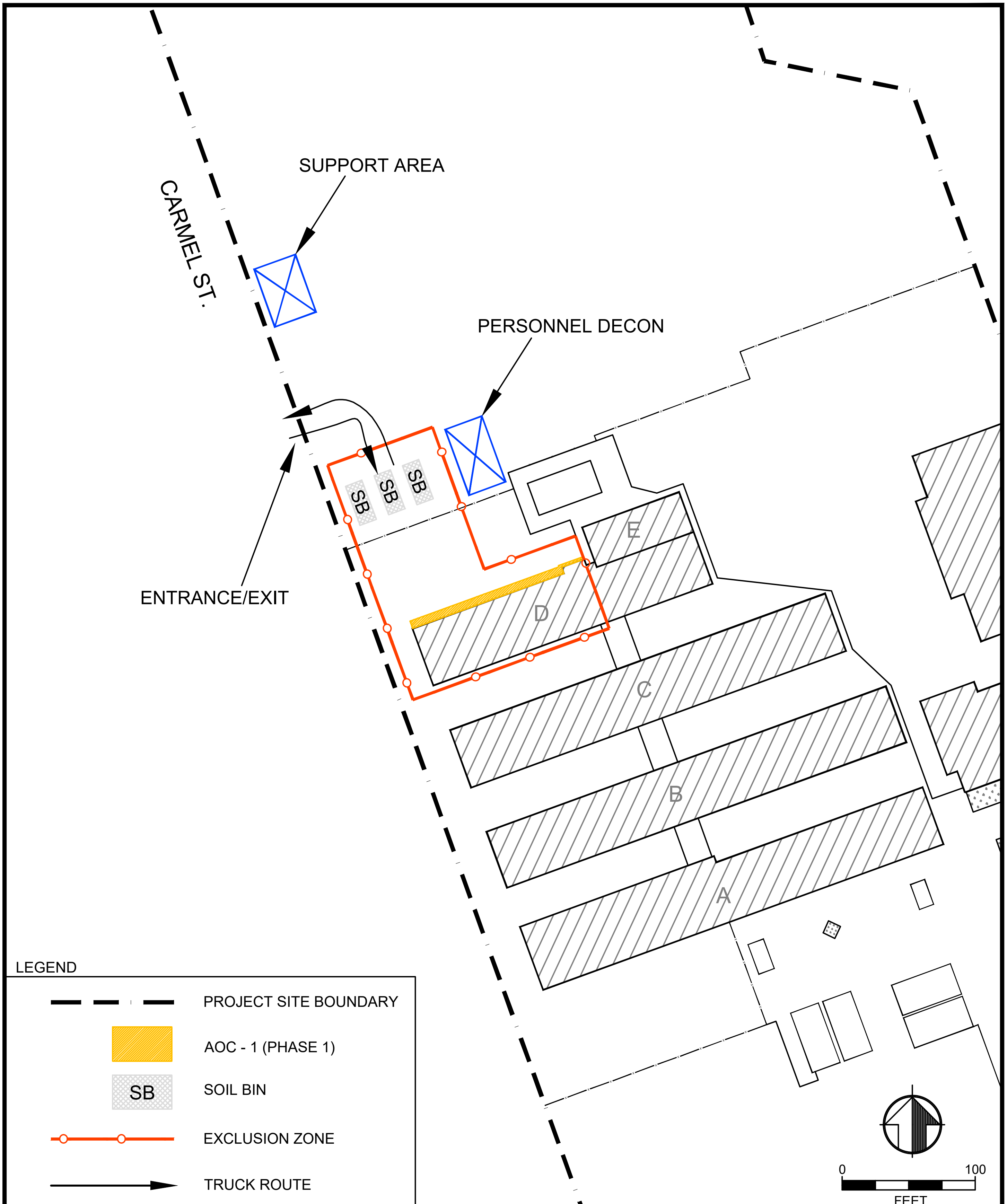
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 1/31/20 | AC | AJK |

PLATE 7-1

**ORGANIZATION CHART**




LEGEND

| | |
|---|---|
| | PROJECT SITE BOUNDARY |
| | AOC - 1 (PHASE 1) |
| SB | SOIL BIN |
| | EXCLUSION ZONE |
| | TRUCK ROUTE |

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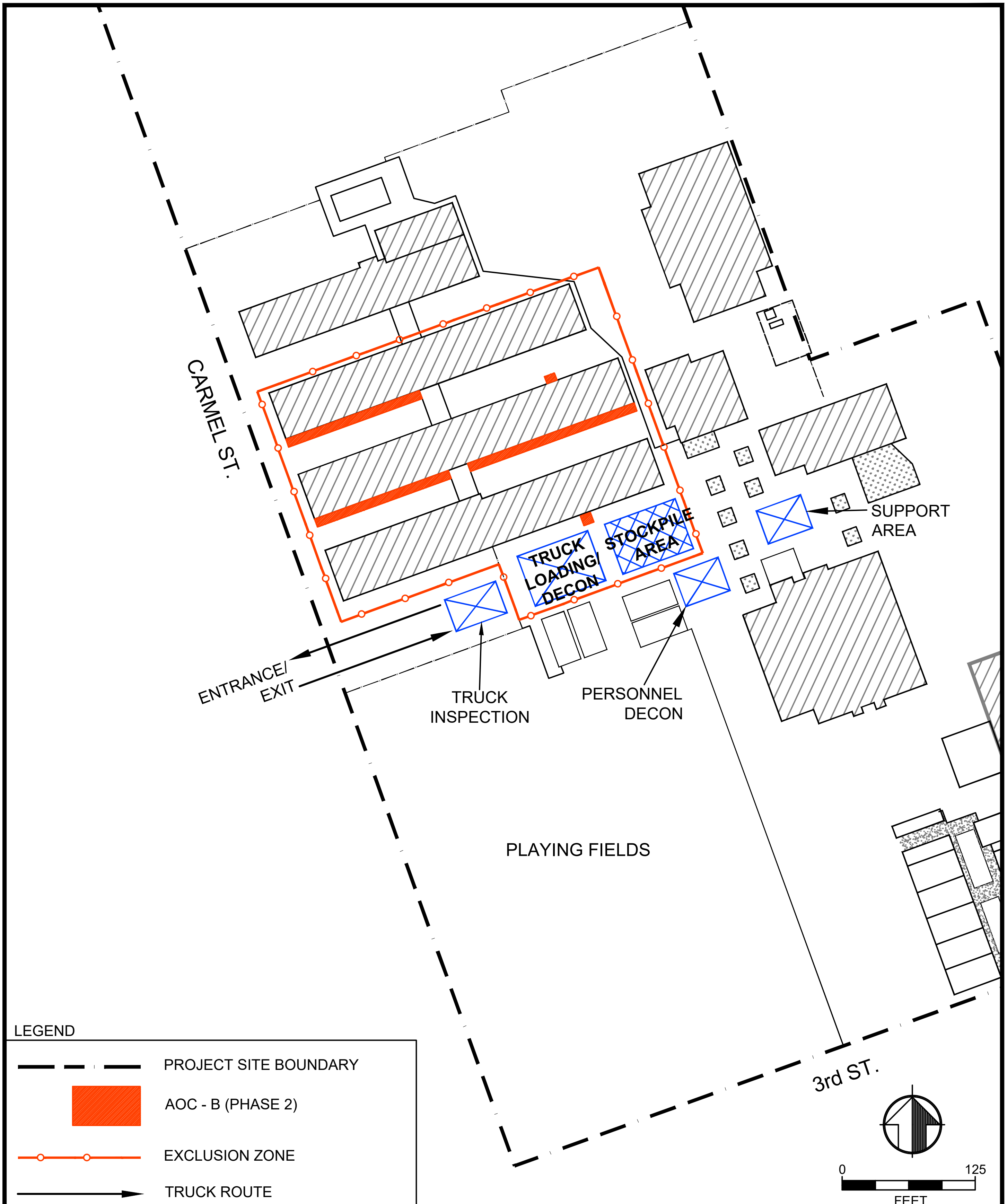
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE 7-2

**WORK ZONES**
**(AOC - 1)**




LEGEND

| | |
|---|---|
| | PROJECT SITE BOUNDARY |
| | AOC - B (PHASE 2) |
| | EXCLUSION ZONE |
| | TRUCK ROUTE |

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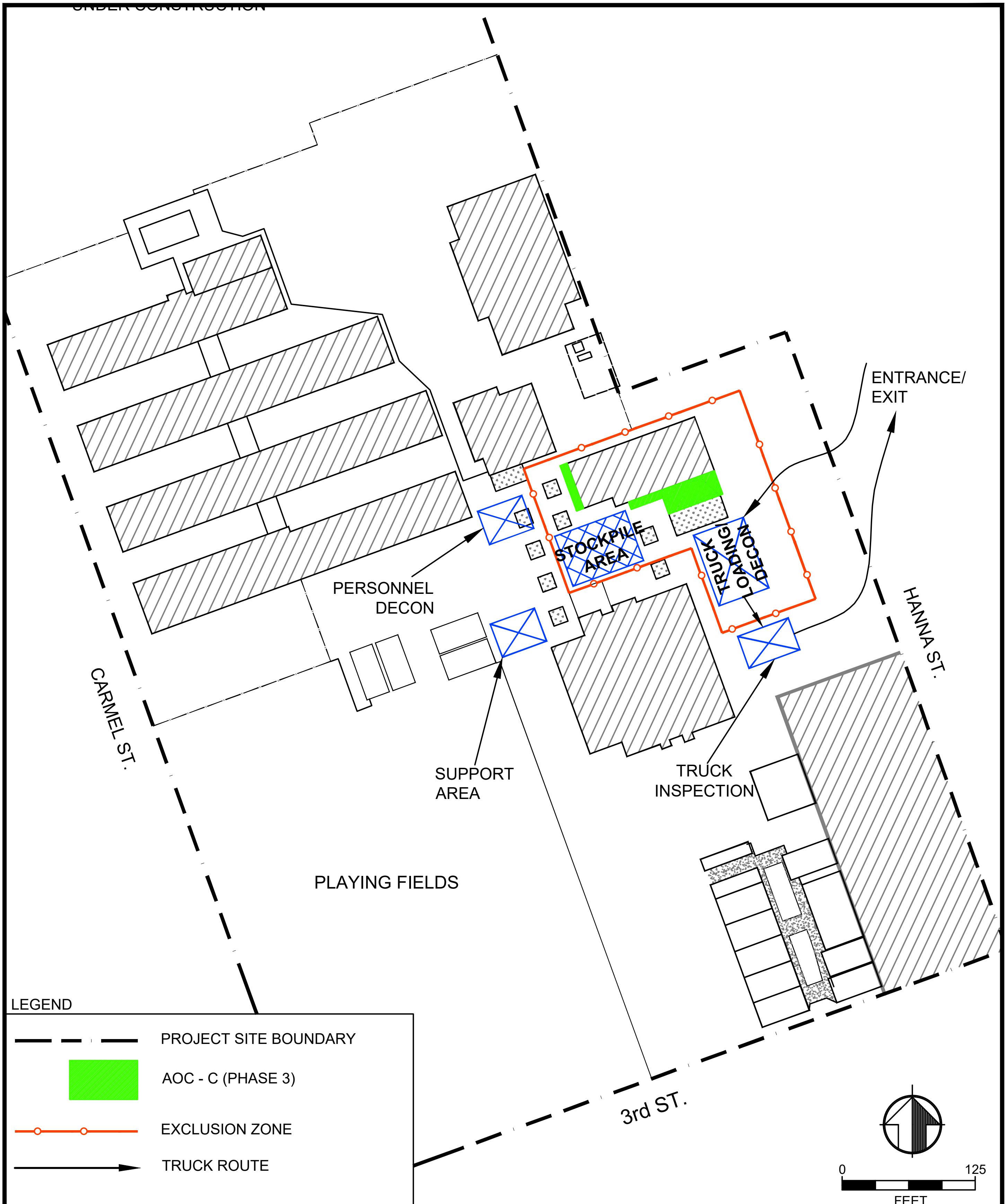
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE 7-3

**WORK ZONES (AOC - 2)**

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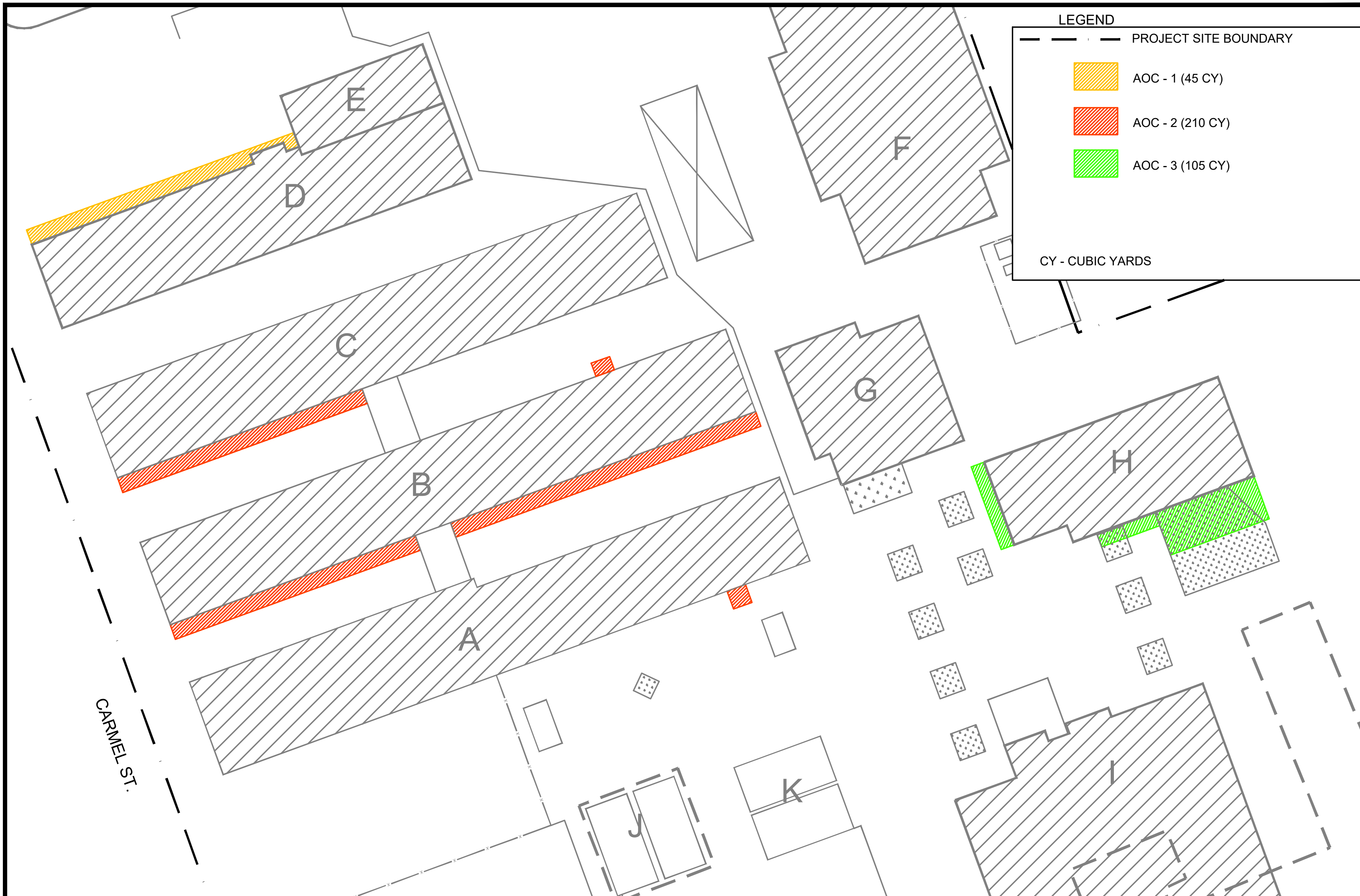
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE 7-4

**WORK ZONES**
**(AOC - 3)**

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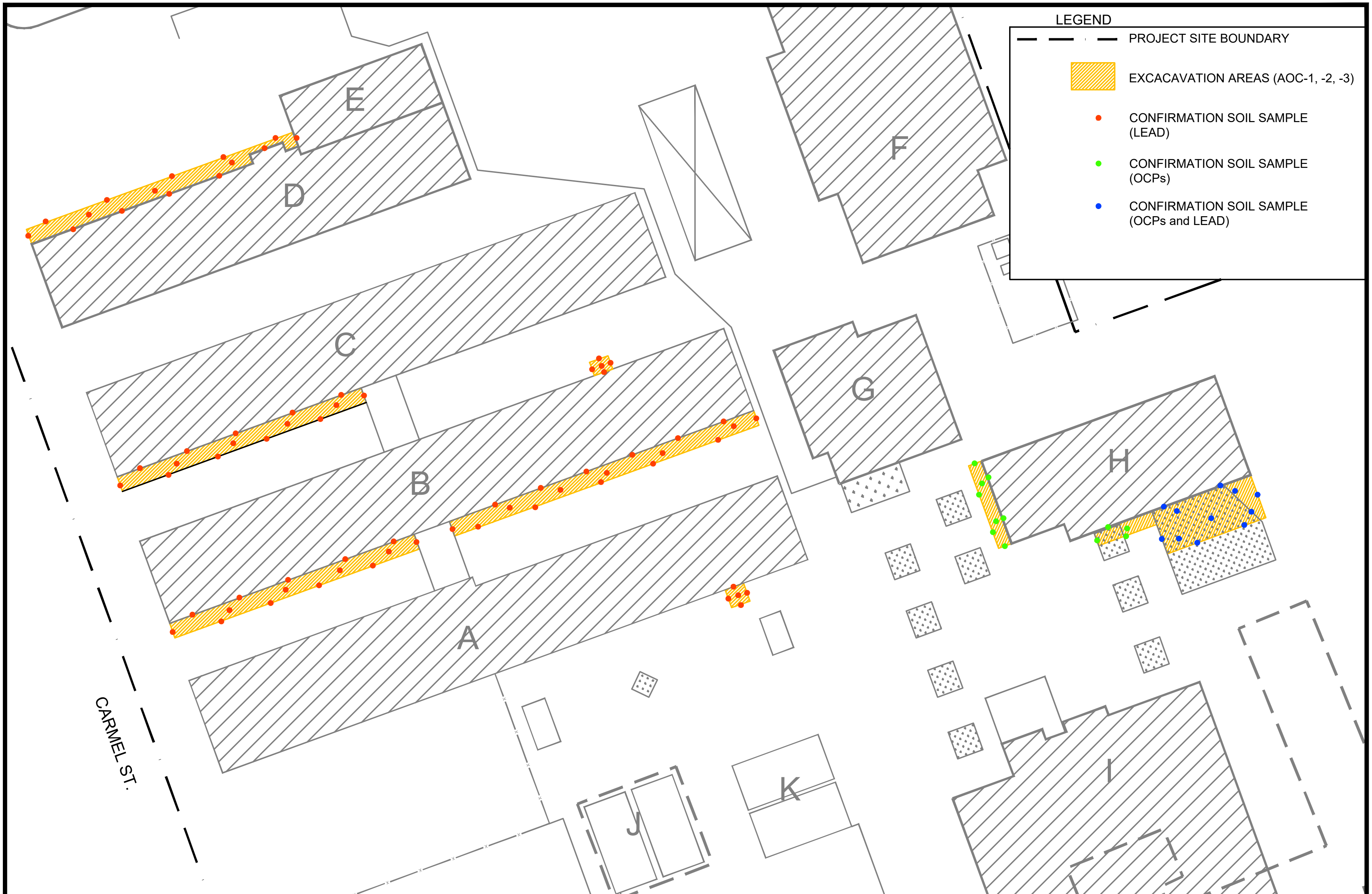
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/7/19 | AC | AJK |

PLATE 7-5

**EXCAVATION AREAS**

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| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/7/19 | AC | AJK |

PLATE 7-6

**CONFIRMATION SOIL SAMPLES**

## 8.0 PROJECT SCHEDULE AND REPORT OF COMPLETION

The District is prepared to proceed with removal activities within one year of DTSC issuing approval of the Draft RAW. Based on the construction schedule for the modernization project, the RA will be performed in three phases with anticipated start dates of March 2020 (Phase 1); June 2020 (Phase 2); and February 2021 (Phase 3). Table 8-1A through 8-1B (below) summarizes an anticipated schedule of implementation for the proposed phases of the RA. Upon completion of each phase, a technical memorandum will be prepared and submitted to DTSC documenting the RA activities and subsequent results.

At the completion of Phase 1 through 3, a Removal Action Completion Report (RACR), documenting all activities conducted pursuant to the approved RAW and certifying that all activities have been conducted consistent with this RAW, will be prepared as expeditiously as possible and submitted to DTSC for review and approval.

**Table 8-1: Schedule of Tasks for Phase 1 (AOC-1)**

| Task | Days to Complete | Cumulative Days | Notes |
|---|---|---|---|
| 1. RA Site Preparation | 5-10 | 5-10 | Contractor coordination; Field Work Notice; Site Control; and Equipment Staging. |
| 2a - Soil Excavation and Bin Loading (Phase 1: AOC-1) | 2-3 | 7-13 | Soil to be temporarily stored in 20 cy bins; assumes no weather delays |
| 2b – Phase 2: AOC-2 | TBD | TBD | July/August 2020 |
| 2c – Phase 3: AOC-3 | TBD | TBD | February/March 2021 |
| 2. Confirmation Soil Sampling and waste Characterization | 10 | 17-23 | |
| 3. Landfill Approval | 10-15 | 27-38 | Provide copy of acceptance letter to DTSC. |
| 4. Transportation, and Disposal (~3 bins) | 1-2 | 28-40 | |

**Table 8-1: Schedule of Tasks for Phase 1 (AOC-1) (cont')**

| | | | |
|---|---|---|---|
| 5. Technical Memorandum for Partial Site Approval | 5 | 33-45 | Complete documentation will be provided in the RACR |
| 6. DTSC Partial Site Approval for AOC-1 | 15 | 44-61 | SFPD Form 4.15 |
| 7. RACR | TBD | TBD | The RACR will be prepared after completion of Phase 2 and 3 of the RA (AOC-2 and AOC-3). |
| 8. DTSC Site Certification | TBD | TBD | |

**Notes:**

TBD – too be determined
SFPD – School Facilities Planning Division

## 9.0 REFERENCES

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U.S. Geological Survey, Topographic Map; Gilroy, Ca Quadrangle, California, 1955 (photo revised 1993).

# APPENDIX A

# DTSC'S FINAL PEA AND SMP APPROVAL LETTERS

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

August 26, 2019

Mr. Paul Nadeau
Director
Facilities Planning & Management
Gilroy Unified School District
7810 Arroyo Circle
Gilroy, California 95020

PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT – FURTHER ACTION DETERMINATION, GILROY UNIFIED SCHOOL DISTRICT, BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT, 7800 CARMEL STREET, GILROY, SANTA CLARA COUNTY (PROJECT CODE 204305)

Dear Mr. Nadeau:

On August 21, 2019, the Gilroy Unified School District (District) notified the Department of Toxic Substances Control (DTSC) that it had complied with all public review and public hearing requirements for the draft Preliminary Environmental Assessment Report (PEA Report) pursuant to Education Code section 17213.1, subdivision (a)(6)(A). The District made the draft PEA Report available for public review and comment from May 31, 2019 through June 30, 2019, and a public hearing was held on June 13, 2019. The District indicated that no verbal or written public comments were received during the 30-day public review period or during the public hearing regarding the PEA Report.

In addition, DTSC reviewed the revised PEA Report (Padre Associates, Inc., July 23, 2019) received on July 24, 2019 via electronic mail. The PEA Report was revised in response to DTSC comments on the draft version forwarded in an email dated March 4, 2019 and follow-up correspondence submitted via electronic mail. The PEA Report presents investigation results and conclusions based on a health risk screening evaluation for the Site.

According to the PEA Report, the District is proposing modernization of the existing Brownell Middle School located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Site). The approximately 17.5-acre Site is identified by Santa Clara County Assessor's Parcel Number 799-20-013 (2.1 acres) and 799-20-015 (15.4 acres).

According to historic aerial photographs, topographic maps and Sanborn maps, portions of the Site have been developed as a public-school site since the 1920s. The current Brownell Middle School was built in the 1960s. The northern portion of the Site appears to have been used for agricultural purposes during the late 1930s to early 1940s. The Site is currently operating as the Brownell Middle School.

The PEA Workplan included activities to investigate the Site for potential impacts from the following environmental conditions that may pose a threat to human health or the environment:

- Organochlorine pesticides (OCPs), lead, and/or polychlorinated biphenyls (PCBs) in soils from the potential application of termiticides, lead-based paint, and/or caulking compounds and electrical transformers, respectively, around the existing structures;
- Arsenic in soils from potential agricultural-chemical use prior to development of the school;
- Naturally occurring asbestos in soils from nearby potentially asbestos-bearing ultramafic rock formations; and
- Volatile organic compounds in soil vapor from a nearby property reportedly experiencing an unauthorized chemical release to soil and/or groundwater.

The PEA Report states that a human health screening evaluation was conducted using the laboratory analytical results. The maximum detected concentrations in on-site soil were compared to residential soil screening levels established by DTSC and the United States Environmental Protection Agency. The results of the PEA screening level risk assessment estimated the cumulative total excess risk from OCPs and PCBs (Aroclor 1260) identified in soils at the Site to be 1.9 x $10^{-4}$, which provides an increased excess cancer risk of greater than 1 in 1,000,000 (>$10^{-6}$). Arsenic concentrations in soil samples ranged from 3.4 to 110 milligrams per kilogram (mg/kg), exceeding background levels evaluated for the Site. In addition, lead concentrations ranged from 1.1 to 170 mg/kg and, based on the LeadSpread output, exposure to the lead concentrations detected at the Site could result in a 90$^{th}$ percentile blood lead concentration of 4.4 micrograms per deciliter (µg/dl) in children which exceeds the Office of Environmental Health Hazard Assessment blood toxicity level of 1 µg/dl. The described results indicate that surface soils contain concentrations of OCPs, arsenic and lead that exceed residential screening levels at the Site.

Due to elevated concentrations of OCPs, arsenic and lead identified in surface soil at the Site, the PEA concludes with the determination that further action is needed before school occupancy occurs. The further action should include additional soil sampling to assess the lateral and vertical extent of soils containing elevated concentrations of contaminants at the Site.
Based on review of the PEA Report, a release or threatened release of hazardous material or the presence of a naturally occurring hazardous material, which would pose a

threat to public health or the environment under unrestricted land use, was indicated at the Site. Therefore, DTSC concurs with the conclusion of the PEA Report that a response action for the Site is required and hereby approves the revised PEA Report as final. The response action should include preparation of a supplemental site investigation to further delineate the extent of impacted soils followed by, if necessary, the preparation of a Removal Action Workplan. DTSC estimates the preparation and implementation of the required response action will take six months or more to complete.

In preparation for conducting the response action, DTSC and the District entered into a Schools Cleanup Agreement (SCA, HAS-FY18/19-117) on August 21, 2019. The project manager will contact the District to schedule a scoping meeting. For additional information regarding the response action process, please contact me at (916) 255-3732 or via email at Jose.Salcedo@dtsc.ca.gov.

If you have any questions regarding the project, please contact Mr. Harold (Bud) Duke, DTSC Project Manager, at (916) 255-3695 or via e-mail at Bud.Duke@dtsc.ca.gov.

Sincerely,

José E Salcedo

José Salcedo, PE, Chief
Northern California Schools Unit
Site Mitigation and Restoration Program

cc: (see next page)

cc: (via e-mail)

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Department of Toxic Substances Control

***Jared Blumenfeld***
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
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***Gavin Newsom***
Governor

August 26, 2019

Mr. Paul Nadeau
Director
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Gilroy Unified School District
7810 Arroyo Circle
Gilroy, California 95020

RESULTS OF ARSENIC SOIL MANAGEMENT PLAN – APPROVAL, GILROY UNIFIED SCHOOL DISTRICT, BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT, 7800 CARMEL STREET, GILROY, SANTA CLARA COUNTY (PROJECT CODE 204305)

Dear Mr. Nadeau:

The Department of Toxic Substances Control (DTSC) has reviewed the revised Results of Arsenic Soil Management Plan (RASMP, Padre Associates, Inc., August 22, 2019) received electronically on August 26, 2019. The RASMP was revised in response to DTSC comments on the draft version forwarded via electronic mail on August 22, 2019. The RASMP documents the results of the removal of arsenic-impacted soil located on the northern portion of the Site.

The Gilroy Unified School District (District) is proposing the modernization of the existing Brownell Middle School located at 7800 Carmel Street in Gilroy, California (Site). The approximately 17.5-acre Site is identified by the Santa Clara County Assessor as Assessor's Parcel Numbers 799-20-013 (2.1 acres) and 799-20-015 (15.4 acres).

According to historic aerial photographs, topographic maps and Sanborn maps, portions of the Site have been developed as a public-school site since the 1920s. The current Brownell Middle School was built in the 1960s. The northern portion of the Site appears to have been used for agricultural purposes during the late 1930s to early 1940s. The Site is currently operating as the Brownell Middle School.

The development of the Soil Management Plan was based on the results of a Preliminary Environmental Assessment (Padre Associates, Inc., July 23, 2019) that identified elevated concentrations of arsenic, lead, organochlorine pesticides (OCPs) and polychlorinated biphenyls (PCBs) in soils at the Site. The recommended remedial action to reduce or eliminate the potential impact of these chemicals of concern (COCs), was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

To accommodate the construction schedule for planned modernization activities, the arsenic-impacted soil located on the northern portion of the Site was addressed initially as part of the SMP. The remaining COCs (OCPs, lead and PCBs) will be addressed at a later date as part of the second phase of the modernization project, which is scheduled to begin in the summer of 2020.

As stated in the RASMP, approximately 95 cubic-yards of arsenic-impacted soil was excavated and removed from the Site and disposed of as non-hazardous waste at Waste Connections' John Smith Landfill facility located in Hollister, San Benito County, California. The RASMP concludes that confirmation soil sample results indicate that the concentrations of arsenic in soil remaining at the Site range from 3.3 to 9.2 milligrams per kilogram (mg/kg), and that the 95% upper confidence level for arsenic remaining in soil at the Site was calculated to be 5.09 mg/kg, below the upper bound of the determined background data set (3.6 to 11 mg/kg). Therefore, arsenic is not considered a COC and further remediation for arsenic in soil at the Site is not warranted. Based on its review of the final revised RASMP, DTSC concurs with the conclusions and recommendations and approves the report as final.

If you have any questions regarding the project, please contact the project manager, Harold (Bud) Duke, PG at (916) 255-3695 or via email at Bud.Duke@dtsc.ca.gov. Alternatively, you may contact me at (916)255-3732 or via email at Jose.Salecdo@dtsc.ca.gov.

Sincerely,

José E. Salcedo

José Salcedo, PE, Chief Northern California Schools Unit
Site Mitigation and Restoration Program

cc: (see next page)

cc: (via e-mail)

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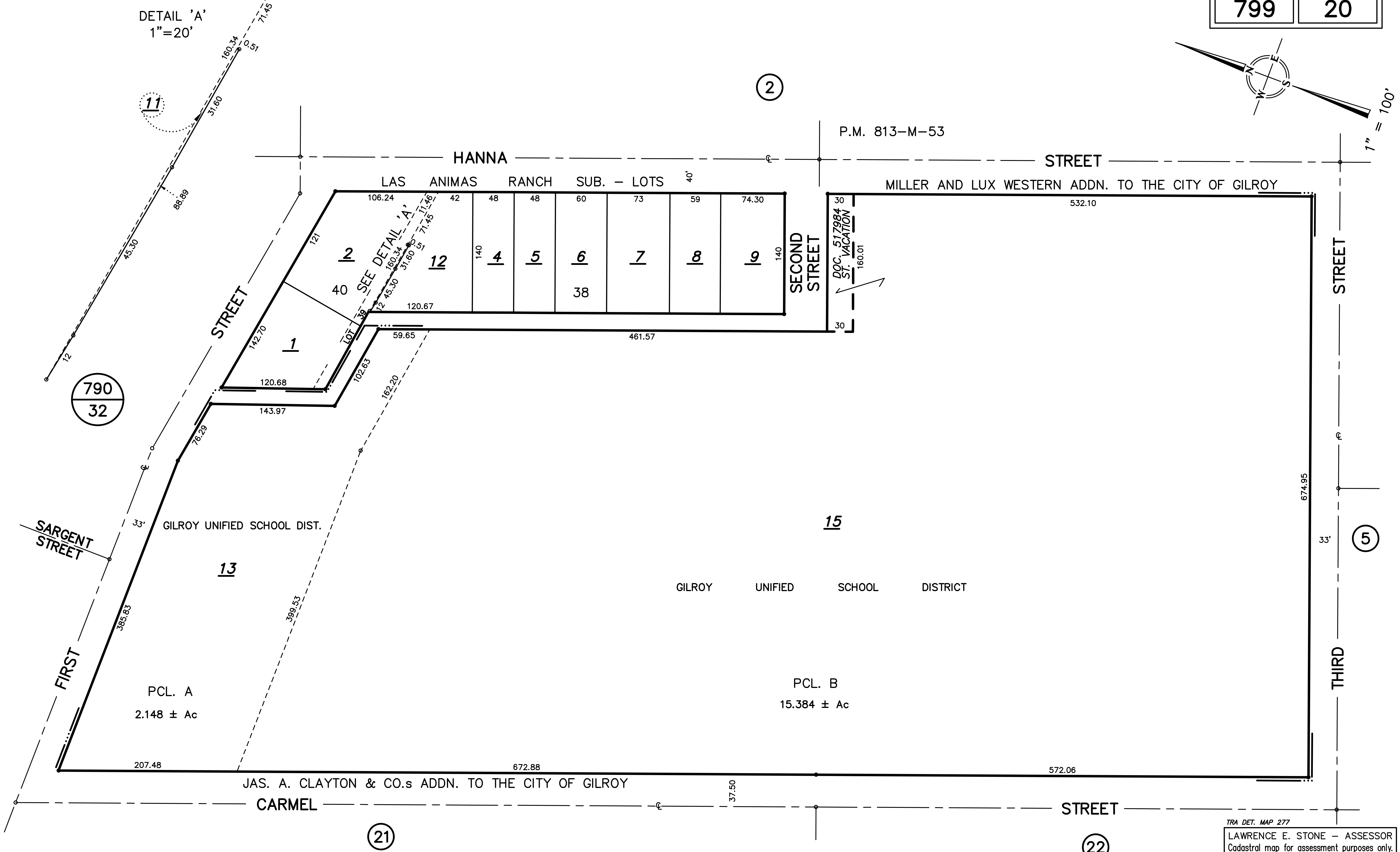
# APPENDIX B

# ASSESSOR'S PARCEL MAP

| BOOK | PAGE |
|---|---|
| 799 | 20 |

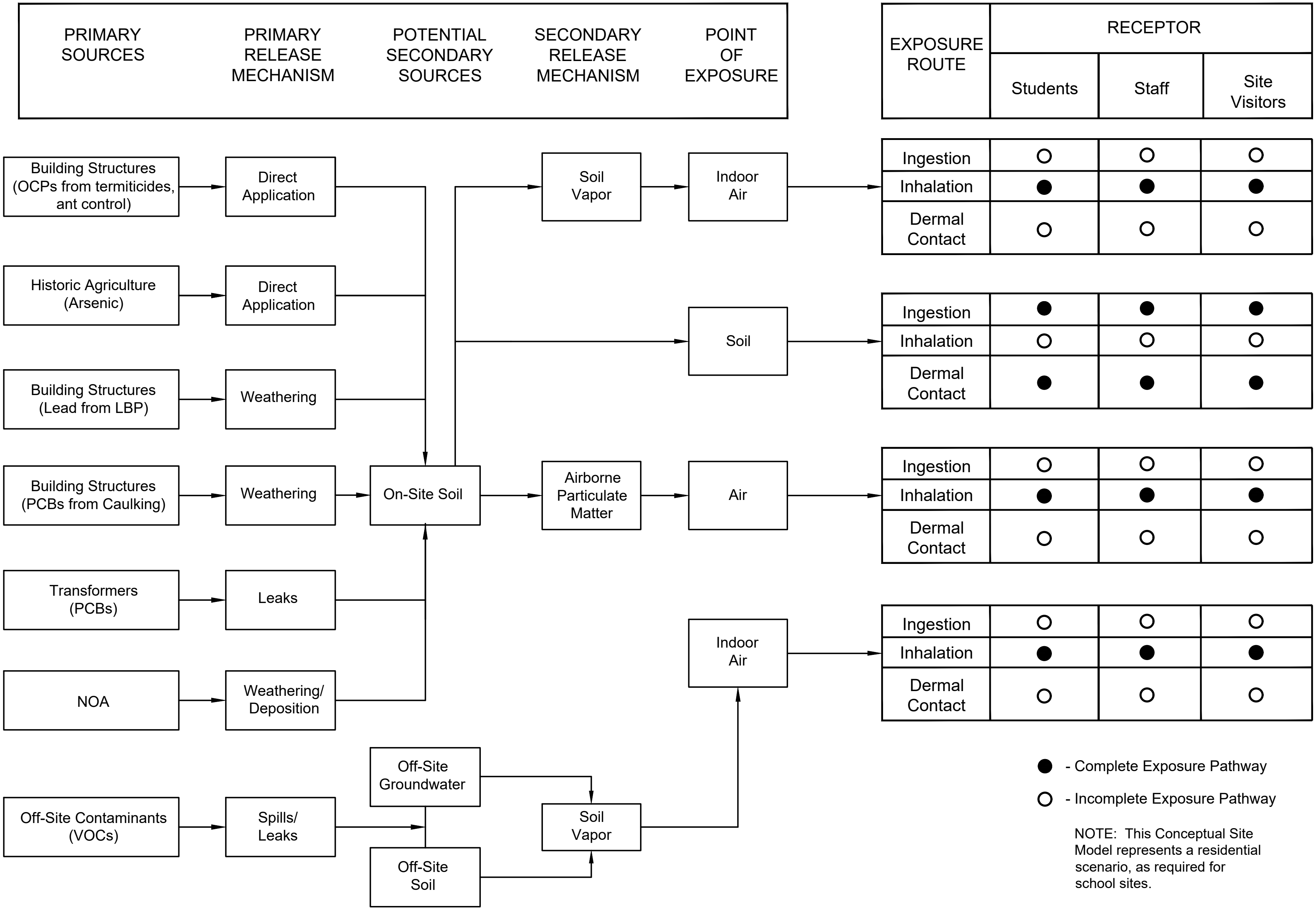



TRA DET. MAP 277

LAWRENCE E. STONE – ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
**Effective Roll Year 2017–2018**

# APPENDIX C

# CONCEPTUAL SITE MODEL
# AND PEA DATA SHEETS

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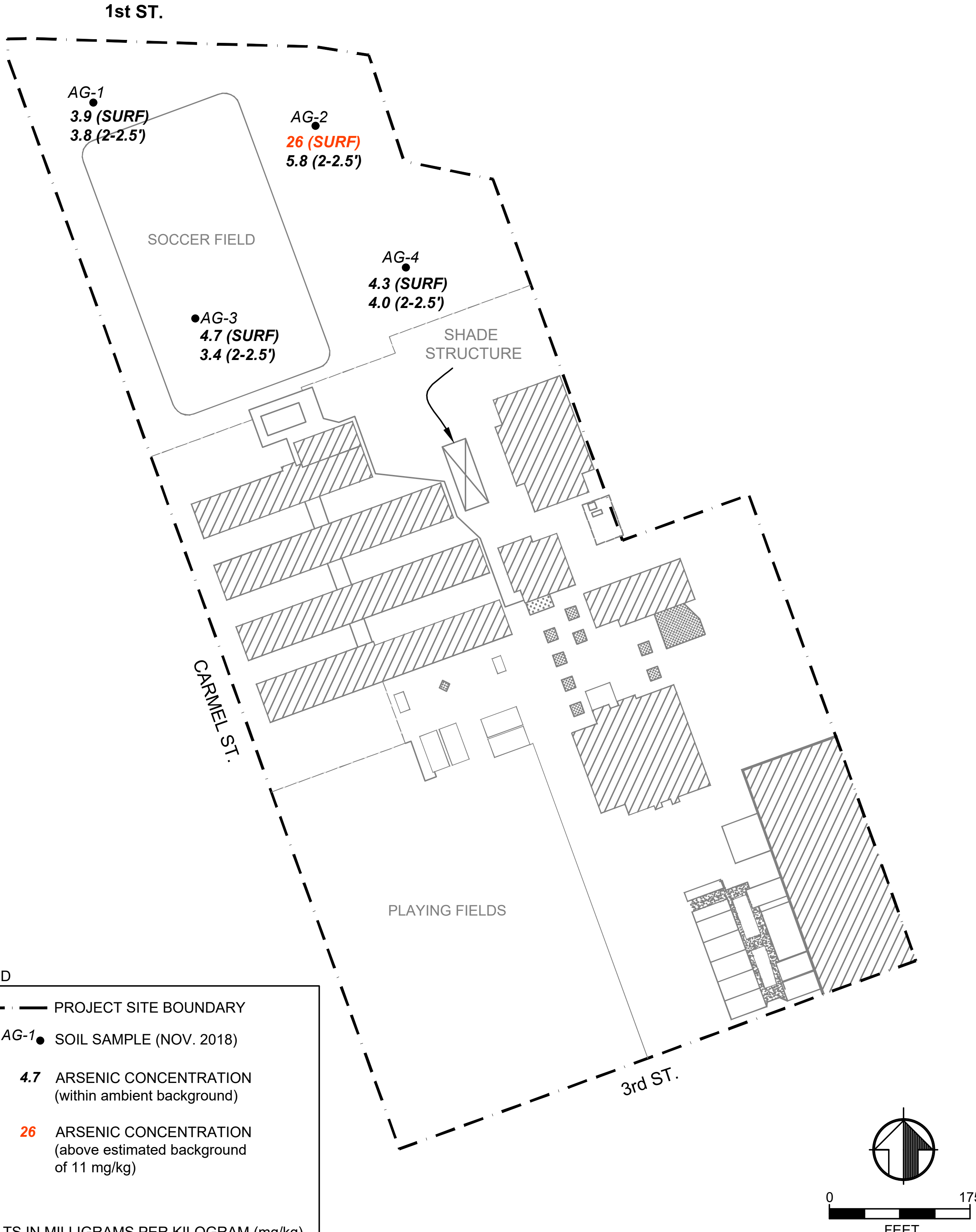
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0722 | 3/7/19 | AC | AJK |

PLATE 4-1

**CONCEPTUAL SITE MODEL**




LEGEND

PROJECT SITE BOUNDARY

AG-1 SOIL SAMPLE (NOV. 2018)

**4.7** ARSENIC CONCENTRATION (within ambient background)

**26** ARSENIC CONCENTRATION (above estimated background of 11 mg/kg)

RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

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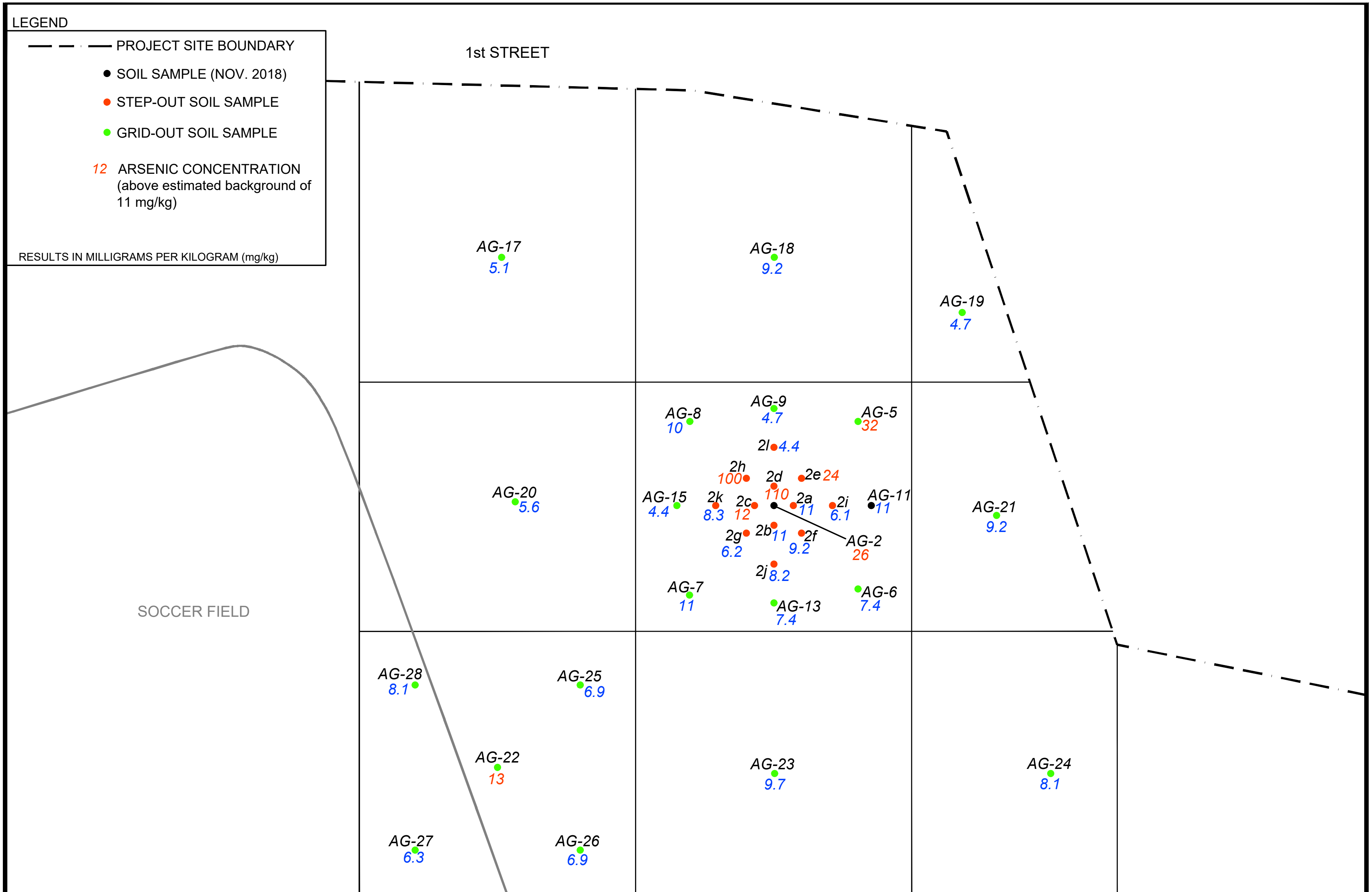
| 1801-0722 | 5/24/19 | AC | AJK |

PLATE 6-1

**ARSENIC INITIAL RESULTS**

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0 35 FEET

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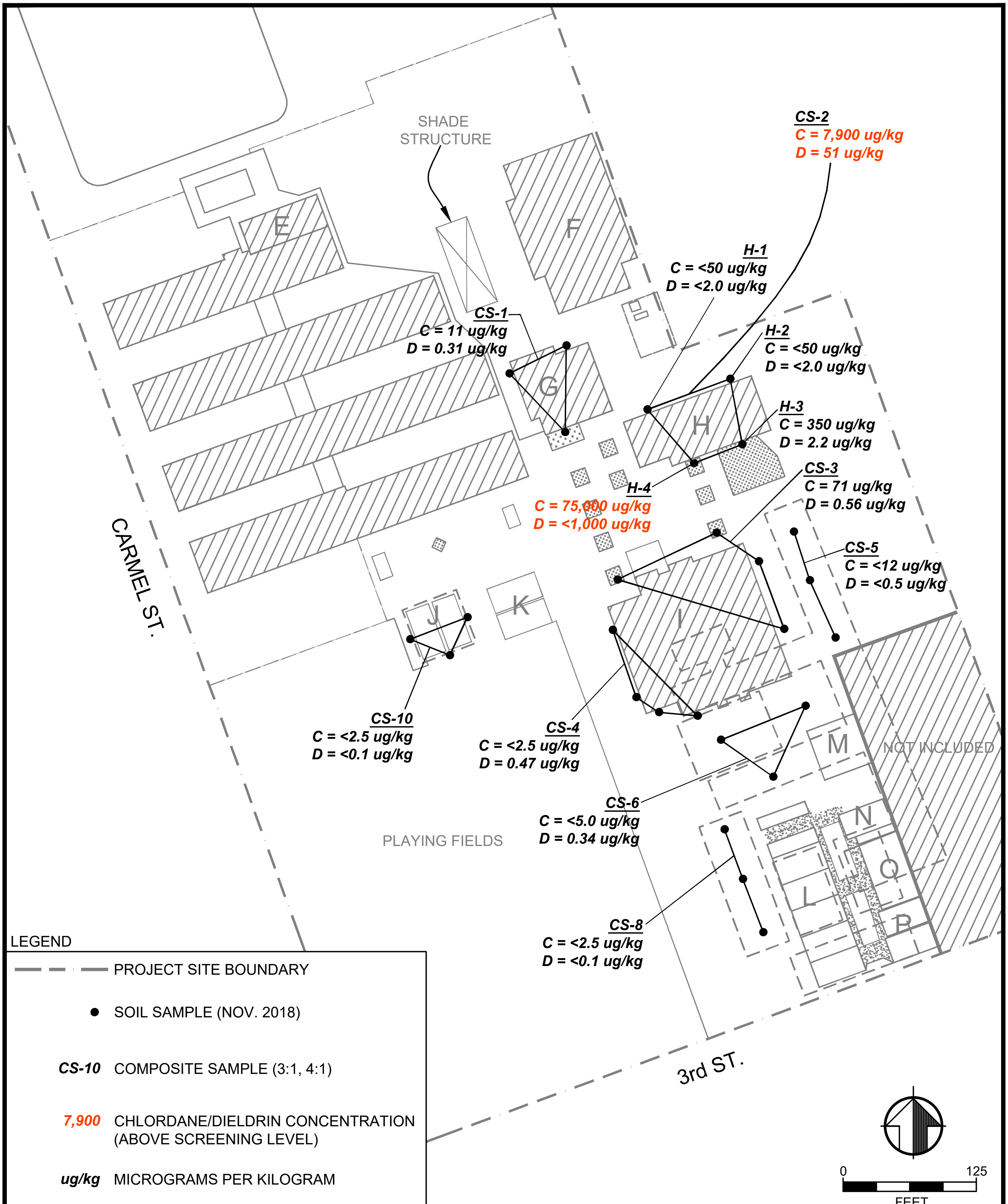
|---|---|---|---|
| 1801-0722 | 5/24/19 | AC | AJK |

PLATE 6-2

**ARSENIC STEP-OUT RESULTS**

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|---|---|---|---|
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PLATE 6-3

**CHLORDANE AND DIELDRIN INITIAL RESULTS**

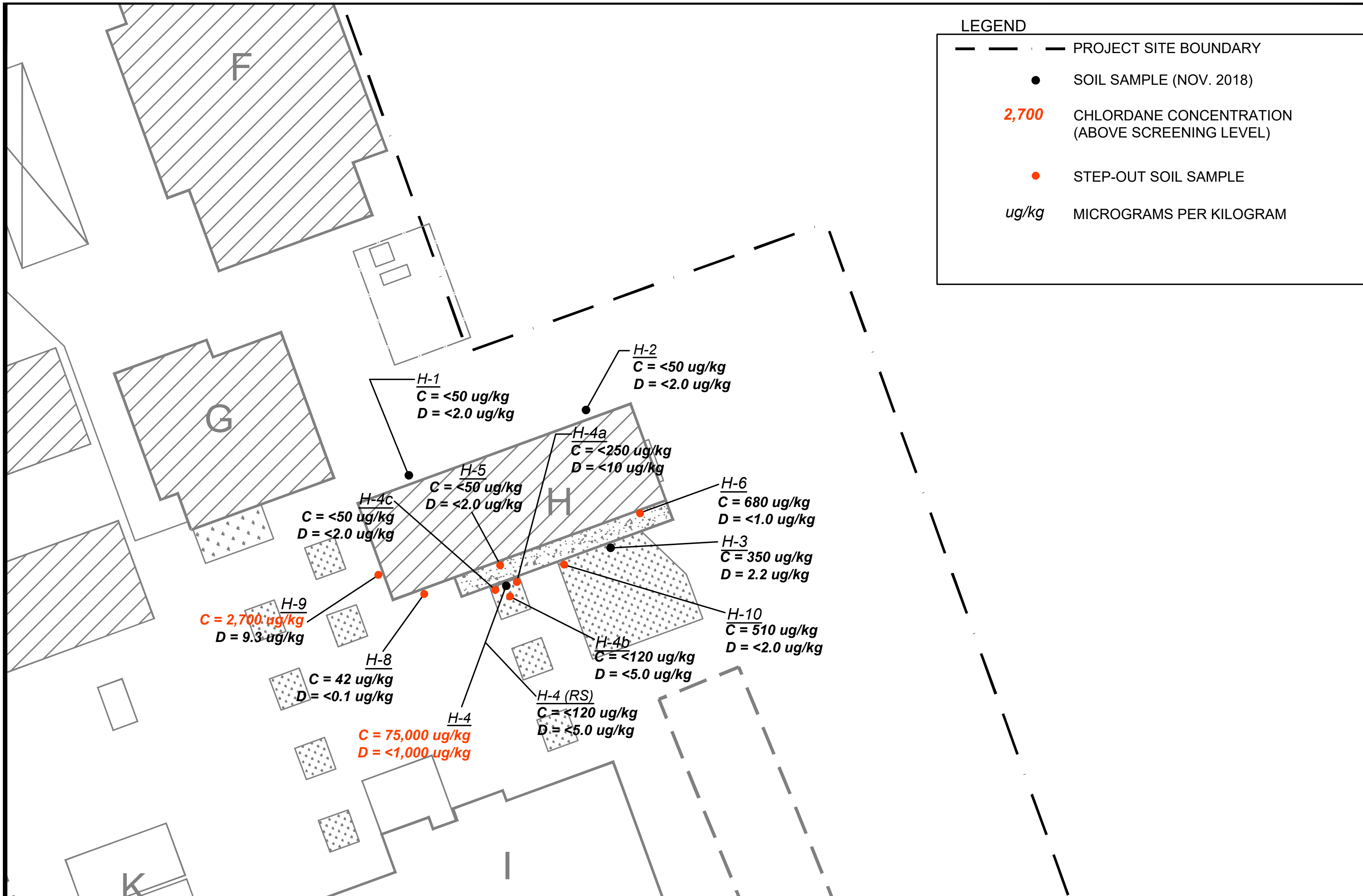


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PLATE 6-4

**CHLORDANE AND DIELDRIN STEP-OUT RESULTS**


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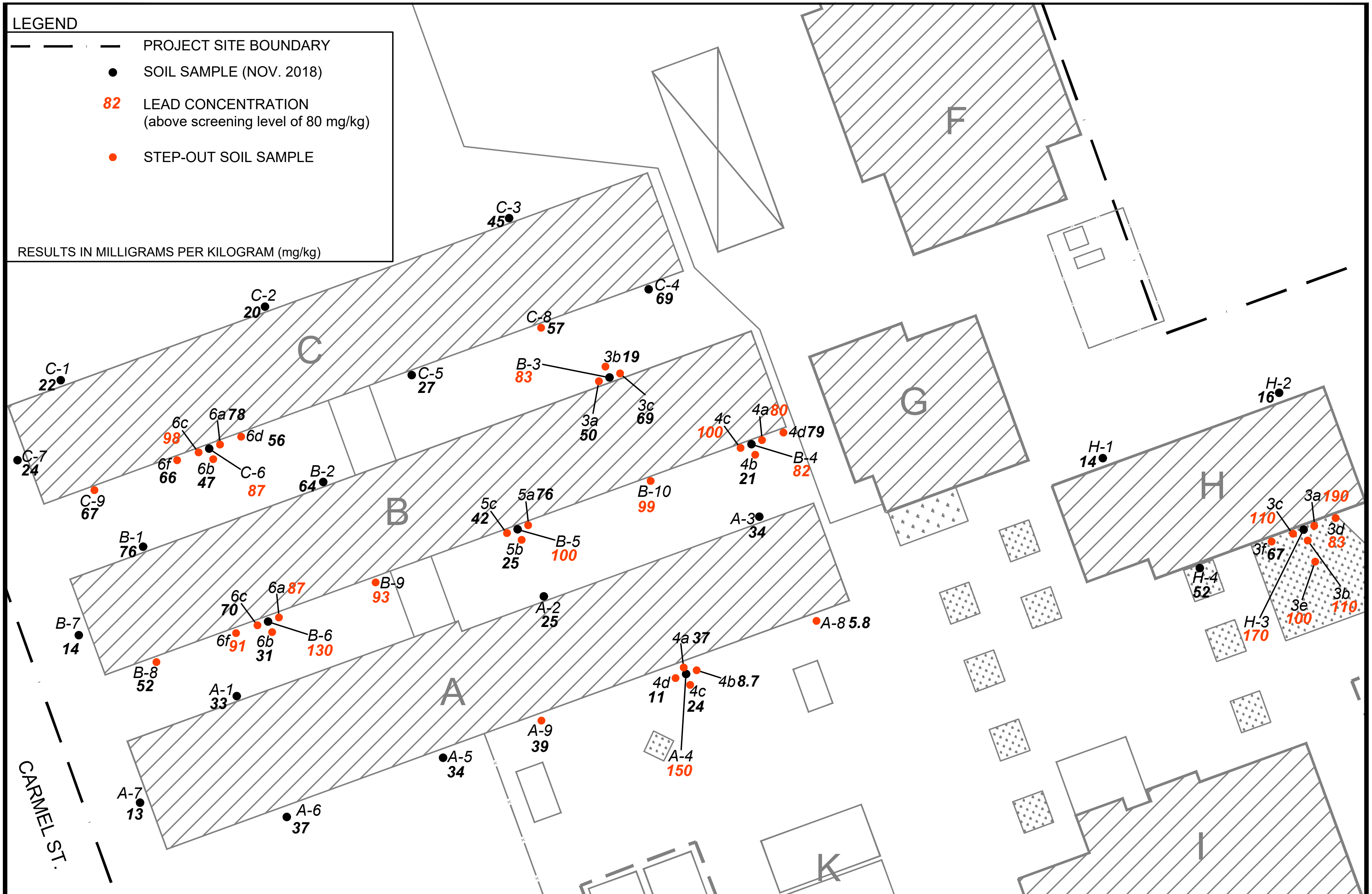
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0722 | 5/24/19 | AC | AJK |

PLATE 6-5

**LEAD INITIAL RESULTS**

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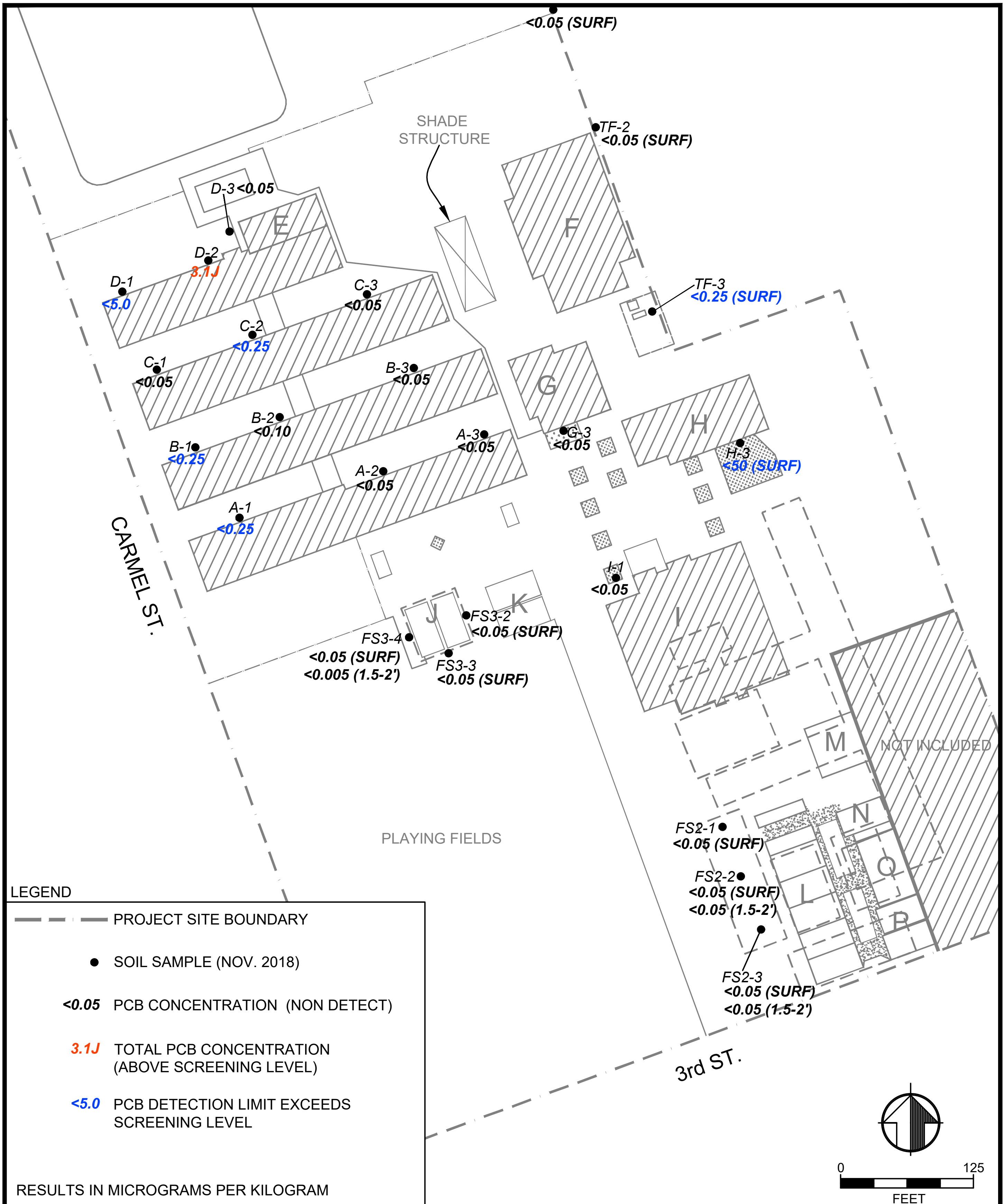
|---|---|---|---|
| 1801-0722 | 5/24/19 | AC | AJK |

PLATE 6-6

**LEAD STEP-OUT RESULTS**

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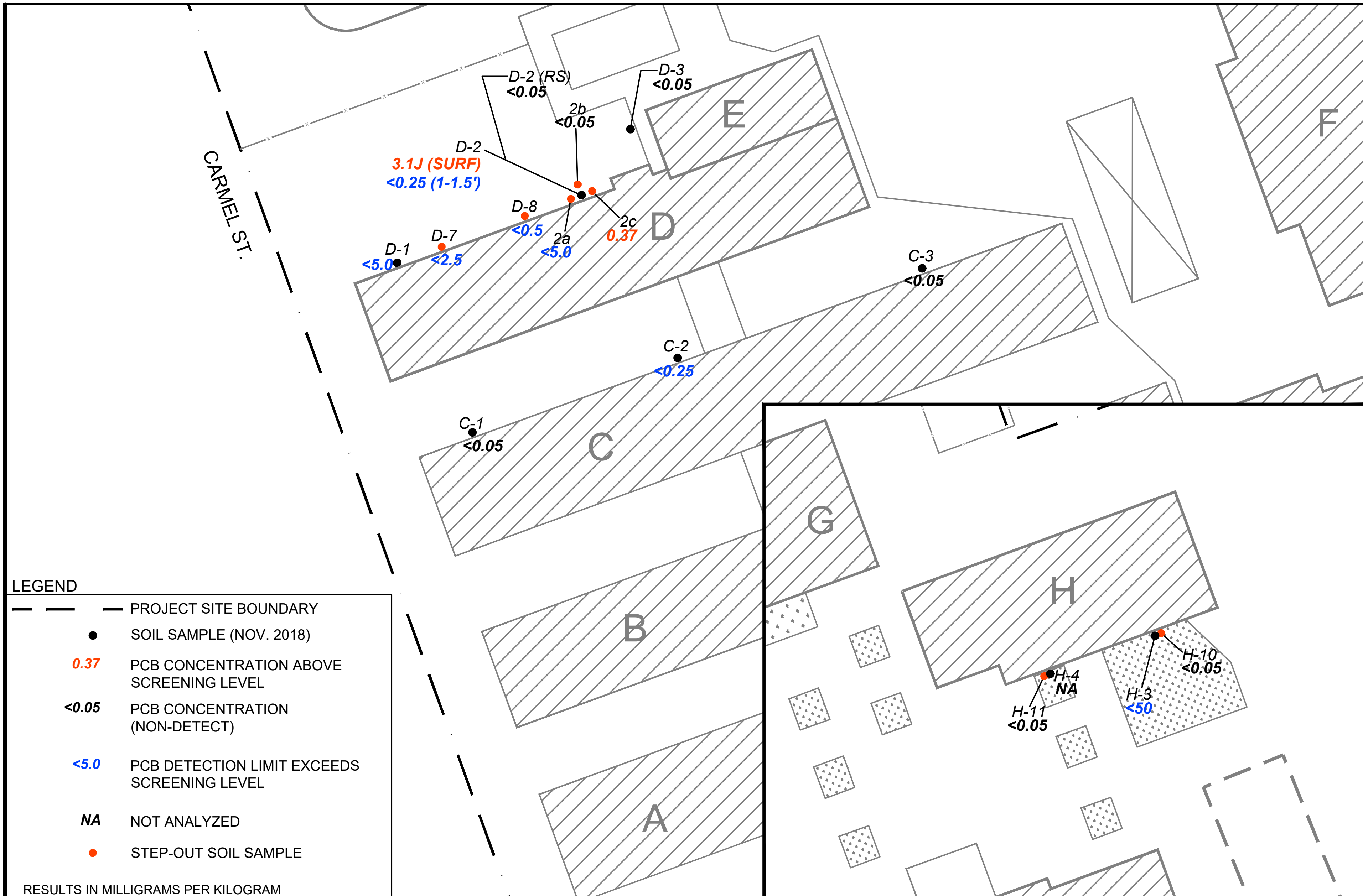
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0722 | 5/21/19 | AC | AJK |

PLATE 6-7

**PCB INITIAL RESULTS**

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| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0722 | 5/21/19 | AC | AJK |

PLATE 6-8

**PCB STEP-OUT RESULTS**

### Table 6-1. Soil Results for Arsenic (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth (feet) | Arsenic (mg/kg) |
|---|---|---|---|
| Historic Agriculture | | | |
| AG-1 (SURF) | 11-10-18 | 0-0.5 | **3.9** |
| AG-1 (2-2.5') | 11-10-18 | 2-2.5 | **3.8** |
| AG-2 (SURF) | 11-10-18 | 0-0.5 | **26** |
| AG-2 (2-2.5') | 11-10-18 | 2-2.5 | **5.8** |
| AG-3 (SURF) | 11-10-18 | 0-0.5' | **4.7** |
| AG-3 (SURF) DUPE | 11-10-18 | 0-0.5' | **4.4** |
| AG-3 (2-2.5') | 11-10-18 | 2-2.5' | **3.4** |
| AG-4 (SURF) | 11-10-18 | 0-0.5' | **4.3** |
| AG-4 (2-2.5') | 11-10-18 | 2-2.5' | **4.0** |
| AG-2 (RS) (SURF) | 4-2-19 | 0-0.5 | **18** |
| AG-2 (RS) (SURF) DUPE | 4-2-19 | 0-0.5 | **22** |
| AG-2a (SURF) | 4-2-19 | 0-0.5 | **11** |
| AG-2a (1-1.5') | 4-2-19 | 1-1.5 | **4.6** |
| AG-2b (0-0.5') | 4-2-19 | 0-0.5 | **11** |
| AG-2b (1-1.5') | 4-2-19 | 1-1.5 | **4.3** |
| AG-2c (0-0.5') | 4-2-19 | 0-0.5 | **12** |
| AG-2c (1-1.5') | 4-2-19 | 1-1.5 | **5.1** |
| AG-2d (0-0.5' | 4-2-19 | 0-0.5 | **110** |
| AG-2d (1-1.5') | 4-2-19 | 1-1.5 | **4.4** |
| AG-2e (SURF) | 4-2-19 | 0-0.5 | **24** |
| AG-2e (1-1.5') | 4-2-19 | 1-1.5 | **5.0** |
| AG-2f (SURF) | 4-2-19 | 0-0.5 | **9.2** |
| AG-2g (SURF) | 4-2-19 | 0-0.5 | **6.2** |
| AG-2h (SURF) | 4-2-19 | 0-0.5 | **100** |
| AG-2h (1-1.5') | 4-2-19 | 1-1.5 | **5.2** |
| AG-2 (1-1.5') | 4-4-19 | 1-1.5 | **3.4** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | AB |

Notes: mg/kg – milligrams per kilogram
AB – ambient background concentration
**xx** – above background concentration (11 mg/kg)

## Table 6-1. Soil Results for Arsenic (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth (feet) | Arsenic (mg/kg) |
|---|---|---|---|
| Historic Agriculture | | | |
| AG-2i (SURF) | 4-20-19 | 0-0.5 | **6.1** |
| AG-2j (SURF) | 4-20-19 | 0-0.5 | **8.2** |
| AG-2k (SURF) | 4-20-19 | 0-0.5 | **8.3** |
| AG-2l (SURF) | 4-20-19 | 0-0.5 | **4.4** |
| AG-5 (SURF) | 4-20-19 | 0-0.5 | **32** |
| AG-6 (SURF) | 4-20-19 | 0-0.5 | **7.4** |
| AG-6 (SURF) DUPE | 4-20-19 | 0-0.5 | **6.8** |
| AG-7 (SURF) | 4-20-19 | 0-0.5 | **11** |
| AG-8 (SURF) | 4-20-19 | 0-0.5 | **10** |
| AG-9 (SURF) | 4-20-19 | 0-0.5 | **4.7** |
| AG-11 (SURF) | 4-20-19 | 0-0.5 | **11** |
| AG-13 (SURF) | 4-20-19 | 0-0.5 | **7.4** |
| AG-15 (SURF) | 4-20-19 | 0-0.5 | **4.4** |
| AG-17 (SURF) | 4-20-19 | 0-0.5 | **5.1** |
| AG-18 (SURF) | 4-20-19 | 0-0.5 | **9.2** |
| AG-19 (SURF) | 4-20-19 | 0-0.5 | **4.7** |
| AG-20 (SURF) | 4-20-19 | 0-0.5 | **5.6** |
| AG-21 (SURF) | 4-20-19 | 0-0.5 | **9.2** |
| AG-22 (SURF) | 4-20-19 | 0-0.5 | **13** |
| AG-23 (SURF) | 4-20-19 | 0-0.5 | **9.7** |
| AG-24 (SURF) | 4-20-19 | 0-0.5 | **8.1** |
| AG-25 (SURF) | 5-15-19 | 0-0.5 | **6.9** |
| AG-26 (SURF) | 5-15-19 | 0-0.5 | **6.9** |
| AG-27 (SURF) | 5-15-19 | 0-0.5 | **6.3** |
| AG-28 (SURF) | 5-15-19 | 0-0.5 | **8.1** |
| GSM-1 | 5-15-19 | 0-0.5 | **4.9** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | AB |

Notes: mg/kg – milligrams per kilogram
AB – ambient background concentration
**xx** – above background concentration (11 mg/kg)

**Table 6-2: Soil Results for OCPs**
**Results in (µg/kg)**

| Sample Identification | Date Collected | Aldrin | alpha-BHC | beta-BHC | delta-BHC | gamma-BHC | Chlordane-technical | DDD | DDE | DDT | Dieldrin | Endosulfan I | Endosulfan II | Endosulfan sulfate | Endrin | Endrin aldehyde | Endrin ketone | Heptachlor | Heptachlor Epoxide | Hexachloro-benzene | Hexachlorocy-clopentadiene | Methoxychlor | Toxaphene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Existing Structures | | | | | | | | | | | | | | | | | | | | | | | |
| CS-1 (G-1,3,4 (SURF)) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | **11** | <0.1 | **1.1** | **2.5** | **0.31** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| CS-2 (H-1,2,3,4 (SURF)) | 11-11-18 | <20 | <20 | <60 | <40 | <20 | **7,600** | <20 | **40** | <20 | **51** | <20 | <20 | <20 | **33** | <20 | <20 | <20 | <20 | <200 | <400 | <40 | <1,000 |
| CS-2 (DUPE) | 11-11-18 | <20 | <20 | <60 | <40 | <20 | **7,900** | <20 | **39** | **30** | **50** | <20 | <20 | <20 | **28** | <20 | <20 | <20 | **35** | <200 | <400 | <40 | <1,000 |
| H-1 (SURF) | 11-11-18 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | <50 | <2.0 | <2.0 | **4.2** | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <4.0 | <100 |
| H-1 (1-1.5') | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | <0.1 | <0.1 | **0.13** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| H-2 (SURF) | 11-11-18 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | <50 | <2.0 | <2.0 | **3.4** | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <4.0 | <100 |
| H-2 (1.5 -2') | 11-11-18 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | <50 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <4.0 | <100 |
| H-3 (SURF) | 11-11-18 | **0.3** | <0.1 | <0.3 | <0.2 | <0.1 | **350** | <0.1 | **11** | **26** | **2.2** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.31** | **1.6** | **1.1** | <2.0 | <0.2 | <5.0 |
| H-4 (SURF) | 11-11-18 | <1,000 | <1,000 | <3,000 | <2,000 | <1,000 | **75,000** | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <1,000 | <10,000 | <1,000 | <1,000 | <3,000 |
| CS-3 (I-1,2,3,4 (SURF)) | 11-11-18 | <0.5 | <0.5 | <1.5 | <1.0 | <0.5 | **71** | <0.5 | **3.7** | **12** | **0.56** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5.0 | <10 | <1.0 | <25 |
| CS-4 (I-5,6,7,8 (SURF)) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | **0.74** | **5.3** | **0.25** | **0.47** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| Former Structures | | | | | | | | | | | | | | | | | | | | | | | |
| CS-5 (FS1-1,2,3 (SURF)) | 11-11-18 | <0.5 | <0.5 | <1.5 | <1.0 | <0.5 | <12 | <0.5 | **0.93** | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <5.0 | <10 | <1.0 | <25 |
| CS-6 (FS1-4,5,6 (SURF)) | 11-11-18 | <0.2 | <0.2 | <0.6 | <0.4 | <0.2 | <5.0 | **0.26** | **2.0** | **1.4** | **0.34** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <2.0 | <4.0 | <0.4 | <10 |
| CS-6 DUPE | 11-11-18 | <0.2 | <0.2 | <0.6 | <0.4 | <0.2 | <5.0 | **0.2** | **1.8** | **1.5** | **0.28** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <2.0 | <4.0 | <0.4 | <10 |
| CS-7 (FS1-2,3 (1.5-2')) | 11-11-18 | **0.36** | <0.1 | <0.3 | <0.2 | <0.1 | **33** | <0.1 | **3.7** | **2.9** | **0.73** | <0.1 | <0.1 | <0.1 | **0.23** | <0.1 | <0.1 | <0.1 | **0.85** | <1.0 | <2.0 | <0.2 | <5.0 |
| CS-8 (FS2-1,2,3 (SURF)) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | **0.18** | **0.76** | **2.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| CS-9 (FS2-2,3 (1.5-2')) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| CS-10 (FS3-2,3,4 (SURF)) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | <0.1 | **0.99** | **0.81** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| CS-11 (FS1-4,5 (1-1.5')) | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | **14** | <0.1 | **2.9** | **2.9** | **0.53** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| FS3-4 (1.5-2') | 11-11-18 | <0.1 | <0.1 | <0.3 | <0.2 | <0.1 | <2.5 | <0.1 | <0.1 | **0.97** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| **RSL** | | 39 | 86 | 300 | -- | 570 | 1,700 | 1,900 | 2,000 | 1,900 | 34 | 450,000(a) | 450,000(a) | 450,000(a) | 19,000(b) | 19,000(b) | 19,000(b) | 130 | 70 | 190 | 1,800 | 320,000 | 450 |
| **2:1 COMP** | | 19 | 43 | 150 | -- | 285 | 850 | 950 | 1,000 | 950 | 17 | 235,000 | 235,000 | 235,000 | 9,500 | 9,500 | 9,500 | 65 | 35 | 95 | 900 | 160,000 | 225 |
| **3:1 COMP** | | 13 | 29 | 100 | -- | 190 | 567 | 633 | 667 | 633 | 11 | 156,667 | 156,667 | 156,667 | 6,333 | 6,333 | 6,333 | 43 | 23 | 64 | 600 | 106,667 | 150 |
| **4:1 COMP** | | 10 | 22 | 75 | -- | 143 | 425 | 475 | 500 | 475 | 9 | 117,500 | 117,500 | 117,500 | 4,750 | 4,750 | 4,750 | 33 | 18 | 48 | 450 | 80,000 | 113 |

Notes:

µg/kg –micrograms per kilogram
**XXX** – concentration at or above screening level
RSL– Regional Screening Level (HHRA Note #3, Table 1 - DTSC-Recommended Screening Levels for Soil, April 2019)
-- - not established
(a) – RSL for Endosulfan
(b) – RSL for Endrin

## Table 6-2: Soil Results for OCPs
## Results in (µg/kg)

| Sample Identification | Date Collected | Aldrin | alpha-BHC | beta-BHC | delta-BHC | gamma-BHC | Chlordane-technical | DDD | DDE | DDT | Dieldrin | Endosulfan I | Endosulfan II | Endosulfan sulfate | Endrin | Endrin aldehyde | Endrin ketone | Heptachlor | Heptachlor Epoxide | Hexachloro-benzene | Hexachlorocy-clopentadiene | Methoxychlor | Toxaphene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Step-out Samples (Existing Structures) | | | | | | | | | | | | | | | | | | | | | | | |
| H-4 (RS) (SURF) | 4-3-19 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <120 | <5.0 | **9.6** | **26** | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <50 | <100 | <5.0 | <250 |
| H-4 (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-4a (SURF) | 4-3-19 | <10 | <10 | <10 | <10 | <10 | <250 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <100 | <200 | <10 | <500 |
| H-4a (SURF) DUPE | 4-3-19 | <10 | <10 | <10 | <10 | <10 | <250 | <10 | <10 | **37** | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <100 | <200 | <10 | <500 |
| H-4a (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-4b (SURF) | 4-3-19 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <120 | <5.0 | **10** | **11** | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <50 | <100 | <5.0 | <250 |
| H-4b (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | **98** |
| H-4b (1.5-2') DUPE | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-4c (SURF) | 4-3-19 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | <50 | <2.0 | **27** | **4.1** | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <4.0 | <100 |
| H-4c (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-5 (SURF) | 4-3-19 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | <50 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <4.0 | <100 |
| H-6 (SURF) | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **680** | <1.0 | **10** | **6.3** | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **13** | <1.0 | <10 | <20 | <1.0 | <50 |
| H-6 (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-8 (SURF) | 4-3-19 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **42** | <0.1 | **18** | **10** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <1.0 | <2.0 | <0.2 | <5.0 |
| H-8 (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-9 (SURF) | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **2,700** | <1.0 | **40** | **21** | **9.3** | <1.0 | <1.0 | <1.0 | **7.9** | <1.0 | <1.0 | <1.0 | **12** | <10 | <20 | <1.0 | <50 |
| H-9 (1.5-2') | 4-3-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **81** | <1.0 | **1.1** | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <1.0 | <50 |
| H-10 (SURF) | 4-20-19 | <2.0 | <2.0 | <6.0 | <4.0 | <2.0 | **510** | <2.0 | **2.2** | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | **3.4** | <20 | <40 | <4.0 | <100 |
| H-10 (1-1.5') | 4-20-19 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **710** | <1.0 | **4.3** | **2.1** | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | **6.0** | <10 | <20 | <1.0 | <50 |
| **RSL** | | 39 | 86 | 300 | -- | 570 | 1,700 | 1,900 | 2,000 | 1,900 | 34 | 450,000(a) | 450,000(a) | 450,000(a) | 19,000(b) | 19,000(b) | 19,000(b) | 130 | 70 | 190 | 1,800 | 320,000 | 450 |
| **2:1 COMP** | | 19 | 43 | 150 | -- | 285 | 850 | 950 | 1,000 | 950 | 17 | 235,000 | 235,000 | 235,000 | 9,500 | 9,500 | 9,500 | 65 | 35 | 95 | 900 | 160,000 | 225 |
| **3:1 COMP** | | 13 | 29 | 100 | -- | 190 | 567 | 633 | 667 | 633 | 11 | 156,667 | 156,667 | 156,667 | 6,333 | 6,333 | 6,333 | 43 | 23 | 64 | 600 | 106,667 | 150 |
| **4:1 COMP** | | 10 | 22 | 75 | -- | 143 | 425 | 475 | 500 | 475 | 9 | 117,500 | 117,500 | 117,500 | 4,750 | 4,750 | 4,750 | 33 | 18 | 48 | 450 | 80,000 | 113 |

Notes:

µg/kg –micrograms per kilogram
**XXX** – concentration at or above screening level
RSL– Regional Screening Level (HHRA Note #3, Table 1 - DTSC-Recommended Screening Levels for Soil, April 2019)
-- - not established
(a) – RSL for Endosulfan
(b) – RSL for Endrin

### Table 6-3. Soil Results for Lead
### (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Existing Structures | | | |
| A-1 (SURF) | 11-10-18 | 0-0.5 | **33** |
| A-2 (SURF) | 11-10-18 | 0-0.5 | **25** |
| A-3 (SURF) | 11-10-18 | 0-0.5 | **34** |
| A-4 (SURF) | 11-10-18 | 0-0.5 | **150** |
| A-5 (SURF) | 11-10-18 | 0-0.5 | **26** |
| A-5 (SURF) DUPE | 11-10-18 | 0-0.5 | **34** |
| A-6 (SURF) | 11-10-18 | 0-0.5 | **37** |
| A-7 (SURF) | 11-10-18 | 0-0.5 | **13** |
| B-1 (SURF) | 11-10-18 | 0-0.5 | **76** |
| B-2 (SURF) | 11-10-18 | 0-0.5 | **64** |
| B-3 (SURF) | 11-10-18 | 0-0.5 | **83** |
| B-4 (SURF) | 11-10-18 | 0-0.5 | **82** |
| B-5 (SURF) | 11-10-18 | 0-0.5 | **93** |
| B-5 (SURF) DUPE | 11-10-18 | 0-0.5 | **100** |
| B-6 (SURF) | 11-10-18 | 0-0.5 | **130** |
| B-7 (SURF) | 11-10-18 | 0-0.5 | **14** |
| C-1 (SURF) | 11-10-18 | 0-0.5 | **22** |
| C-2 (SURF) | 11-10-18 | 0-0.5 | **20** |
| C-3 (SURF) | 11-10-18 | 0-0.5 | **45** |
| C-4 (SURF) | 11-10-18 | 0-0.5 | **69** |
| C-4 (SURF) DUPE | 11-10-18 | 0-0.5 | **62** |
| C-5 (SURF) | 11-10-18 | 0-0.5 | **27** |
| C-6 (SURF) | 11-10-18 | 0-0.5 | **87** |
| C-7 (SURF) | 11-10-18 | 0-0.5 | **24** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80* |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

**Table 6-3. Soil Results for Lead (cont')**
**(results in mg/kg)**

| Sample Identification | Date Collected Identification | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Existing Structures | | | |
| D-1 (SURF) | 11-10-18 | 0-0.5 | **9.4** |
| D-2 (SURF) | 11-10-18 | 0-0.5 | **43** |
| D-3 (SURF) | 11-10-18 | 0-0.5 | **1.1** |
| D-4(SURF) | 11-10-18 | 0-0.5 | **71** |
| D-5 (SURF) | 11-10-18 | 0-0.5 | **35** |
| D-5 (SURF) DUPE | 11-10-18 | 0-0.5 | **35** |
| D-6 (SURF) | 11-10-18 | 0-0.5 | **20** |
| G-1 (SURF) | 11-11-18 | 0-0.5 | **6.9** |
| G-2 (SURF) | 11-11-18 | 0-0.5 | **47** |
| G-3 (SURF) | 11-11-18 | 0-0.5 | **33** |
| G-4 (SURF) | 11-11-18 | 0-0.5 | **6.7** |
| H-1 (SURF) | 11-11-18 | 0-0.5 | **14** |
| H-2 (SURF) | 11-11-18 | 0-0.5 | **16** |
| H-3 (SURF) | 11-11-18 | 0-0.5 | **170** |
| H-4 (SURF) | 11-11-18 | 0-0.5 | **52** |
| I-1 (SURF) | 11-11-18 | 0-0.5 | **25** |
| I-1(SURF)-DUPE | 11-11-18 | 0-0.5 | **26** |
| I-2 (SURF) | 11-11-18 | 0-0.5 | **42** |
| I-3 (SURF) | 11-11-18 | 0-0.5 | **8.6** |
| I-4 (SURF) | 11-11-18 | 0-0.5 | **9.3** |
| I-5 (SURF) | 11-11-18 | 0-0.5 | **7.8** |
| I-6 (SURF) | 11-11-18 | 0-0.5 | **5.3** |
| I-7 (SURF) | 11-11-18 | 0-0.5 | **7.9** |
| I-8 (SURF) | 11-11-18 | 0-0.5 | **31** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80* |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

## Table 6-3. Soil Results for Lead (cont')
## (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Former Structures | | | |
| FS1-1 (SURF) | 11-11-18 | 0-0.5 | **12** |
| FS1-2 (SURF) | 11-11-18 | 0-0.5 | **26** |
| FS1-2 (1.5-2') | 11-11-18 | 0-0.5 | **7.8** |
| FS1-3 (SURF) | 11-11-18 | 0-0.5 | **11** |
| FS1-3 (1.5-2') | 11-11-18 | 0-0.5 | **30** |
| FS1-4 (SURF) | 11-11-18 | 0-0.5 | **27** |
| FS1-4 (1.5-2') | 11-11-18 | 0-0.5 | **29** |
| FS1-5 (SURF) | 11-11-18 | 0-0.5 | **23** |
| FS1-5 (1-1.5') | 11-11-18 | 0-0.5 | **23** |
| FS1-6 (SURF) | 11-11-18 | 0-0.5 | **15** |
| FS2-1 (SURF) | 11-11-18 | 0-0.5 | **10** |
| FS2-2 (SURF) | 11-11-18 | 0-0.5 | **8.8** |
| FS2-2 (1.5-2') | 11-11-18 | 1.5-2 | **6.0** |
| FS2-3 (SURF) | 11-11-18 | 0-0.5 | **4.3** |
| FS2-3 (1.5-2') | 11-11-18 | 0-0.5 | **5.3** |
| FS3-2 (SURF) | 11-11-18 | 0-0.5 | **3.1** |
| FS3-3 (SURF) | 11-11-18 | 0-0.5 | **3.4** |
| FS3-4 (SURF) | 11-11-18 | 0-0.5 | **10** |
| FS3-4 (SURF) DUPE | 11-11-18 | 0-0.5 | **10** |
| FS3-4 (1.5-2') | 11-11-18 | 1.5-2 | **5.5** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80***** |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

## Table 6-3. Soil Results for Lead (cont')
## (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Step-out Samples (Existing Structures) | | | |
| B-3a (SURF) | 4-2-19 | 0-0.5 | **50** |
| B-3b (SURF) | 4-2-19 | 0-0.5 | **19** |
| B-3b (1-1.5') | 4-2-19 | 1-1.5 | **4.9** |
| B-3c (SURF) | 4-2-19 | 0-0.5 | **26** |
| B-3c (SURF) DUPE | 4-2-19 | 0-0.5 | **26** |
| B-3c (1-1.5') | 4-2-19 | 1-1.5 | **9.7** |
| B-4a (SURF) | 4-2-19 | 0-0.5 | **80** |
| B-4a (1-1.5') | 4-2-19 | 1-1.5 | **8.4** |
| B-4b (SURF) | 4-2-19 | 0-0.5 | **21** |
| B-4b (1-1.5') | 4-2-19 | 1-1.5 | **12** |
| B-4c (SURF) | 4-2-19 | 0-0.5 | **100** |
| B-4c (1-1.5') | 4-2-19 | 1-1.5 | **7.4** |
| B-4d (SURF) | 4-2-19 | 0-0.5 | **79** |
| B-5a (SURF) | 4-2-19 | 0-0.5 | **76** |
| B-5a (1-1.5') | 4-2-19 | 1-1.5 | **12** |
| B-5b (SURF) | 4-2-19 | 0-0.5 | **25** |
| B-5b (1-1.5') | 4-2-19 | 1-1.5 | **5.8** |
| B-5c (SURF) | 4-2-19 | 0-0.5 | **42** |
| B-5c (1-1.5') | 4-2-19 | 1-1.5 | **17** |
| B-5c (1-1.5') DUPE | 4-2-19 | 1-1.5 | **19** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80***** |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

## Table 6-3. Soil Results for Lead (cont')
## (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Step-out Samples (Existing Structures) | | | |
| B-6a (SURF) | 4-2-19 | 0-0.5 | **87** |
| B-6a (1-1.5') | 4-2-19 | 1-1.5 | **8.4** |
| B-6b (SURF) | 4-2-19 | 0-0.5 | **31** |
| B-6b (SURF) DUPE | 4-2-19 | 0-0.5 | **21** |
| B-6b (1-1.5') | 4-2-19 | 1-1.5 | **7.1** |
| B-6c (SURF) | 4-2-19 | 0-0.5 | **70** |
| B-6c (1-1.5') | 4-2-19 | 1-1.5 | **40** |
| B-6f (SURF) | 4-2-19 | 0-0.5 | **91** |
| B-8 (SURF) | 4-2-19 | 0-0.5 | **52** |
| B-8 (1-1.5') | 4-2-19 | 1-1.5 | **4.3** |
| B-9 (SURF) | 4-2-19 | 0-0.5 | **93** |
| B-9 (1-1.5') | 4-2-19 | 1-1.5 | **18** |
| B-10 (SURF) | 4-2-19 | 0-0.5 | **99** |
| B-10 (1-1.5') | 4-2-19 | 1-1.5 | **8.7** |
| C-6a (SURF) | 4-2-19 | 0-0.5 | **78** |
| C-6a (1-1.5') | 4-2-19 | 1-1.5 | **19** |
| C-6b (SURF) | 4-2-19 | 0-0.5 | **47** |
| C-6b (1-1.5') | 4-2-19 | 1-1.5 | **8.2** |
| C-6c (SURF) | 4-2-19 | 0-0.5 | **98** |
| C-6c (SURF) DUPE | 4-2-19 | 0-0.5 | **96** |
| C-6c (1-1.5') | 4-2-19 | 1-1.5 | **14** |
| C-6d (SURF) | 4-2-19 | 0-0.5 | **56** |
| C-6f (SURF) | 4-2-19 | 0-0.5 | **66** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80* |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

## Table 6-3. Soil Results for Lead (cont')
## (results in mg/kg)

| Sample Identification | Date Collected | Sample Depth | Total Lead (mg/kg) |
|---|---|---|---|
| Step-out Samples (Existing Structures) | | | |
| A-4a (SURF) | 4-3-19 | 0-0.5 | **37** |
| A-4a (SURF) DUPE | 4-3-19 | 0-0.5 | **31** |
| A-4a (1-1.5') | 4-3-19 | 1-1.5 | **6.0** |
| A-4b (SURF) | 4-3-19 | 0-0.5 | **8.7** |
| A-4b (1-1.5') | 4-3-19 | 1-1.5 | **6.7** |
| A-4c (SURF) | 4-3-19 | 0-0.5 | **24** |
| A-4c (1-1.5') | 4-3-19 | 1-1.5 | **6.2** |
| A-4d (SURF) | 4-3-19 | 0-0.5 | **11** |
| A-4d (1-1.5') | 4-3-19 | 1-1.5 | **5.6** |
| A-8 (SURF) | 4-3-19 | 0-0.5 | **5.8** |
| A-8 (1-1.5') | 4-3-19 | 1-1.5 | **10** |
| A-9 (SURF) | 4-3-19 | 0-0.5 | **39** |
| A-9 (1-1.5') | 4-3-19 | 1-1.5 | **17** |
| H-3a (SURF) | 4-3-19 | 0-0.5 | **190** |
| H-3a (1-1.5') | 4-3-19 | 1-1.5 | **13** |
| H-3b (SURF) | 4-3-19 | 0-0.5 | **110** |
| H-3b (1-1.5') | 4-3-19 | 1-1.5 | **18** |
| H-3c (SURF) | 4-3-19 | 0-0.5 | **110** |
| H-3c (SURF) DUPE | 4-3-19 | 0-0.5 | **110** |
| H-3c (1-1.5') | 4-3-19 | 1-1.5 | **14** |
| H-3d (SURF) | 4-3-19 | 0-0.5 | **83** |
| H-3e (SURF) | 4-3-19 | 0-0.5 | **100** |
| H-3f (SURF) | 4-3-19 | 0-0.5 | **67** |
| A-4 (1-1.5') | 4-4-19 | 1-1.5 | **8.4** |
| C-8 (SURF) | 4-20-19 | 0-0.5 | **57** |
| C-9 (SURF) | 4-20-19 | 0-0.5 | **67** |
| U.S. EPA Method | | | 6020 |
| Screening Level | | | 80* |

Notes: mg/kg – milligrams per kilogram
***** - DTSC's residential screening level based on LeadSpread Ver. 8
**xx** – Above screening level.

## Table 6-4 - Soil Results for PCBs
## (results in mg/kg)

| Sample Identification | Date Collected | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 | PCBs Total |
|---|---|---|---|---|---|---|---|---|---|
| Electrical Transformers | | | | | | | | | |
| TF-1 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| TF-2 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| TF-3 (SURF) | 11-17-18 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Existing Structures | | | | | | | | | |
| A-1 (SURF) | 11-10-18 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| A-2 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| A-3 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| B-1 (SURF) | 11-10-18 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| B-2 (SURF) | 11-10-18 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| B-2 (SURF) DUPE | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| B-3 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| C-1 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| C-2 (SURF) | 11-10-18 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| C-3 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **RSL** | | 6.7 | 0.20 | 0.17 | 0.23 | 0.23 | 0.24 | 0.24 | 0.23 |

Notes:

mg/kg – milligrams per kilogram
RSL– Regional Screening Level (HHRA Note #3, Table 1 - DTSC-Recommended Screening Levels for Soil, April 2019)

## Table 6-4 - Soil Results for PCBs (cont')
## (results in mg/kg)

| Sample Identification | Date Collected | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 | PCBs Total |
|---|---|---|---|---|---|---|---|---|---|
| D-1 (SURF) | 11-10-18 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| D-1 (SURF) DUPE | 11-10-18 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| D-2 (SURF) | 11-10-18 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | **3.1J** | **3.1J** |
| D-3 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| G-3 (SURF) | 11-10-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| H-3 (SURF) | 11-10-18 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 |
| I-1 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-1 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-2 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-2 (1.5-2') | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-2 (1.5-2') DUPE | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-3 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS2-3 (1.5-2') | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS3-2 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS3-3 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS3-4 (SURF) | 11-11-18 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| FS3-4 (1.5-2') | 11-11-18 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | **0.0072** | **0.0072** |
| **RSL** | | 6.7 | 0.20 | 0.17 | 0.23 | 0.23 | 0.24 | 0.24 | 0.23 |

Notes:

mg/kg – milligrams per kilogram
RSL– Regional Screening Level (HHRA Note #3, Table 1 - DTSC-Recommended Screening Levels for Soil, April 2019)

**Table 6-4 - Soil Results for PCBs (cont')**
**(results in mg/kg)**

| Sample Identification | Date Collected | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 | PCBs Total |
|---|---|---|---|---|---|---|---|---|---|
| D-2a (SURF) | 4-2-19 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| D-2b (SURF) | 4-2-19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| D-2c (SURF) | 4-2-19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | **0.37** | **0.37** |
| D-7 (SURF) | 4-2-19 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| D-8 (SURF) | 4-2-19 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| H-10 (SURF) | 4-2-19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| H-11 (SURF) | 4-2-19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| D-2 (RS) (SURF) | 4-4-19 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | **0.07** | **0.07** |
| D-2 (1-1.5') | 4-4-19 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| **RSL** | | 6.7 | 0.20 | 0.17 | 0.23 | 0.23 | 0.24 | 0.24 | 0.23 |

Notes:

mg/kg – milligrams per kilogram
RSL– Regional Screening Level (HHRA Note #3, Table 1 - DTSC-Recommended Screening Levels for Soil, April 2019)

### Table 6-5 - Soil Results for NOA

| Sample Identification | Date Collected | NOA PLM Analysis (% Type) | NOA TEM Analysis (Asbestos Weight %) |
|---|---|---|---|
| SS-1 (SURF) | 11-10-18 | None Detected | NA |
| SS-1 (3-3.5’) | 11-10-18 | None Detected | <0.001 |
| SS-2 (SURF) | 11-10-18 | None Detected | NA |
| SS-2 (2.5-3.0’) | 11-10-18 | None Detected | NA |
| SS-3 (SURF) | 11-10-18 | None Detected | <0.001 |
| SS-3 (3–3.5’) | 11-10-18 | None Detected | NA |
| SS-4 (SURF) | 11-10-18 | None Detected | NA |
| SS-4 (3–3.5’) | 11-10-18 | None Detected | <0.001 |
| SS-5 (SURF) | 11-10-18 | None Detected | NA |
| SS-5 (3–3.5’) | 11-10-18 | None Detected | <0.001 |
| SS-6 (SURF) | 11-10-18 | None Detected | NA |
| SS-7 (SURF) | 11-10-18 | None Detected | NA |
| SS-8 (SURF) | 11-10-18 | None Detected | <0.001 |
| SS-9 (SURF) | 11-10-18 | None Detected | NA |
| Analytical Sensitivity | | 0.25% | 0.001% |
| Further Action Determination | | 0.25% | 0.01% |

Notes:

NOA – Naturally Occurring Asbestos
PLM – Polarized Light Microscopy
TEM – Transmission Electron Microscopy
NA – Not Analyzed

## Table 6-6 - Soil Gas Results for VOCs by EPA Method TO-15 (µg/m$^3$ of Vapor)

| Sample ID | Date Collected | Benzene | Toluene | Ethylbenzene | m,p-Xylenes | o-Xylenes | 1,4 Dioxane | MTBE | Naphthalene | Vinyl Chloride | Carbon Tetrachloride | Tetrachloroethene | 1,2,4-Trimethylbenzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SG-1 | 11-17-18 | <4.83 | <6.36 | <3.14 | <3.03 | <3.03 | <6.23 | <5.13 | <3.33 | <1.36 | <6.13 | <2.55 | <3.23 |
| SG-2 | 11-17-18 | <4.84 | <6.38 | <3.15 | <3.04 | <3.04 | <6.24 | <5.14 | <3.34 | <1.36 | <6.13 | <2.55 | <3.23 |
| SG-3 | 11-17-18 | <4.83 | <6.36 | <3.14 | <3.03 | <3.03 | <6.23 | <5.13 | <3.33 | <1.36 | <6.13 | <2.55 | <3.23 |
| SG-4 | 11-17-18 | <4.84 | <6.38 | <3.15 | <3.04 | <3.04 | <6.23 | <5.14 | <3.34 | <1.36 | <6.13 | <2.55 | <3.23 |
| Trip-1 | 11-17-18 | <4.84 | <6.38 | <3.15 | <3.04 | <3.04 | <6.23 | <5.14 | <3.34 | <1.36 | <6.13 | <2.55 | <3.23 |
| **HHRA Note #3** | | 97 | 310,000 | -- | -- | -- | 361 | -- | -- | 9.5 | 47 | 460 | -- |
| **RSL** | | 12 | 174,000 | 37.4 | 3,480 | 100,000 | 560 | 11,000 | -- | | 47 | 360 | 2,090 |

**Notes:**

VOC – volatile organic compound
µg/m$^3$ – micrograms per cubic meter
HHRA – Human Health Risk Assessment Note #3, Table 3 (April 2019). Screening level includes attenuation factor (0.001) for future residential structures.
RSL – USEPA Regional Screening Level (November 2018). Screening level includes attenuation factor (0.03) for future residential structures.

# APPENDIX D

# RESULTS OF ARSENIC SOIL MANAGEMENT PLAN

# RESULTS OF ARSENIC SOIL MANAGEMENT PLAN

# BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT
# 7800 CARMEL STREET
# GILROY, SANTA CLARA COUNTY, CALIFORNIA

Prepared for:
GILROY UNIFIED SCHOOL DISTRICT

AUGUST 2019

padre
associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

August 22, 2019
Project No. 1801-0723

Mr. Paul Nadeau, Director
Facilities Planning & Management
Gilroy Unified School District
210 Swanston Lane, Gilroy, California 95020

Subject: Results of Arsenic Soil Management Plan for the Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, California

Dear Mr. Nadeau:

Padre Associates, Inc. (Padre), on behalf of Gilroy Unified School District (District) has prepared this *Results of Arsenic Soil Management Plan* (SMP) report for the Brownell Middle School Modernization Project, located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site).

The SMP was implemented in general accordance with the Padre prepared report titled: *Soil Management Plan for Arsenic Impacted Soil,* Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California, dated June 2019.

The SMP field activities were initially implemented on July 9, 2019 and completed on July 26, 2019. If you have any questions or require additional information, please contact the undersigned at (916) 333-5920.

Sincerely,

**PADRE ASSOCIATES, INC.**

PROFESSIONAL GEOLOGIST
ALAN CHURCHILL
No.9378
6-30-21
STATE OF CALIFORNIA

Alan Churchill, P.G.
Project Geologist

Alan J. Klein, R.E.P.A., CPESC, QSD/QSP
Senior Environmental Scientist

Cc: C. John Dominguez, President, School Site Solutions, Inc.

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### TABLES



### PLATES



### APPENDICES

## EXECUTIVE SUMMARY

Padre Associates, Inc. (Padre) has prepared this report on behalf of the Gilroy Unified School District (District) documenting the results of the arsenic soil management plan for the Brownell Middle School's Modernization Project located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site).

The SMP was performed in general accordance with the Padre prepared *Soil Management Plan for Arsenic Impacted Soil, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California* dated June 2019.

A Preliminary Environmental Assessment (PEA) was previously completed for the Project Site with regulatory oversight provided by the California Department of Toxic Substances Control (DTSC). The findings of the PEA identified elevated concentrations of arsenic, lead, organochlorine pesticides (OCPs) and polychlorinated biphenyls (PCBs) in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these chemicals of concern (COC), was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the construction schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site was addressed initially as part of this SMP, and the remaining COC (pesticides, lead, PCBs) will be addressed at a later date as part of the second phase of the modernization project, which is scheduled to start in the summer of 2020.

A cleanup goal of 11 milligrams per kilogram (mg/kg) for arsenic in soil was based on a graphical and statistical evaluation of the arsenic data set. The SMP field activities were initially implemented on July 9, 2019 and completed on July 26, 2019.

The SMP consisted of the excavation, temporary storage (soil bins), waste profiling and off-site disposal of approximately 95 cubic-yards (CY) of arsenic-impacted soil. Confirmation soil samples were collected from the bottom and side walls of the excavation areas and were chemically analyzed by the analytical laboratory. Approximately 128 tons of soil classified as a non-hazardous waste solid was transported to Waste Connections' John Smith Landfill facility located in Hollister, San Benito County, California.

At the completion of the SMP, confirmation soil sample results indicate that the concentrations of arsenic in soil remaining at the Project Site range from 3.3 to 9.2 mg/kg. The 95% upper confidence level (UCL) for arsenic in soil at the Project Site was calculated to be 5.09 mg/kg. Therefore, arsenic is not considered a COC and further remediation for arsenic in soil at the Project Site is not warranted.

# 1.0 INTRODUCTION

Padre Associates, Inc. (Padre) has prepared this report on behalf of the Gilroy Unified School District (District) documenting the results of the arsenic soil management plan for the Brownell Middle School Modernization Project located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site). The Project Site is presented on **Plates 1-1**: Site Location and **Plate 1-2**: Site Map.

The subject SMP was completed in general accordance with the Padre prepared *Soil Management Plan for Arsenic Impacted Soil* (SMP) dated June 2019. A copy of the SMP is presented in **Appendix A**.

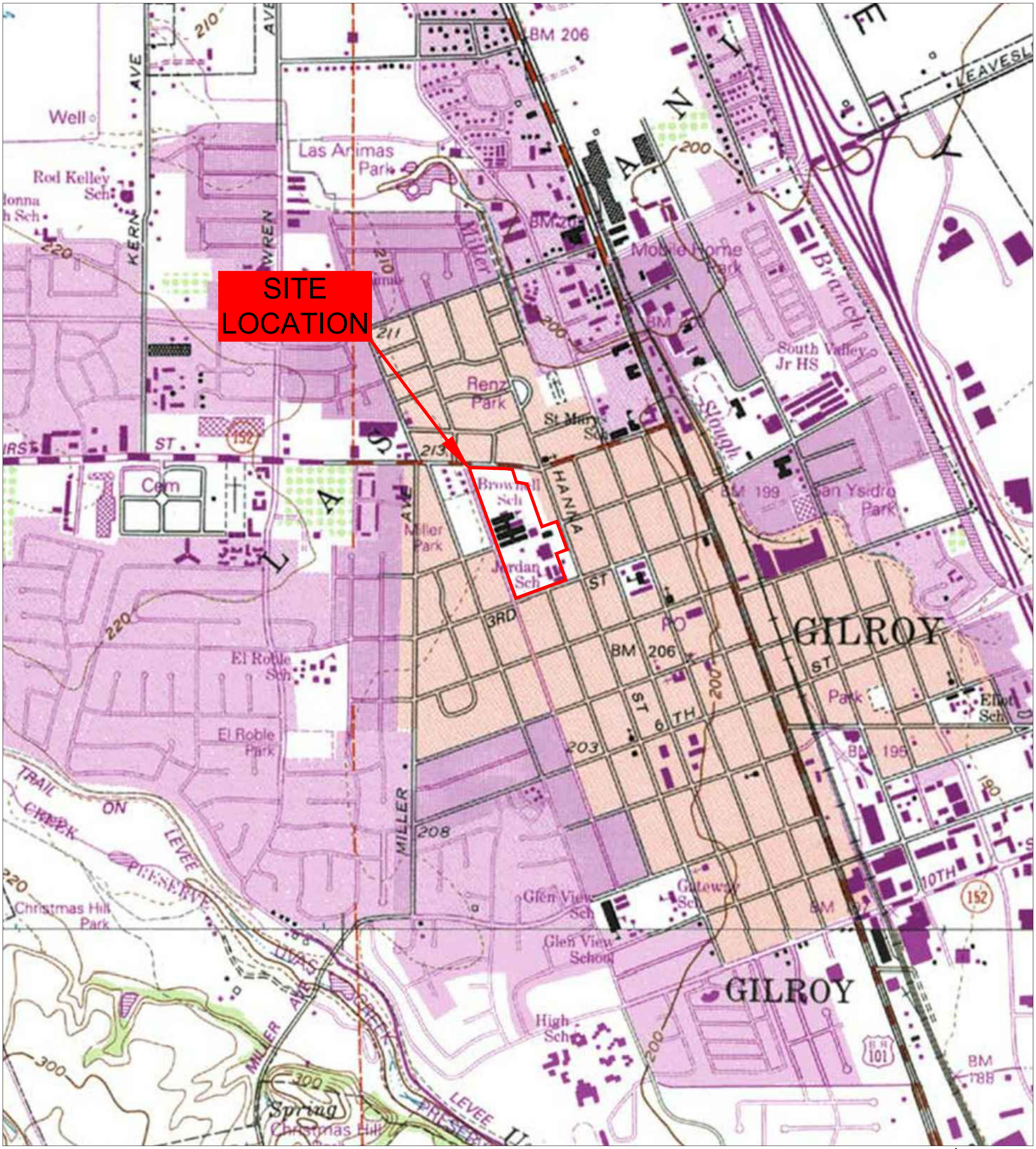
The SMP was based on the results of the Preliminary Environmental Assessment (PEA) that identified elevated concentrations of arsenic, lead, organochlorine pesticides (OCPs) and polychlorinated biphenyls (PCBs) in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these chemicals of concern (COC), was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the construction schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site was addressed initially as part of this SMP, and the remaining COC (pesticides, lead, PCBs) will be addressed at a later date as part of the second phase of the modernization project, which is scheduled to start in the summer of 2020.

## 1.1 SOIL MANAGEMENT PLAN OBJECTIVES

The SMP objectives have been established to be protective of human health and the environment. The objectives include:

- Minimize exposure of humans to chemicals of concern (COC) in soil through the inhalation, dermal absorption, and ingestion exposure pathways;
- Minimize potential for migration of COC from soil to other media;
- Establish Cleanup Goals (CGs) equivalent to the estimated background concentrations for the Project Site area; and
- Establish post-soil management site conditions that do not pose a significant risk to human health, safety or the environment.




U.S.G.S. 7.5 MINUTE QUADRANGLE
GILROY, 1955 (photorevised 1993)

0 1500'

SCALE

**padre** associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

BROWNELL MIDDLE SCHOOL
GILROY UNIFIED SCHOOL DISTRICT
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 5/31/19 | AC | AJK |

PLATE 1-1

**SITE LOCATION**


padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

GOOGLE EARTH IMAGERY (05/18)

0 250 FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 5/31/19 | AC | AJK |

PLATE 1-2

**SITE MAP**

# 2.0 SITE BACKGROUND

This SMP is based on the results of the following documents prepared by Padre:

- *Phase I Environmental Site Assessment and Title V Environmental Hazards Evaluation, Brownell Middle School Site Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California, May 2018; and*

- *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305), May 2019 (revised July 2019).*

The PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these COCs, is the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site was addressed initially as part of this SMP, and the remaining COCs (pesticides, lead, PCBs) will be addressed at a later date as part of the second phase of modernization (Summer 2020).

## 2.1 SITE DESCRIPTION AND LOCATION

The Project Site consists of approximately 17.5 acres of land situated in the central portion of the City of Gilroy and is operated as Brownell Middle School. According to a review of historical documentation, portions of the Project Site have been used as a public-school site since the 1920s with the current Brownell Middle School being constructed in the 1960s. Additionally, the northern portion of the Project Site appears to have been used for agricultural purposes during the late 1930s to early 1940s.

The Project Site is bordered to the north by First Street, beyond which is both commercial and residential property; to the east by Hanna Street, beyond which is residential property; to the south by Third Street, beyond which is a residential property; and to the west by Carmel Street, beyond which is Miller Park as well as a residential property.

### 2.1.1 Site Name, Address and Size

| | |
|---|---|
| Site Name: | Brownell Middle School |
| Site Address: | 7800 Carmel Street, Gilroy, CA 95020 |
| Site Size: | 17.5-acres |

### 2.1.2 Responsible Party Contact

Mr. Paul Nadeau, Director Facilities Planning & Management
Gilroy Unified School District
210 Swanston Lane, Gilroy, California 95020
(669) 261-5901

### 2.1.3 Assessor's Parcel Numbers and Map

The County of Santa Clara identifies the Project Site to include Assessor's Parcel Numbers (APN): 799-20-013 (±2.1 acres) and 799-20-015 (±15.4 acres). A copy of the Assessor's Parcel Map was presented as Appendix A in the SMP.

### 2.1.4 Ownership

The Project Site is owned by the Gilroy Unified School District.

### 2.1.5 Township, Range, and Section

The Project Site is in Section 6, Township 11 South, Range 4 East, of the Gilroy, California USGS 7½-Minute topographic series, Quadrangle Map (1953, photorevised 1993). Approximate latitude and longitude are identified to be:

- Latitude (North): 37° 0' 41.4" (37.0115)
- Longitude (West) : -121° 34' 40.08" (-121.5778)

## 2.2 SITE CONDITIONS

### 2.2.1 Topography

Based on a review of the USGS 7.5-minute topographic quadrangle – Gilroy, California (1955, photorevised 1993), the Project Site lies at an approximate elevation of 206 feet above mean sea level (msl). The Project Site is relatively level, and the general topographic gradient and drainage of the Project Site is towards the southeast. Typically, rainfall would infiltrate into the exposed surface areas, and surface drainage from excessive precipitation would be expected to drain to adjacent streets. Miller Slough is located approximately 2,000 feet east of the Project Site.

### 2.2.2 Geology

The Project Site is located within the Coast Ranges Geomorphic Province of California. The Coast Ranges stretch approximately 600 miles from the Oregon border to the Santa Ynez River and are divided into two sub-provinces: the ranges located north of San Francisco Bay and those from the San Francisco Bay south to Santa Barbara County. The northern ranges lie east of the San Andreas Fault Zone, whereas most of the southern ranges are located to the west. The province contains many elongate ranges and narrow valleys that are approximately parallel to the coast, although the coast usually shows a somewhat more northerly trend than do the ridges and valleys. Therefore, some valleys intersect the shore at acute angles and some mountains terminate abruptly at the sea (Norris and Webb, 1990).

The dominant characteristic of the Coast Ranges is its division into elongate topographic and lithographic strips underlain by discrete basement rocks that are separated by profound structural discontinuities. The pattern extends east, and probably also west onto the sea floor. On the east, concealed beneath the Central Valley, is the enigmatic boundary between the Sierra Nevada basement and the Coast Range Franciscan. Most of the boundary between the Sierran and Franciscan basement lies beneath several thousand feet of late Mesozoic and Cenozoic sedimentary rocks in the Salinas Valley. North of the city of Red Bluff, the boundary emerges as the South Fork Mountain Thrust, which separates the Klamath Mountains from the Coast Ranges. Westward, the next major boundary is the San Andreas Fault Zone, which separates Franciscan basement from the granitic-metamorphic basement of the Salinian Block. South of Monterey, the Sur-Naciemento Fault Zone separates Salinian rocks from additional Franciscan basement to the southwest. Another boundary occurs farther west, offshore, where Franciscan basement is replaced by normal oceanic crust.

The Project Site lies within the southern Santa Clara Valley and is bounded by the Santa Cruz Mountains on the west and the Diablo Range on the east. The Santa Clara Valley is part an approximately 90-mile structural trough that includes the San Francisco Bay to the north and the San Benito Valley to the south. The Santa Clara Valley is a graben, which formed as a result of structural deformation related to the San Andreas and Hayward Faults as well as late Cenozoic orogenic processes. According to the Geologic Map of the Gilroy Quadrangle, Santa Clara County, California (Dibblee, 2005), the Project Site is underlain by Holocene-age alluvium (alluvial gravel, sand and clay of valley areas).

### 2.2.3 Soils

According to the United States Department of Agriculture, Soil Conservation Service's, *Soil Survey of Santa Clara County, California*, dated June 1958, approximately 90% of the surface soil at the Project Site consists of San Ysidro loam, 0 to 2 percent slopes, MLRA 14 and 10% of the surface soil at the Project Site consists of Pleasanton loam, 0 to 2 percent slopes, MLRA 14. San Ysidro loam consists of very deep, moderately well drained soils which formed in alluvium from sedimentary rocks. They are typically found on fan remnants and stream terraces. The native vegetation is annual grasses and forbs however, most areas have been cultivated. Typically, the surface layer is light brownish gray fine sandy loam to about 14 inches thick with few fine distinct mottles of brownish yellow. The next 14 inches are dark yellowish-brown clay, very firm, sticky and plastic. Permeability is very slow, and the available water capacity is moderately low. The runoff is slow to medium, the shrink-swell potential is considered high.

Pleasanton loam consists of deep, well drained soils which from mixed rock sources. They are found on nearly level or gently sloping alluvial fans and terraces. The native vegetation is annual grasses, forbs, and scattered oaks. Typically, the surface layer is grayish brown gravelly fine sandy loam about 21 inches thick. The next 27 inches are brown gravelly sandy clay loam.

Permeability is moderate, and the available water capacity is moderately high. The runoff is slow the medium and the shrink-swell potential is considered moderate.

### 2.2.4 Groundwater

The Project Site is located in the Llagas Subbasin, which is a structural depression filled with Pliocene to Holocene age unconsolidated and semi-consolidated valley fill materials (alluvium and alluvial fans). The sediments are a combination of gravels, sands, silts, and clays which overlay the Santa Clara Formation. The Santa Clara Formation is of Pliocene age and generally of fluviatile origin with an estimated maximum thickness of 1,800 feet. The overlying alluvium deposits include old alluvium, young alluvium, and alluvial fans ranging in age from Plio-Pleistocene age to Holocene age. Alluvium deposits can range in thickness from 3 to 125 feet and generally provide adequate yields in wells up to 100 feet deep. The operational storage capacity of the Llagas subbasin is estimated to be 150,000 acre-feet (DWR Bulletin 118).

According the State Water Resources Control Board's (SWRCB) GeoTracker website, groundwater was measured at an approximate depth of 35 feet below ground surface (bgs) in 2009 at a property located approximately 200 feet east of the Project Site. The groundwater flow direction at the Project Site is anticipated to be to the south-southeast. Additionally, Santa Clara Water District historical groundwater elevation data estimates depth to first groundwater ranges between 10 and 30 feet bgs, in the vicinity of the Project Site. The historical data is representative of the shallowest groundwater ever measured for the area as of 2003.

It should be noted that regional groundwater pumping associated with agricultural production activities may influence groundwater depths and flow direction at various times of the year. Depending on the proximity of nearby wells, actual groundwater depths at the site may vary significantly from those noted.

# 3.0 SOIL MANAGEMENT ACTIVITIES

## 3.1 SOIL EXCAVATION

Soil excavation activities were completed in accordance with the Padre document titled, *Soil Management Plan for Arsenic Impacted Soil, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California,* dated June 2019.

The soil excavation and stockpiling activities were performed at the Project Site on July 9, 2019, July 10, 2019, and July 25, 2019. Soil bin off-haul activities were performed on July 25, 2019 through July 26, 2019. The soil removal activities were performed by PARC Environmental (PARC) located in Fresno, California. PARC is a California-licensed contractor (License No. 501913) with a Hazardous Substances Removal certificate. Additionally, PARC provided off haul services and operates under Hazardous Waste Transported Registration Number 2908.

PARC, under the oversight of Padre, implemented the SMP, which consisted of the excavation and off-site disposal of arsenic-impacted soil. Based on the data presented in the PEA, the extent of arsenic impacted soil (above the cleanup goals) consisted of approximately 95 CY located in the northeast portion of the Project Site. Each excavated area extended vertically to an approximate depth of 1-foot. The planned excavation areas are presented on **Plate 3-1**.

The excavated soil was temporarily stored in 20 CY bins which were covered and locked pending soil profiling and transport to the selected disposal facility. Section 4.3 discusses the transportation and disposal of the soil bins to the landfill facility and references the manifests and weight tickets.

The site-specific health and safety plan (HSP) presented in Appendix B of the SMP was implemented during soil management activities. There were no deviations from the HSP during the removal action implementation.

### 3.1.1 Soil Bins

Excavated soil was stored in 20 CY bins within the exclusion zone. The soil bins were covered and locked at the end of each workday. A total of seven soil bins were used for the temporary storage of excavated soil. One soil sample was collected from each bin and composited by the analytical laboratory into two, three-point composite samples for waste characterization and acceptance to the appropriate landfill facility.

## 3.2 CONFIRMATION SOIL SAMPLING

Upon the completion of the soil excavation activities, confirmation soil samples were collected by Padre for chemical analyses. Confirmation soil samples were collected when the extent of planned excavation activities had been completed. Soil samples were collected in 2-inch by 6-inch stainless steel sample sleeves with plastic end caps. The sample containers were labeled and placed in a sample cooler with ice for subsequent transport to the offsite analytical laboratory under strict chain-of custody documentation. Non-dedicated sampling equipment was decontaminated prior to and between each sample location, as described in the SMP.

Soil samples were collected from the bottom and sidewalls of the excavation area. Sampling of the excavation bottom was conducted at a frequency of approximately one sample per every 250 square feet. Sampling of the excavation sidewalls was conducted at a frequency of approximately one sample per every 20 to 25 linear feet. Sidewall soil samples were collected at a depth of 6 to 8-inches from the top edge of the excavation. The locations of the confirmation soil samples are presented in Section 4.1.

Collected soil samples were submitted by Padre to a California certified laboratory under chain-of-custody documentation to be chemically analyzed for the presence of arsenic by U.S. EPA Method 6020. The results of the confirmation soil samples are discussed in Section 4.1.

## 3.3 WASTE PROFILE SAMPLING

To profile the soils for off-site disposal, one soil sample was collected from each bin and composited by the analytical laboratory into two, three-point composite samples (SB-1, -2, -3 and SB-4, -5, -6). The sampling frequency was confirmed and approved by the disposal facility. Collected soil samples were submitted to a state-certified laboratory to be chemically analyzed for:

- OCPs by U.S. EPA Method 8081A;
- CAM 17 Metals by U.S. EPA 6010/7000 series;
- PCBs by U.S. EPA Method 8082;
- Total petroleum hydrocarbons (TPH) by U.S. EPA Method 8015M;
- Volatile organic compounds (VOCs) by U.S. EPA Method 8260; and
- Semi-VOCs by U.S. EPA Method 8270.

It should be noted that PCBs, TPH, VOCs, and SVOCs were not identified as COC at the Project Site. The analyses of soil stockpile samples for these constituents was performed to satisfy the landfill facility profile requirements.

Based on the laboratory analytical results, all of the soil was characterized as a non-hazardous waste. Waste profile sheets were completed and submitted to the appropriate landfill for acceptance for disposal.

## 3.4 BACKFILL AND RESTORATION

Due to the relatively shallow nature of the excavation, the area will be regraded to per the specifications of the planned modernization project. According to the District and their construction contractor (Flint Builders, San Jose, Ca.), no import fill material is required.

## 3.5 AIR MONITORING

During the course of soil removal activities dust levels were monitored by Padre at one location upwind of the work zone, within the work zone, and at two locations downwind of the work zone, including one of the monitoring units being located at the fence line closest to the nearest residences to the Project Site.

Dust levels were monitored using particulate meters (Thermo Scientific pdr-1500). The particulate meters were operated in data logging mode and used to measure and record real-time airborne dust concentrations. The locations of the meters were determined each day by the Site Safety Manager based on the location of the excavation and the daily prevailing wind direction.

The particulate meters were checked at approximate 15 to 20-minute intervals during soil excavation and removal activities. Each time the meters were checked, the difference between the average upwind dust concentration, and the average downwind dust concentrations were compared to the ambient air quality standard of 50 micrograms per cubic meter ($\mu g/m^3$) for an 8-hour workday; 40-hour workweek time weighted average (TWA) for respirable dust. Copies of the air monitoring field sheets are presented in **Appendix B.** The data in Appendix C show that the procedures used to minimize airborne dust related to soil moving activities were sufficient to maintain the 50 $\mu g/m^3$ ambient air quality standard and to protect human health.

### 3.5.1 Dust Control

The following engineering controls were used to minimize the generation of airborne dust during excavation and off-haul activities at the Project Site:

- Spraying water during excavation and loading activities at the specific location of activity;
- Limiting vehicle speeds to 5 miles per hour on unpaved portions of the Project Site;
- Minimizing drop heights of soil during loading/unloading activities;
- Covering soil transportation trucks and trailers with heavy tarps; and
- Covering stockpiled soil with plastic sheeting.

Ambient weather conditions including temperature, relative humidity, wind speed, and wind direction were monitored onsite during soil moving activities using a portable weather meter.

## 3.6 STORM WATER DISCHARGE MANAGEMENT

The State Water Resources Control Board (SWRCB), as part of the National Pollutant Discharge Elimination System (NPDES), has adopted a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) to address discharges of storm water runoff from construction projects that encompass one acre or more in total acreage of soil disturbances. Construction activities subject to the General Permit include demolition, clearing, grading, excavation, soil stockpiling, material storing, onsite staging, offsite staging, and other land disturbance activities.

The total acreage of the areas disturbed during the removal action was less than 1 acre. Therefore, an NPDES General Permit was not required.

Although a SWPPP was not required for this project, best management practices (BMPs) were implemented to reduce or eliminate sediment and other pollutants from entering existing storm water drains located in adjacent streets. Where necessary, the following BMPs were implemented:

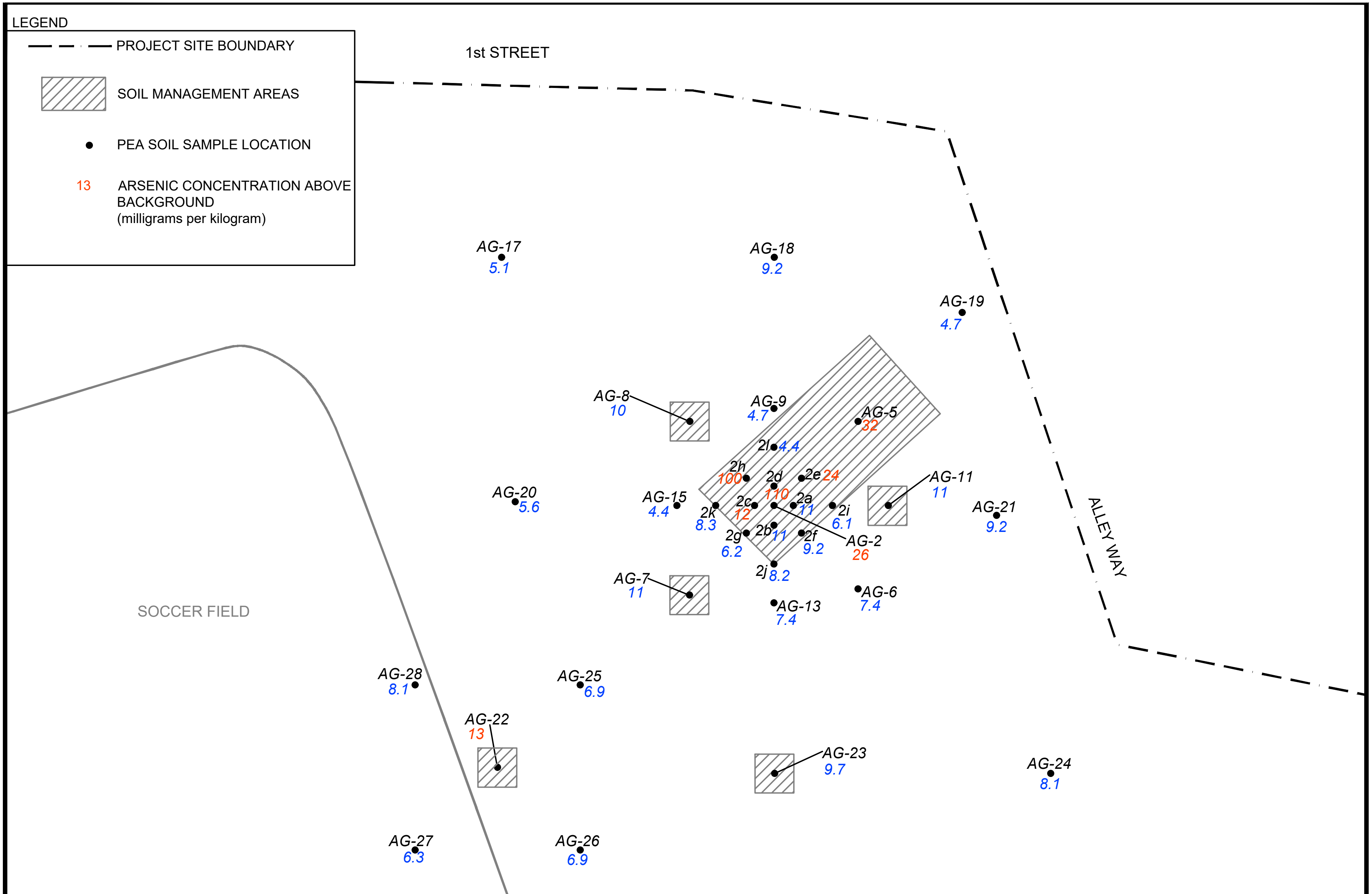
- Control of runoff from stockpiled soil by covering each pile with plastic sheeting and surrounding the base of each stockpile with straw wattles;
- Stabilized construction entrance/exit with truck tracking controls; and
- Temporary protection of storm drain inlets with filter fabric and sand/gravel bag barriers; and

There were no discharges of sediment and/or other pollutants to storm water drains during the implementation of the removal action.

## 3.7 VARIANCES

On July 25, 2019 approximately 4 CY (in situ) of additional soil was excavated at the Project Site. The additional soil excavation activities were completed based on the results of soil confirmation sample *CS-6-SW* exceeding the background level for arsenic. The over-excavation activities and additional confirmation soil sample collection and chemical analyses were performed in accordance with SMP. Refer to Section 4.1 which references the locations and results of the confirmation soil sample results.

The over-excavation activities resulted in placing the soil in a separate soil bin. However, based on the volume of soil excavated (~ 4 CY) additional characterization for waste disposal was not required.




**padre** associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

0 35 FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 8/1/19 | AC | AJK |

PLATE 3-1

**ARSENIC**
**SOIL MANAGEMENT AREAS**

# 4.0 FINDINGS

## 4.1 CONFIRMATON SAMPLE RESULTS

Confirmation soil sample locations are presented on **Plate 4-1**. Confirmation soil results are summarized below:

**Arsenic**

The results of confirmation soil samples chemically analyzed for the presence of arsenic are summarized in **Table 4-1** and below:

- Arsenic was identified at concentrations ranging from 5.9 to 8.7 mg/kg.

Copies of the analytical laboratory reports are presented in **Appendix C**.

## 4.2 WASTE PROFILE SAMPLE RESULTS

Seven, 20 cubic-yard soil bins were filled with excavated soil during the course of the soil management activities. One soil sample was collected from each bin and composited by the analytical laboratory into two, three-point composite samples to be chemically analyzed for chemicals of concern. The laboratory analytical results for OCPs in stockpiles are summarized in **Table 4-2**; the analytical results for CAM 17 Metals in stockpiles are summarized in **Table 4-3**; the analytical results for TPH, VOCs, and SVOCs in stockpiles are summarized in **Table 4-4**; and the analytical results for PCBs in stockpiles are summarized in **Table 4-5**. Copies of the analytical laboratory reports are presented in **Appendix C**.

Chromium was identified at a concentration exceeding 50 mg/kg in both composite soil samples SB-1, 2, 3 and SB-4, 5, 6. Therefore, these composite soil samples were further analyzed for chromium using the STLC WET by EPA 6000/7000 series method. Based on laboratory results, soluble chromium was identified at concentrations of 0.17 and 0.12 mg/L for soil bin composite samples SB-1, 2, 3 and SB-4, 5, 6, respectively.

Based on the laboratory analytical results, the waste soil was characterized as a non-hazardous waste. Waste profile sheets were completed and submitted to Waste Connections' John Smith Landfill facility located in Hollister, California for waste acceptance.

## 4.3 WASTE DISPOSAL

From July 24, 2019 through July 26, 2019, the soil bins were loaded and transported by PARC to John Smith Landfill located at 2650 John Smith Road in Hollister, San Benito County, California. John Smith Landfill operates under Facility Number: 35-AA-0001. A copy of the Solid Waste Facility Permit is presented in **Appendix D**.

According to weight tickets, approximately 128 tons of soil classified as non-hazardous waste solid was disposed of at the landfill facility. Copies of the trucking weigh tickets are included in **Appendix D**.

## 4.4 QA/QC PROGRAM

### 4.4.1 Equipment Blank

Distilled water was used as rinseate for decontaminating sampling equipment. The equipment blank sample was collected by carefully pouring rinseate water over and through recently cleaned equipment and collected directly into the appropriate sample container.

For each confirmation soil sampling event, one equipment blank sample was collected and chemically analyzed for arsenic by U.S. EPA Method 200.8. The analytical results of the laboratory analyses are summarized below:

- The laboratory analyses did not identify the presence of arsenic above the respective analytical reporting limit. Therefore, the data is considered valid.

### 4.4.2 Field Blank

For each confirmation soil sampling event, one equipment blank sample was collected and chemically analyzed for arsenic by U.S. EPA Method 200.8. The analytical results of the laboratory analyses are summarized below:

- The laboratory analyses did not identify the presence of arsenic at or above the respective analytical reporting limits. Therefore, the data is considered valid.

### 4.4.3 Laboratory QA/QC and Data Validation

McCampbell Analytical, Inc. (McCampbell) located in Pittsburg, California provided the required chemical analyses for soil and water samples collected at the Project Site. McCampbell is certified (No. 1644) by the State of California Environmental Laboratory Accreditation Program (ELAP) Branch to provide the required chemical analyses.

A cover letter with the signature of the laboratory director accompanies every laboratory report received for this project. According to the lab director, samples were analyzed utilizing EPA or other ELAP approved methodologies, and that the results are in compliance both technically and for completeness. The data quality objectives (DQO) met by the analytical laboratory for this project were level II.

### 4.4.4 Precision

Precision measures the reproducibility of repetitive measurements. It is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the sample process under similar conditions.

Analytical precision is a measurement of the variability associated with duplicate or replicate analyses of the same sample in the laboratory and is determined by analysis of laboratory quality control samples such as duplicate control samples (LCSD or DCS), matrix spike duplicates (MSD), or sample duplicates. If the recoveries of analytes in the specified control samples are comparable within established control limits, then precision is within limits.

Total precision is a measurement of the variability associated with the entire sampling and analytical process. It is determined by analysis of duplicate or replicate field samples, and measures variability introduced by other than laboratory and field operations. Field duplicate samples are analyzed to assess field and analytical precision.

Duplicate results are assessed using the relative percent difference (RPD) between duplicate measurements. If the RPD for laboratory quality control samples exceeds 30 percent, data shall be qualified as described in the applicable validation procedure. If the RPD between primary and duplicate field samples exceeds 100 percent for soil, data shall be qualified as described in the applicable validation procedure. The RPD shall be calculated as follows:

$$\% \text{ RPD} = 100\% \times \text{Abs} \frac{(X_2 - X_1)}{\text{Avg } (X_2 + X_1)}$$

Where $X_2$ is the larger of the two observed values, and $X_1$ is the smaller of the two observed values.

For the confirmation soil samples, four soil samples were chemically analyzed as duplicates for arsenic. The RPDs for the detected OCPs are acceptable.

### 4.4.5 Accuracy

Accuracy of laboratory analyses was by laboratory control samples, surrogate standards, matrix spikes, and initial and continuing calibrations of instruments. Laboratory accuracy is expressed as the percent recovery (%R). Accuracy limits are statistically generated by the laboratory or required by specified EPA methods. If the percent recovery is determined to be outside of acceptance criteria, the data was qualified. The percent recovery was calculated as follows:

$$\%R = 100 \times \frac{X_s - X}{T}$$

where $X_s$ is the measured value of the spike sample, X is measured value of the unspiked sample, and T is the true value of the spiked solution.

In general recoveries were within acceptance limits; however, if recoveries were outside of acceptance criteria, the data was qualified by the analytical laboratory.

### 4.4.6 Representativeness

Representativeness is the degree to which data accurately and precisely represent selected characteristics of the media sampled. Representativeness of data collection is addressed by the preparation of sampling and analyses programs. The soil sampling program performed as part of the removal action had sufficient and the proper number of sample locations; incorporated the proper sampling methodologies; utilized the proper sample collection techniques and decontamination procedures; utilized the proper laboratory methods to prepare and analyze soil/water samples; and performed proper field and laboratory QA/QC protocols.

### 4.4.7 Completeness

Completeness is the amount of valid data obtained compared to the amount that was expected under ideal conditions. The number of valid results divided by the number of possible results, expressed as a percentage, determines the completeness of the data set. The objective for completeness is to recover at least 90 percent of the planned data to support field efforts. The formula for is completeness is presented below:

$$\% \text{ Completeness} = 100 \times \frac{\textit{number of valid results}}{\textit{number of expected results}}$$

The analytical data for the soil and water samples is 100% complete.

### 4.4.8 Comparability

Comparability is an expression of confidence with which one data set can be compared to another data set. The objective of comparability is to ensure that data developed during the removal action are comparable to site knowledge and adequately address applicable criteria or standards established by DTSC or the U.S. EPA. The laboratory methods that were utilized during this removal action investigation are consistent with the current standards of practice as approved by the DTSC and the USEPA.

### 4.4.9 Reporting Limits

Laboratory detection limits for the proposed analytical methods were acceptable for the identified COC (arsenic).

### 4.4.10 Chain-of-Custody

Completed chain-of-custody forms were provided with the samples upon delivery to the analytical laboratory. Copies of the chain-of-custody forms were included in the final analytical report. No discrepancies were noted by the analytical laboratory.

### 4.4.11 Holding Time(s)

All analyses requested for McCampbell Work Order Numbers were performed within the method-specified holding times.

## Table 4-1. Confirmation Soil Results for Arsenic (results in mg/kg)

| Sample Identification | Date Collected | Arsenic (mg/kg) |
|---|---|---|
| CS-1-SW | 7-10-19 | **4.4** |
| CS-2-SW | 7-10-19 | **4.2** |
| CS-3-SW | 7-10-19 | **3.7** |
| CS-4-SW | 7-10-19 | **5.1** |
| CS-5-SW | 7-10-19 | **4.2** |
| CS-5-SW DUPE | 7-10-19 | **4.7** |
| CS-6-SW* | 7-10-19 | **18** |
| CS-6-SW (A) | 7-25-19 | **4.8** |
| CS-7-SW | 7-10-19 | **3.7** |
| CS-8-SW | 7-10-19 | **4.1** |
| CS-9-SW | 7-10-19 | **4.0** |
| CS-10-SW | 7-10-19 | **4.6** |
| CS-11-B | 7-10-19 | **4.0** |
| CS-12-B | 7-10-19 | **4.0** |
| CS-13-B | 7-10-19 | **3.8** |
| CS-14-B | 7-10-19 | **4.0** |
| CS-15-B | 7-10-19 | **3.2** |
| CS-15-B DUPE | 7-10-19 | **3.6** |
| CS-16-B | 7-10-19 | **3.8** |
| CS-17-SW | 7-10-19 | **4.0** |
| CS-18-SW | 7-10-19 | **3.7** |
| CS-19-SW | 7-10-19 | **3.9** |
| CS-20-SW | 7-10-19 | **3.3** |
| CS-21-B | 7-10-19 | **3.7** |
| CS-22-SW | 7-10-19 | **7.4** |
| CS-23-SW | 7-10-19 | **4.3** |
| U.S. EPA Method | | 6020 |
| Screening Level | | AB |

**Table 4-1. Confirmation Soil Results for Arsenic (results in mg/kg)**

| Sample Identification | Date Collected | Arsenic (mg/kg) |
|---|---|---|
| CS-24-SW | 7-10-19 | **4.2** |
| CS-25-SW | 7-10-19 | **4.1** |
| CS-25-SW DUPE | 7-10-19 | **4.1** |
| CS-26-B | 7-10-19 | **4.1** |
| CS-27-SW | 7-10-19 | **4.4** |
| CS-28-SW | 7-10-19 | **4.3** |
| CS-29-SW | 7-10-19 | **4.9** |
| CS-30-SW | 7-10-19 | **4.2** |
| CS-31-B | 7-10-19 | **4.7** |
| CS-32-SW | 7-10-19 | **5.7** |
| CS-33-SW | 7-10-19 | **4.7** |
| CS-34-SW | 7-10-19 | **4.1** |
| CS-35-SW | 7-10-19 | **4.4** |
| CS-35-SW DUPE | 7-10-19 | **3.5** |
| CS-36-B | 7-10-19 | **4.7** |
| CS-37-SW | 7-10-19 | **4.0** |
| CS-38-SW | 7-10-19 | **5.5** |
| CS-39-SW | 7-10-19 | **3.6** |
| CS-40-SW | 7-10-19 | **4.3** |
| CS-41-B | 7-10-19 | **4.1** |
| U.S. EPA Method | | 6020 |
| Screening Level | | AB |

Notes: mg/kg – milligrams per kilogram
***** - confirmation soil sample removed during over-excavation
AB – ambient background concentration of 11 mg/kg

**Table 4-2: Soil Bin Results - OCPs**
**(results in µg/kg)**

| Sample Identification | Aldrin | (a,b,d)-BHC | Gamma-BHC | Chlordane-technical | DDD | DDE | DDT | Dieldrin | Endosulfan I | Endosulfan II | Endosulfan Sulfate | Endrin | Endrin Aldehyde | Endrin Ketone | Heptachlor | Heptachlor Epoxide | Methoxychlor | Hexachloro benzene | Hexachloro cyclobpentadiene | Toxaphene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-1, 2, 3 | <1.0 | <1.0 | <1.0 | <25 | <1.0 | **53** | **19** | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <20 | <50 |
| SB-4, 5, 6 | <2.0 | <2.0 | <2.0 | <50 | <2.0 | **24** | **6.2** | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <20 | <40 | <100 |
| TTLC (µg/kg) | 1,400 | NE | 4,000 | 2,500 | 1,000 | 1,000 | 1,000 | 8,000 | NE | NE | NE | 200 | NE | NE | 4,700 | 4,700 | 100,000 | NE | NE | 5,000 |
| STLC (mg/L) | 0.14 | NE | 0.4 | 0.25 | 0.1 | 0.1 | 0.1 | 0.8 | NE | NE | NE | 0.02 | NE | NE | 0.47 | 0.47 | 10 | NE | NE | 0.5 |
| TCLP (mg/L) | NE | NE | 0.4 | 0.03 | NE | NE | NE | NE | NE | NE | NE | 0.02 | NE | NE | 0.008 | 0.008 | 10 | 0.13 | NE | 0.5 |

Notes:
OCPs – Organochlorine pesticides
µg/kg – micrograms per kilogram
mg/L – milligrams per liter
-- - not analyzed
TTLC – Total Threshold Limit Concentration
STLC – Soluble Threshold Limit Concentration
TCLP – Toxicity Characteristic Leaching Procedure
NE – not established

## Table 4-3: Soil Bin Results – CAM 17 Metals (results in mg/kg)

| Sample Identification | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Chromium STLC | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-1, 2, 3 | **0.58** | **8.8** | **200** | **0.60** | <0.25 | **76** | **0.17** | **15** | **36** | **18** | <0.05 | **0.76** | **85** | <0.50 | <0.50 | <0.50 | **79** | **77** |
| SB-4, 5, 6 | <0.50 | **7.2** | **160** | **0.53** | **0.27** | **58** | **0.12** | **12** | **29** | **11** | <0.05 | **0.64** | **63** | <0.50 | <0.50 | <0.50 | **80** | **68** |
| TTLC (mg/kg) | 500 | 500 | 10,000 | 75 | 100 | 2,500 | -- | 8,000 | 2,500 | 1,000 | 20 | 3,500 | 2,000 | 100 | 500 | 700 | 2,400 | 5,000 |
| STLC (mg/L) | 15 | 5 | 100 | 0.75 | 1 | 5 | 5 | 80 | 25 | 5 | 0.2 | 350 | 20 | 1 | 5 | 7 | 24 | 250 |
| TCLP (mg/L) | NE | 5 | 100 | NE | 1 | 5 | 5 | NE | NE | 5 | NE | NE | NE | 1 | 5 | NE | NE | NE |

Notes:

TTLC – Total Threshold Limit Concentration
STLC – Soluble Threshold Limit Concentration
TCLP – Toxicity Characteristic Leaching Potential
mg/L – milligrams per liter
NE – not established

**Table 4-4: Soil Bin Results - TPH, SVOCs and VOCs**
**(results in mg/kg)**

| Sample Identification | TPH EPA Method 8015M | | | SVOCs EPA Method 8270C | | | | | | | | | | | VOCs EPA Method 8260B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TPH - Gasoline ($C_6$ – $C_{12}$) | TPH - Diesel ($C_{10}$-$C_{23}$) | TPH - Motor Oil ($C_{18}$-$C_{36}$) | Benzo (a) anthracene | Benzo (a) pyrene | Benzo (b) fluoranthene | Benzo (g,h,i) perylene | Benzo (k) fluoranthene | Biz (2-ethylhexyl) Phthalate | Chrysene | Di-n-butyl Phthalate | Fluoranthene | Indeno (1,2,3-cd) pyrene | Pyrene | All VOCs |
| SB-1, 2, 3 | <1.0 | <1.0 | <5.0 | **0.0057** | **0.0050** | **0.0036** | **0.0079** | **0.0027** | **0.012** | **0.0038** | **0.0044** | **0.0046** | **0.0048** | **0.0049** | ND |
| SB-4, 5, 6 | <1.0 | <1.0 | <5.0 | **0.0057** | **0.0041** | **0.0031** | **0.0055** | **0.0026** | **0.0094** | **0.0036** | **0.0034** | **0.0045** | **0.0033** | **0.0047** | ND |
| TTLC (mg/L) | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NA |
| STLC (mg/L) | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NA |

**Notes:**

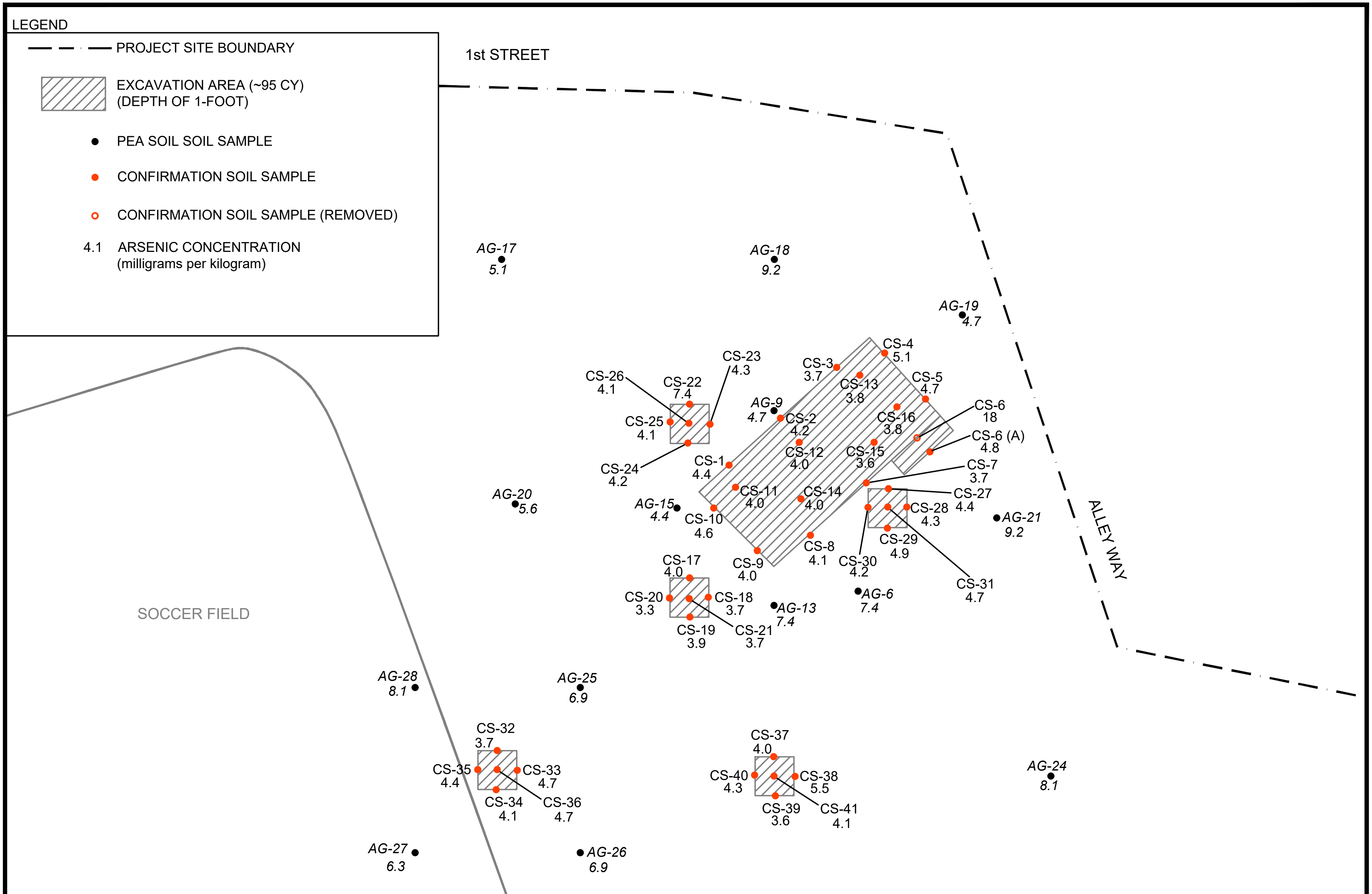
TPH – Total Petroleum Hydrocarbons
SVOC – Semi-Volatile Organic Compound
VOC – Volatile Organic Compound
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
TTLC – Toxicity Characteristic Limit Concentration
STLC – Soluble Threshold Limit Concentration
ND – None detected
NE – not established
NA – not applicable

## Table 4-5: Soil Bin Results - PCBs
## (results in mg/kg)

| Sample Identification | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 | PCBs Total |
|---|---|---|---|---|---|---|---|---|
| SB-1, 2, 3 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| SB-4, 5, 6 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| TTLC (mg/kg) | NE | NE | NE | NE | NE | NE | NE | NE |

Notes:

PCBs – Polychlorinated biphenyls
mg/kg – milligrams per kilogram
TTLC – Total Threshold Limit Concentration
NE – not established

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0 35
FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 8/21/19 | AC | AJK |

PLATE 4-1

**CONFIRMATION SOIL SAMPLES**

## 5.0 ARSENIC EVALUATION

Arsenic concentrations ranged from 3.4 to 110 mg/kg in soil samples collected from the Project Site. A graphical evaluation was completed by creating normality plots using the entire arsenic data set (48 samples) for the Project Site in accordance with the DTSC guidance document titled *Arsenic Strategies – Determination of Arsenic Remediation Development of Arsenic Cleanup Goals* dated January 16, 2009. The normality plots were created using both non-transformed and log-transformed arsenic data. Additionally, the data set was plotted from least value to highest value as the cumulative percent of samples. The inflection point for the non-transformed data indicates a background arsenic concentration of 11 mg/kg, and the log transformed data indicates a background concentration of approximately 11.7 mg/kg. Copies of the normality plots are presented in **Appendix E**.

Additionally, a statistical evaluation was performed as described in DTSC's guidance. The results of the statistical evaluation are presented below.

**Table 5-1: Descriptive Statistics**

| DESCRIPTIVE STATISTIC | VALUE |
|---|---|
| Number of samples | 48 |
| Minimum detected value | 3.4 |
| Maximum detected value | 110 |
| Mean | 12.12 |
| First quartile (Q1) | 4.7 |
| Median | 6.55 |
| Third Quartile (Q3) | 9.33 |
| $95^{th}$ percentile | 29.9 |
| $98^{th}$ percentile | 100.6 |
| 95% UCL of mean | 24.95 |
| Standard deviation | 20.4 |

Using the statistical evaluation a quartile analysis was performed to determine the upper bound of the site-specific arsenic concentrations. The upper bound was calculated to be 16.28 mg/kg (see calculation below), and therefore, concentrations greater than the upper bound value were eliminated from the data set. A summary table of the statistical re-evaluation of the data set is presented below:

**Table 5-2: Descriptive Statistics (outliers removed)**

| DESCRIPTIVE STATISTIC | VALUE |
|---|---|
| Number of samples | 43 |
| Minimum detected value | 3.4 |
| Maximum detected value | 13 |
| Mean | 6.79 |
| Standard deviation | 2.58 |
| Upper Bound | 16.28 |
| $98^{th}$ percentile | 12.18 |
| $95^{th}$ percentile | **11** |

Upper bound outlier calculation:
Fourth spread (*Fs*) = (Q3 – Q1) = 4.63
Upper bound value = Q3 + [1.5 x *Fs*] = 16.28

The quartile evaluation indicates 11 mg/kg as an appropriate background concentration for the Project Site which corresponds to the $95^{th}$ percentile of the adjusted data set.

Based on the various evaluations of the arsenic data set, 11 mg/kg was considered to be an appropriate remediation goal for the Project Site. The results of soil confirmation samples and the remaining PEA soil samples indicates that the remediation goal has been met and arsenic in soil at the Project Site is not considered a COC.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The soil management activities consisted of the excavation, temporary storing (soil bins), waste profiling and off-site disposal of approximately 95 cubic-yards of soil containing identified arsenic concentrations above an estimated remediation goal of 11 mg/kg. The remediation goal was based on a graphical and statistical evaluation of the arsenic data set prior to implementation of the SMP. Confirmation soil samples were collected from the bottom and side walls of the excavation areas and were chemically analyzed by the analytical laboratory for arsenic.

The SMP field activities were initially implemented on July 9, 2019 and completed on July 26, 2019. Approximately 128 tons of soil classified as a non-hazardous waste solid was transported to Waste Connections' John Smith Landfill facility located in Hollister, San Benito County, California.

At the completion of the SMP, confirmation soil sample results indicate that the concentrations of arsenic in soil remaining at the Project Site range from 3.3 to 9.2 mg/kg. The 95% upper confidence level (UCL) for arsenic in soil at the Project Site was calculated to be 5.09 mg/kg. Therefore, arsenic is not considered a COC and further remediation for arsenic in soil at the Project Site is not warranted.

## 7.0 REFERENCES

Bay Area Air Quality Management District.

California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control (DTSC), *Preliminary Environmental Assessment Guidance Manual*, January 1994, Interim Final – Final October 2013.

CalEPA, DTSC – Human and Ecological Risk Office (HERO), *Human Health Risk Assessment Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*, April 2019 – Interim Update.

CalEPA, DTSC, *Interim Guidance, Evaluation of School Sites with Potential Contamination as a Result of Lead from Lead-Based-Paint, Organochlorine Pesticides from Temiticides, and Polychlorinated Biphenyls from Electrical Transformers*, revised June 9, 2006.

CalEPA, DTSC, *Interim Guidance for Sampling Agricultural Properties (Third Revision)*, dated April 30, 2008.

CalEPA, DTSC, *Arsenic Strategies, Determination of Arsenic Remediation, Development of Arsenic Cleanup Goals*, January 16, 2009.

Padre Associates, Inc., *Phase I Environmental Site Assessment and Title V Environmental Hazards Review, Brownell Middle School Site Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California*, May 2018.

Padre Associates, Inc., *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305)*, May 2019 (revised July 2019).

Padre Associates, Inc., *Soil Management Plan for Arsenic Impacted Soil, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California*, June 2019.

# APPENDIX A
# SOIL MANAGEMENT PLAN

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# SOIL MANAGEMENT PLAN

# FOR

# ARSENIC IMPACTED SOIL

# BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT
# 7800 CARMEL STREET
# GILROY, SANTA CLARA COUNTY, CALIFORNIA

Prepared for:

GILROY UNIFIED SCHOOL DISTRICT

JUNE 2019

**SOIL MANAGEMENT PLAN FOR ARSENIC IMPACTED SOIL**
**BROWNELL MIDDLE SCHOOL PROJECT**
**7800 CARMEL STREET**
**GILROY, SANTA CLARA COUNTY, CALIFORNIA**

| | |
|---|---|
| **Property Owner:** | Gilroy Unified School District<br>210 Swanston Lane<br>Gilroy, California 95020 |
| Contact: | Paul Nadeau, Dir. Facilities Planning & Management<br>Gilroy Unified School District<br>(669) 261-5901, paul.nadeau@gilroyunified.org |
| **Modernization Contractor:** | Flint Builders Inc.<br>401 Derek Place<br>Roseville, California 95678 |
| Contact: | Doug Gammelgard, Superintendent<br>(916) 827-5188, dgammelgard@flintbuilders.com |
| **Removal Contractor:** | PARC Environmental<br>2864 E. Dorothy Avenue<br>Fresno, California 93706 |
| Contact: | Matt Berube, Project Manager<br>(559) 999-5430, mberube@parcenvironmental.com |
| **Environmental Consultant:** | Padre Associates, Inc.<br>350 University Avenue, Suite 250<br>Sacramento, California 95825 |
| Contact: | Alan Klein, Project Manager<br>(916) 947-4831, aklein@padreinc.com |

**SMP Prepared by: Padre Associates, Inc.**

| | |
|---|---|
| Alan Klein, R.E.P.A., C.P.E.S.C., QSD/QSP<br>Senior Environmental Scientist | Alan Churchill, P.G. #9378<br>Project Geologist |

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## TABLES

## PLATES



## APPENDICES

# SOIL MANAGEMENT PLAN FOR ARSENIC IMPACTED SOIL
## Brownell Middle School Modernization Project
## 7800 Carmel Street
## Gilroy, Santa Clara County, California

## 1.0 INTRODUCTION

Padre Associates, Inc. (Padre), on behalf of Gilroy Unified School District (District), has prepared this Soil Management Plan (SMP) for arsenic impacted soil, for the Brownell Middle School Modernization Project, 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site). The Project Site is identified on **Plate 1-1**: Site Location and **Plate 1-2**: Site Map.

### 1.1 PROJECT DESCRIPTION

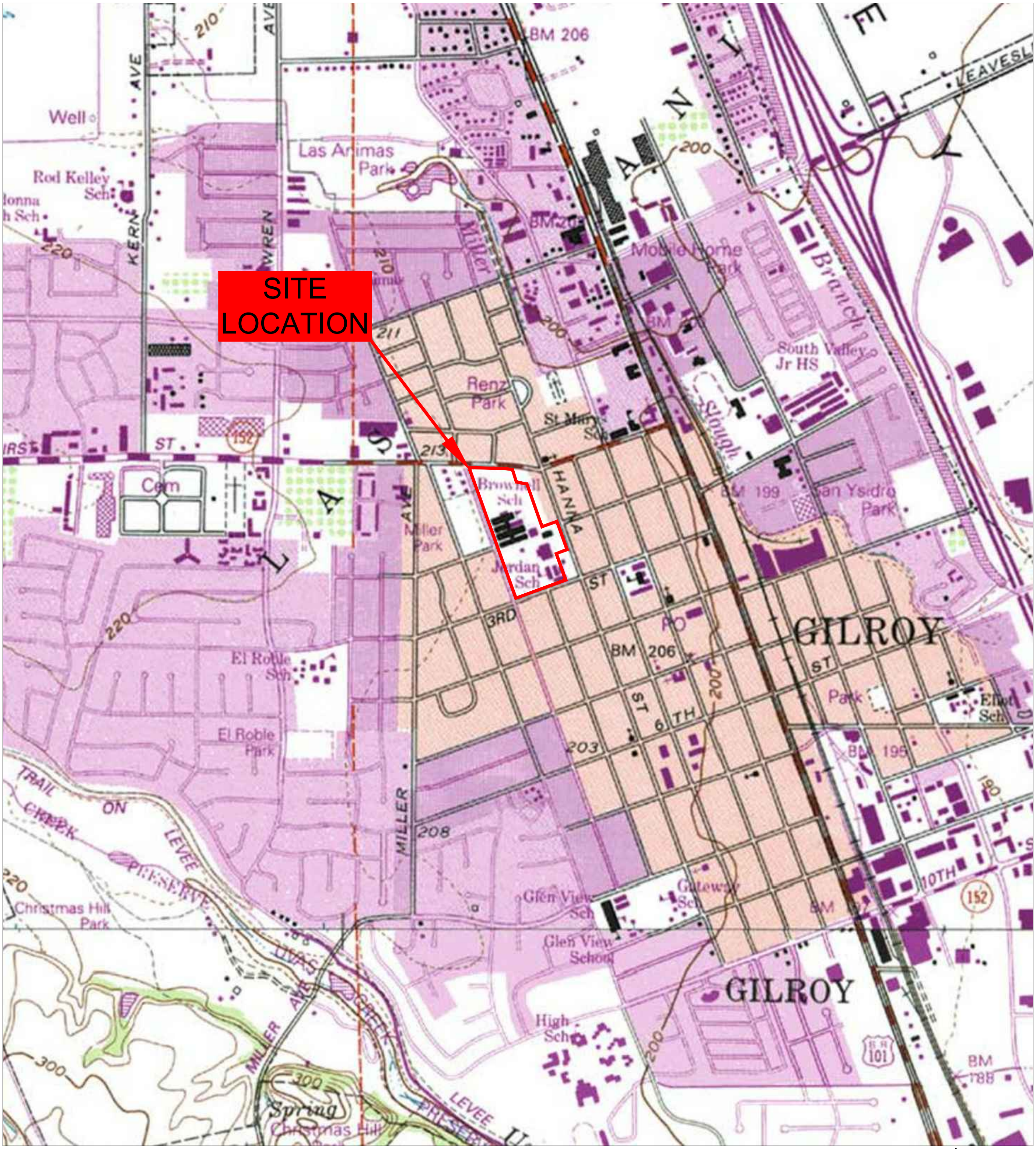
Padre completed a Preliminary Environmental Assessment (PEA) at the Project Site in May 2019. The PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these chemicals of concern (COC), was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site will be addressed initially as part of this SMP, and the remaining COCs (pesticides, lead, and PCBs) will be addressed at a later date as part of the second phase of modernization (Summer 2020). The volume of arsenic impacted soil was calculated to be approximately 65 cubic-yards.

### 1.2 SOIL MANAGEMENT PLAN OBJECTIVES

The SMP objectives have been established to be protective of human health and the environment. The objectives include:

- Minimize exposure of humans to chemicals of concern (COC) in soil through the inhalation, dermal absorption, and ingestion exposure pathways;
- Minimize potential for migration of COC from soil to other media;
- Establish Cleanup Goals (CGs) equivalent to estimated ambient background concentrations for the Project Site area; and
- Establish post-soil management site conditions that do not pose a significant risk to human health, safety or the environment.




U.S.G.S. 7.5 MINUTE QUADRANGLE
GILROY, 1955 (Photorevised 1993)

0 1500'
SCALE

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BROWNELL MIDDLE SCHOOL
GILROY UNIFIED SCHOOL DISTRICT
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 5/31/19 | AC | AJK |

PLATE 1-1

**SITE LOCATION**


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GOOGLE EARTH IMAGERY (05/18)

0 250
FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 5/31/19 | AC | AJK |

PLATE 1-2

**SITE MAP**

# 2.0 BACKGROUND

This SMP is based on the results of the following documents prepared by Padre:

- *Phase I Environmental Site Assessment and Title V Environmental Hazards Evaluation, Brownell Middle School Site Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California, May 2018; and*
- *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305), May 2019.*

The PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these COCs, was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site will be addressed initially as part of this SMP, and the remaining COCs (pesticides, lead, PCBs) will be addressed at a later date as part of the second phase of modernization (Summer 2020).

## 2.1 SITE DESCRIPTION AND LOCATION

The Project Site consists of approximately 17.5 acres of land situated in the central portion of the City of Gilroy and is operated as Brownell Middle School. According to a review of historical documentation, portions of the Project Site have been used as a public-school site since the 1920s with the current Brownell Middle School being constructed in the 1960s. Additionally, the northern portion of the Project Site appears to have been used for agricultural purposes during the late 1930s to early 1940s.

The Project Site is bordered to the north by First Street, beyond which is both commercial and residential property; to the east by Hanna Street, beyond which is residential property; to the south by Third Street, beyond which is a residential property; and to the west by Carmel Street, beyond which is Miller Park as well as a residential property.

### 2.1.1 Site Name, Address and Size

| | |
|---|---|
| Site Name: | Brownell Middle School |
| Site Address: | 7800 Carmel Street, Gilroy, CA 95020 |
| Site Size: | 17.5-acres |

### 2.1.2 Responsible Party Contact

Mr. Paul Nadeau, Director Facilities Planning & Management
Gilroy Unified School District
210 Swanston Lane, Gilroy, California 95020
(669) 261-5901

### 2.1.3 Assessor's Parcel Numbers and Map

The County of Santa Clara identifies the Project Site to include Assessor's Parcel Numbers (APN): 799-20-013 (±2.1 acres) and 799-20-015 (±15.4 acres). A copy of the Assessor's Parcel Map is presented in **Appendix A**.

### 2.1.4 Ownership

The Project Site is owned by the Gilroy Unified School District.

### 2.1.5 Township, Range, and Section

The Project Site is in Section 6, Township 11 South, Range 4 East, of the Gilroy, California USGS 7½-Minute topographic series, Quadrangle Map (1953, photorevised 1993). Approximate latitude and longitude are identified to be:

- Latitude (North): 37° 0' 41.4" (37.0115)
- Longitude (West): -121° 34' 40.08" (-121.5778)

## 2.2 SITE CONDITIONS

### 2.2.1 Topography

Based on a review of the USGS 7.5-minute topographic quadrangle – Gilroy, California (1955, photorevised 1993), the Project Site lies at an approximate elevation of 206 feet above mean sea level (msl). The Project Site is relatively level, and the general topographic gradient and drainage of the Project Site is towards the southeast. Typically, rainfall would infiltrate into the exposed surface areas, and surface drainage from excessive precipitation would be expected to drain to adjacent streets. Miller Slough is located approximately 2,000 feet east of the Project Site.

### 2.2.2 Geology

The Project Site is located within the Coast Ranges Geomorphic Province of California. The Coast Ranges stretch approximately 600 miles from the Oregon border to the Santa Ynez River and are divided into two sub-provinces: the ranges located north of San Francisco Bay and those from the San Francisco Bay south to Santa Barbara County. The northern ranges lie east of the San Andreas Fault Zone, whereas most of the southern ranges are located to the west. The province contains many elongate ranges and narrow valleys that are approximately parallel to the coast, although the coast usually shows a somewhat more northerly trend than do the ridges and valleys. Therefore, some valleys intersect the shore at acute angles and some mountains terminate abruptly at the sea (Norris and Webb, 1990).

The dominant characteristic of the Coast Ranges is its division into elongate topographic and lithographic strips underlain by discrete basement rocks that are separated by profound structural discontinuities. The pattern extends east, and probably also west onto the sea floor. On the east, concealed beneath the Central Valley, is the enigmatic boundary between the Sierra Nevada basement and the Coast Range Franciscan. Most of the boundary between the Sierran and Franciscan basement lies beneath several thousand feet of late Mesozoic and Cenozoic sedimentary rocks in the Salinas Valley. North of the city of Red Bluff, the boundary emerges as the South Fork Mountain Thrust, which separates the Klamath Mountains from the Coast Ranges.

Westward, the next major boundary is the San Andreas Fault Zone, which separates Franciscan basement from the granitic-metamorphic basement of the Salinian Block. South of Monterey, the Sur-Naciemento Fault Zone separates Salinian rocks from additional Franciscan basement to the southwest. Another boundary occurs farther west, offshore, where Franciscan basement is replaced by normal oceanic crust.

The Project Site lies within the southern Santa Clara Valley and is bounded by the Santa Cruz Mountains on the west and the Diablo Range on the east. The Santa Clara Valley is part an approximately 90-mile structural trough that includes the San Francisco Bay to the north and the San Benito Valley to the south. The Santa Clara Valley is a graben, which formed as a result of structural deformation related to the San Andreas and Hayward Faults as well as late Cenozoic orogenic processes. According to the Geologic Map of the Gilroy Quadrangle, Santa Clara County, California (Dibblee, 2005), the Project Site is underlain by Holocene-age alluvium (alluvial gravel, sand and clay of valley areas).

### 2.2.3 Soils

According to the United States Department of Agriculture, Soil Conservation Service's, *Soil Survey of Santa Clara County, California*, dated June 1958, approximately 90% of the surface soil at the Project Site consists of San Ysidro loam, 0 to 2 percent slopes, MLRA 14 and 10% of the surface soil at the Project Site consists of Pleasanton loam, 0 to 2 percent slopes, MLRA 14. San Ysidro loam consists of very deep, moderately well drained soils which formed in alluvium from sedimentary rocks. They are typically found on fan remnants and stream terraces. The native vegetation is annual grasses and forbs however, most areas have been cultivated. Typically, the surface layer is light brownish gray fine sandy loam to about 14 inches thick with few fine distinct mottles of brownish yellow. The next 14 inches are dark yellowish-brown clay, very firm, sticky and plastic. Permeability is very slow, and the available water capacity is moderately low. The runoff is slow to medium, the shrink-swell potential is considered high.

Pleasanton loam consists of deep, well drained soils which from mixed rock sources. They are found on nearly level or gently sloping alluvial fans and terraces. The native vegetation is annual grasses, forbs, and scattered oaks. Typically, the surface layer is grayish brown gravelly fine sandy loam about 21 inches thick. The next 27 inches are brown gravelly sandy clay loam. Permeability is moderate, and the available water capacity is moderately high. The runoff is slow the medium and the shrink-swell potential is considered moderate.

### 2.2.4 Groundwater

The Project Site is located in the Llagas Subbasin, which is a structural depression filled with Pliocene to Holocene age unconsolidated and semi-consolidated valley fill materials (alluvium and alluvial fans). The sediments are a combination of gravels, sands, silts, and clays which overlay the Santa Clara Formation. The Santa Clara Formation is of Pliocene age and generally of fluviatile origin with an estimated maximum thickness of 1,800 feet. The overlying alluvium deposits include old alluvium, young alluvium, and alluvial fans ranging in age from Plio-Pleistocene age to Holocene age. Alluvium deposits can range in thickness from 3 to 125 feet and generally provide adequate yields in wells up to 100 feet deep. The operational storage capacity of the Llagas subbasin is estimated to be 150,000 acre-feet (DWR Bulletin 118).

According the State Water Resources Control Board's (SWRCB) GeoTracker website, groundwater was measured at an approximate depth of 35 feet below ground surface (bgs) in 2009 at a property located approximately 200 feet east of the Project Site. The groundwater flow direction at the Project Site is anticipated to be to the south-southeast. Additionally, Santa Clara Water District historical groundwater elevation data estimates depth to first groundwater ranges between 10 and 30 feet bgs, in the vicinity of the Project Site. The historical data is representative of the shallowest groundwater ever measured for the area as of 2003.

It should be noted that regional groundwater pumping associated with agricultural production activities may influence groundwater depths and flow direction at various times of the year. Depending on the proximity of nearby wells, actual groundwater depths at the site may vary significantly from those noted.

## 2.3 PREVIOUS SITE ACTIONS

### 2.3.1 Preliminary Environmental Assessment

A PEA was completed for the Project Site and is documented in the Padre prepared report titled: *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California, May 2019.*

The PEA identified elevated concentrations of arsenic, lead, OCPs and PCBs in soil at the Project Site. The recommended remedial action to reduce or eliminate the potential impact of these COCs, was the excavation, transportation and off-site disposal of impacted soil at an approved landfill.

Based on the schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site will be addressed initially as part of this SMP, and the remaining COCs (pesticides, lead, and PCBs) will be addressed at a later date as part of the second phase of modernization (Summer 2020).

Arsenic concentrations ranged from 3.4 to 110 mg/kg in soil samples collected from the Project Site. Soil samples collected from similar type soil during a 2016 PEA performed at a proposed school site under DTSC oversight identified arsenic concentrations ranging from less to 3.6 to 11 mg/kg. A graphical and statistical evaluation was completed by creating a normal probability plot using the entire arsenic data set for the Project Site. The inflection point of arsenic distribution data was estimated to be 11 mg/kg which represents the upper extent of the background data set and is the recommended cleanup goal for arsenic impacted soils at the Project Site.

# 3.0 NATURE, SOURCE, AND EXTENT OF CONTAMINANTS

## 3.1 NATURE AND SOURCE OF CONTAMINANTS

The results of the PEA identified and confirmed the presence of arsenic in surface soil at the north playfield area of the Project Site requiring a response action. Chemical specific information is provided below:

ARSENIC - Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; however, is still used in industrial applications. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.

## 3.2 EXTENT AND VOLUME OF CONTAMINANTS

The extent and volume of soil impacted by COC at concentrations exceeding the respective risk screening levels has been calculated to be approximately 65 cubic-yards (cy). The areas of concern (AOCs) requiring a response action are presented on **Plate 3-1**. The vertical extent of soil contamination extends to a depth of approximately 1.0-feet.

When compacted soil is excavated and stockpiled, the compacted soil is loosened, and depending on soil types the volume of stockpiled soil may increase (expansion factor). Additionally, excavated soil is transported and disposed of by weight (i.e., tonnage). The conversion from soil in cy to soil in tonnage is calculated as follows:

- Soil volume (cy) x expansion factor x conversion factor = Total tons

Where as,

- wet weight of clay = 2,970 lbs/cy; and 2,000 lbs. = 1 ton.

Therefore,

- 65 cy x 1.10 (expansion factor) x 1.5 (conversion factor) = 108 tons of soil.

The estimated total weight of soil to be transported and disposed of at the appropriate landfill facility is calculated to be approximately 108 tons. Transporting soil using a truck and trailer combination would allow for 24 tons per load. Therefore, the calculated quantity of truck and trailer loads is calculated as follows:

- 108 tons divided by 24 tons per load = 4.5 truck and trailer loads.

The locations of the soil management areas at the Project Site are presented on **Plate 3-1**. Additional excavation at the location of the removal action area may be necessary, based on the results of confirmation soil sampling as discussed in Section 5.7.2.

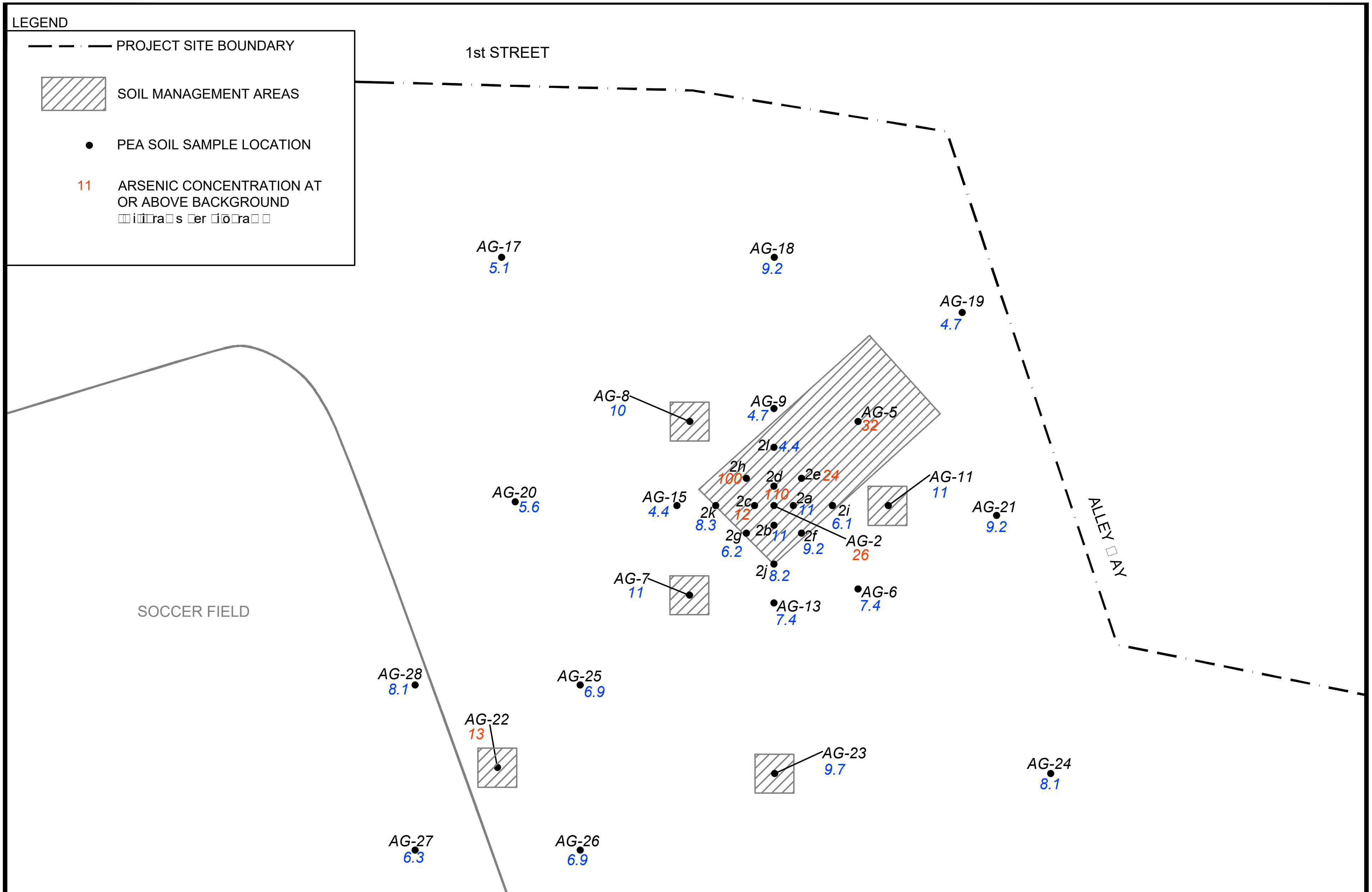
## 3.3 HEALTH EFFECT OF CONTAMINANTS

The identified COC and their health effects are discussed below:

ARSENIC - Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Skin contact with inorganic arsenic may cause redness and swelling. Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

## 3.4 RECEPTORS POTENTIALLY AFFECTED BY THE SITE

A conceptual site model has been developed that identifies receptors that may be exposed to COC at the Project Site. The conceptual site model identifies the potential exposure pathways (i.e., ingestion of contaminated soils, inhalation of contaminated particulates, and dermal contact with contaminated soils) for the contaminated media at the Project Site. A copy of the Conceptual Site Model is presented as **Plate 3-2**.

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0 35 FEET

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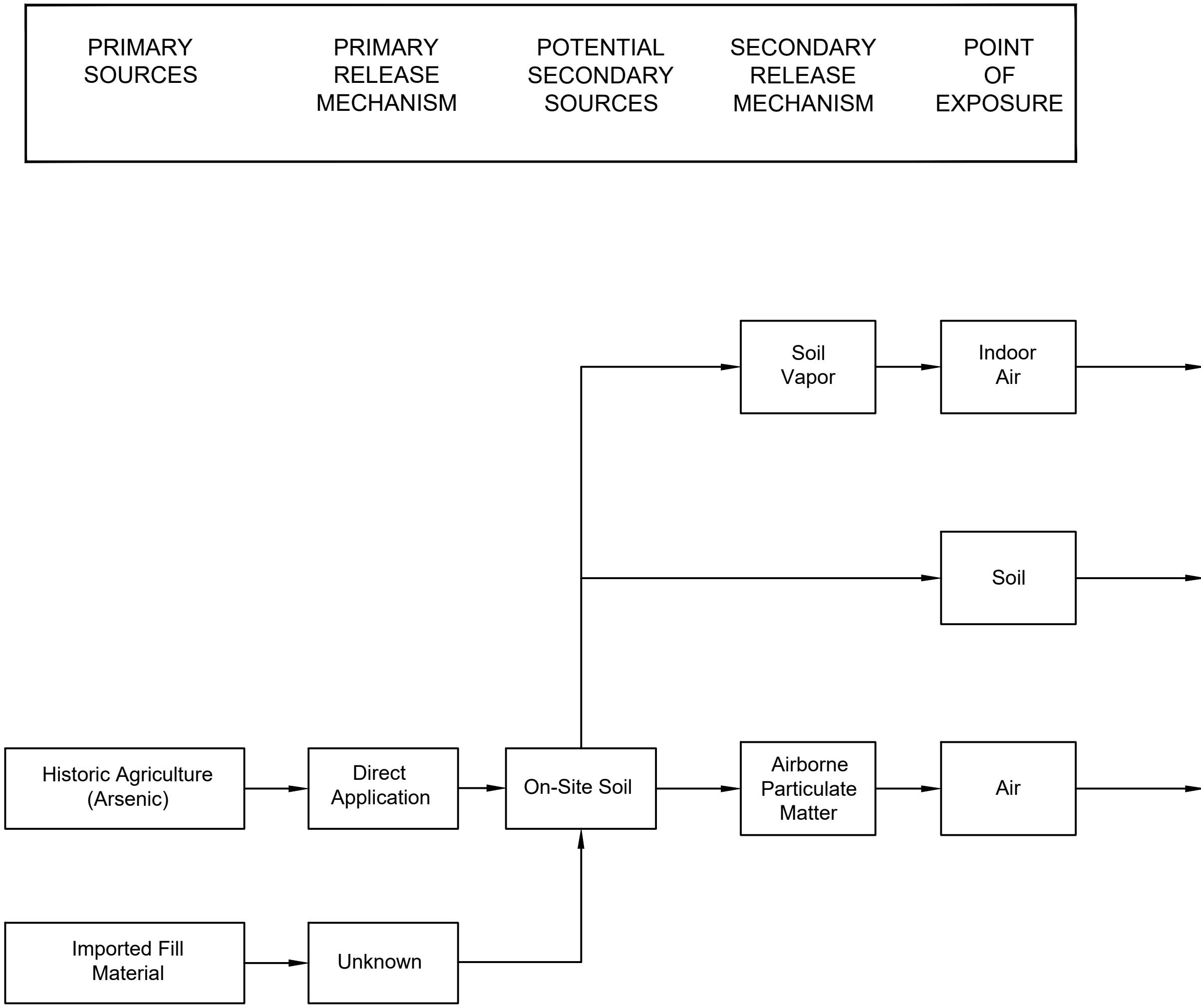
GILROY UNIFIED SCHOOL DISTRICT
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 8/1/19 | AC | AJK |

PLATE 3-1

**AREAS OF CONCERN**




**Indoor Air**

| EXPOSURE ROUTE | RECEPTOR: Students | RECEPTOR: Staff | RECEPTOR: Site Visitors |
|---|---|---|---|
| Ingestion | ○ | ○ | ○ |
| Inhalation | ○ | ○ | ○ |
| Dermal Contact | ○ | ○ | ○ |

**Soil**

| EXPOSURE ROUTE | RECEPTOR: Students | RECEPTOR: Staff | RECEPTOR: Site Visitors |
|---|---|---|---|
| Ingestion | ● | ● | ● |
| Inhalation | ○ | ○ | ○ |
| Dermal Contact | ● | ● | ● |

**Air**

| EXPOSURE ROUTE | RECEPTOR: Students | RECEPTOR: Staff | RECEPTOR: Site Visitors |
|---|---|---|---|
| Ingestion | ○ | ○ | ○ |
| Inhalation | ● | ● | ● |
| Dermal Contact | ○ | ○ | ○ |

● - Complete Exposure Pathway

○ - Incomplete Exposure Pathway

NOTE: This Conceptual Site Model represents a residential scenario, as required for school sites.

**padre** associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 6/28/19 | AC | AJK |

PLATE 3-2

**CONCEPTUAL SITE MODEL**

## 4.0 CLEANUP GOALS

For arsenic, a graphical evaluation was completed by creating a normal probability plot using all of the collected arsenic soil data from the Project Site. The inflection point of arsenic distribution data was visually determined to be 11 mg/kg. This value represents the upper extent of a site background concentration for arsenic and is the recommended cleanup goal for arsenic impacted soils at the Project Site. A copy of the normal probability plot and dataset is presented in **Appendix C**.

The cleanup goal for the identified COC in soil at the Project Site is presented below in **Table 4-1**.

**Table 4-1: Cleanup Goals (CGs)**

| COC in Soil | CGs (mg/kg) |
|---|---|
| Arsenic | 11[(a)] |

Notes:

mg/kg – milligrams per kilogram
(a) Comparison to background concentrations and statistical and graphical evaluation.

# 5.0 SOIL MANAGEMENT PLAN IMPLEMENTATION

Soil management activities will be performed by a California-licensed contractor, with supervision of a California-licensed professional geologist and/or civil engineer. Information regarding the roles and responsibilities of environmental consultants and soil management contractors as they relate to the response action is provided on **Plate 5-1**.

## 5.1 FIELD DOCUMENTATION

The soil management contractor will be responsible for maintaining a field logbook during the course of the soil management activities. The field logbook will serve to document observations, personnel onsite, equipment arrival and departure times, and other vital project information.

### 5.1.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology, which might prove inappropriate. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed. No entries will be obliterated, erased, or rendered unreadable.

Entries in the field logbook will include the following for each fieldwork date:

- Project Site name and address
- Recorder's name
- Team members and their responsibilities
- Time of arrival/entry on Project Site and time of departure
- Other personnel onsite
- A summary of any onsite meetings
- Quantity of impacted soils (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) excavated
- Quantity of impacted soils (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) temporarily stored onsite
- Quantity of excavated soils in truckloads (in terms of RCRA hazardous wastes, non-RCRA hazardous waste, and non-hazardous wastes) transported offsite
- Names of waste transporters and proposed disposal facilities
- Copies or numbers of manifests or other shipping documents (such as bill of lading and weight tickets) for waste shipments
- Quantity of import fill material in truckloads
- Deviations from this SMP and HSP
- Changes in personnel and responsibilities as well as reasons for the changes

- Levels of safety protection
- Calibration readings and equipment model for any equipment used

The following information will be recorded during the collection of each sample:

- Sample identification number
- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (i.e., matrix)
- Type of preservation
- Type of sampling equipment used
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.)
- Chain-of-custody form numbers and chain-of-custody seal numbers
- Transport arrangements (courier delivery, lab pickup, etc.)
- Recipient laboratory

### 5.1.2 Chain-of-Custody Records

Chain-of-custody records are used to document sample collection and shipment to laboratory for possible chemical analyses. All sample shipments for analyses will be accompanied by a chain-of-custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, chain-of-custody form(s) will be completed and sent with the samples for each cooler. The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until receipt by the laboratory, the custody of the samples will be the responsibility of the sample collector.

The shipping containers in which samples are stored (usually sturdy cooler or ice chest) will also be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping. All custody seals will be signed and dated.

### 5.1.3 Photographs

Photographs will be taken of the excavation area(s), confirmation sample collection locations, and other areas of interest at the Project Site to document the soil management activities. The photographs will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be recorded in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

## 5.2 SITE PREPARATION AND SECURITY MEASURES

Prior to mobilization for the proposed soil management activities, site preparation activities may include Project Site inspections, surveying, boundary staking, sampling, demarcation of hot spots, improvement of access roads, utility connections or disconnections, and fencing installation.

### 5.2.1 Delineation of AOCs

The areal limits of the AOCs will be delineated by the environmental consultant prior to the commencement of soil management activities by the soil management contractor. The delineation of the AOCs is based on the results of the PEA. The AOCs are identified as the Exclusion Zone and will be distinguishable in field by signage, barricades, fencing, staking, flagging, and/or non-toxic high visibility paint.

### 5.2.2 Utility Clearance

Clearance of remaining utilities and other hazardous underground obstacles will be conducted prior to initiating any soil excavation activities. Such possible obstacles may include water, electrical, gas, oil, communication cable, phone cable, TV cable, and sewer lines. At a minimum, the utility clearance will include a 48-hour notification of the local Underground Services Alert (USA).

### 5.2.3 Security Measures

Appropriate barriers and dust/privacy fencing will be installed prior to beginning the excavation process to ensure that all work areas are secure and safe. To ensure trespassers or unauthorized personnel are not allowed near work areas, security measures will include, but are not limited to:

- Posting notices directing visitors to the manager of the Site.
- Maintaining a visitor's log. Visitors shall have prior approval from the Site manager to enter the Site. Visitors shall not be permitted to enter the Site without first receiving site-specific health and safety information from the Site safety coordinator.
- Installing barrier fencing to restrict access to sensitive areas such as exclusion zones.
- Providing adequate Site security to ensure unauthorized personnel have no access to work areas and/or impacted materials.
- Before leaving the Site, all personnel must sign out in the visitor's log.
- Maintaining a safe and secure work area, including areas where equipment is stored or placed, at the close of each workday.
- Equipping all Site access gates with locking devices that will be locked during non-operation activities.
- Limiting access to the Site to authorized personnel only.

Persons requesting site access will be required to demonstrate a valid purpose for access and if access to work areas and/or impacted materials is planned, provide appropriate documentation to demonstrate they have received proper training required by the site-specific HSP (see **Appendix B**).

### 5.2.4 Cultural Resources Consideration

The Project Site is not located with an area of identified cultural resources significance. However, prior to excavation, all contractors and subcontractors will be informed of the potential for discovering important paleontological, prehistorical, or historical resources below the ground surface and the legal consequences for damaging or destroying such resources. If any such resources are found, then all field activities shall halt within the area in question and a qualified paleontological or cultural resources specialist shall evaluate the situations and make recommendations for further action.

In the event of discovery or recognition of any human remains at the Project Site, there will be no further excavation or disturbance of the area in question or any nearby area reasonably suspected to overlie adjacent human remains until:

- The County Coroner has been informed and has determined that no investigation of the cause of death is required, and
- If the remains are of Native American origin, then the descendants from the deceased Native Americans will be required to make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code section 5097.98, or
- The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.

### 5.2.5 Biological Resources Consideration

The Project Site is not in an area of biological resources significance.

### 5.2.6 Noise Control

Noise-generating construction operations will be limited to between the hours of 7:30am to 5:00pm, Monday through Friday. There shall be no start-up of machines or equipment before 7:00am, and there shall be no cleaning or servicing of machines or equipment past 5:30pm. Construction activities will be prohibited on Saturdays, Sundays and federal holidays. Construction equipment will be properly maintained and equipped with noise reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds will be closed during equipment operation. When not in use, motorized construction equipment will not be left idling. Trucks waiting in the on-site staging area to be loaded with soil for off-site transport, will not sit idling for more than five minutes. If this is the case the driver will immediately shut down the engine until it is ready to be loaded.

### 5.2.7 Permits

The soil management contractor is responsible for acquiring all necessary permits or approvals prior to the implementation of the field activities. School districts are exempt from local permits, and the SMP is being implemented as part of the Brownell Middle School Modernization Project. The primary contractor for the modernization project is Flint Builders.

The California Air Resources Board (ARB) and the U.S. EPA have adopted ambient (outdoor) air quality standards. These legal limits on ambient air pollution are designed to protect the health and welfare of Californians. The California Health and Safety Code Section 39606 provides the authority for the Bay Area Air Quality Management District (BAAQMD) to regulate ambient air pollution in the region of the Project Site. There are no BAAQMD permits required for the planned soil management activities.

The State Water Resources Control Board (SWRCB), as part of the National Pollutant Discharge Elimination System (NPDES), has adopted a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) to address discharges of storm water runoff from construction projects that encompass one acre or more in total acreage of soil disturbances. Construction activities subject to the General Permit include demolition, clearing, grading, excavation, soil stockpiling, material storing, onsite staging, offsite staging, and other land disturbance activities. The total acreage of the areas to be disturbed during the removal action is less than 1-acre. Therefore, an NPDES General Permit is not required.

#### 5.2.8 Storm Water Discharge Management

Although a SWPPP is not required for this project, best management practices (BMPs) will be implemented to reduce or eliminate sediment and other pollutants from entering existing storm water drains located in adjacent streets. The following BMPs will be implemented:

- Control of runoff from stockpiled soil by covering each pile with plastic sheeting and surrounding the base of each stockpile with fiber-rolls;
- Temporary perimeter controls with silt fencing and/or fiber-rolls;
- Protection of storm drain inlets with filter fabric and sand/gravel bag barriers;
- Stabilized construction entrance/exit with truck tracking controls; and
- Post construction erosion control measures (ie., seeding for vegetative ground cover).

## 5.3 WORK ZONES

The field activities will be divided into three work zones 1) exclusion zone; 2) decontamination zone; and 3) support zone/staging area. The work zones for the SMP are illustrated on **Plate 5-2**. The general elements of each of these work zones are described below:

### 5.3.1 Exclusion Zone

The exclusion zone includes the excavation areas; soil stockpiling areas; and soil loading areas for hauling off-site. The exclusion zone will be clearly identified in the field with a combination of caution tape, temporary fencings and/or barricades. Only authorized personnel will be allowed to enter the exclusion zone.

### 5.3.2 Decontamination Zone

A decontamination zone will be established at the Project Site. The decontamination zone is where soil, debris, and dust will be removed from equipment, transportation vehicles, and personnel leaving the exclusion zone. Decontamination of equipment and vehicles may consist of brushing and/or high pressure washing depending on weather conditions during the removal action. Decontamination of personnel may include the removal and disposal of personnel protection equipment (i.e. tyvek suites, rubber gloves, etc.).

### 5.3.3 Support Zone / Staging Area

A support zone / staging area will be established to provide for administrative and support functions (command post, first aid station, rest area, etc.) necessary to keep the field activities operating smoothly. The soil management contractor shall provide potable water and wash facilities for the field personnel in this location.

## 5.4 EXCAVATION

The excavation program will consist of excavating, stockpiling in soil bins, and transporting for off-site disposal of approximately 65 cy of soil containing elevated levels of identified COC. The completed excavations will be sampled to confirm that the removal action has met the established cleanup goals (Table 4.1). The soil bins will be sampled and profiled for waste classification and approval for disposal at an appropriate landfill facility. The soil bins will then be loaded onto trucks and transported to the approved facility. The excavation areas and soil bin areas will be fenced-off and will contain the appropriate signage to prevent any pedestrian and/or site visitor traffic from entering. During off-work hours the entrance to the Project Site will be locked. Work zones are presented on **Plate 5-2**, and the excavation plan is presented on **Plate 5-3**. The truck route from the excavation to the public street is presented on **Plate 5-5**.

Soil excavation activities will be performed by a licensed hazardous materials contractor, and personnel with training in hazardous waste operations (40-hour OSHA Training and up to date 8-hour OSHA Refresher Training). In addition, California OSHA's Construction Safety Orders (especially 8 CCR 1539 and 1541) will be followed, as appropriate.

### 5.4.1 Trenching, Excavation, and Confined Space Entry

Occupational Safety and Health Administration (OSHA) standards require safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4-feet or deeper. Trenches 5-feet deep or greater require a protective system. If less than 5-feet deep, a competent person may determine that a protective system (benching, sloping, shoring or shielding) is not required.

Confined space is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and is not intended for continuous employee occupancy.

The estimated depth of planned excavations at the Project Site is approximately 1-foot. Therefore, the need for a protective system and/or confined space entry requirements are not anticipated. If confined space entry is needed, work will stop, and the health and safety plan will be revised to address this development.

### 5.4.2 Soil Staging and Storage Operations

Soil will be staged in 20-yard soil storage bins near the excavation area. Based on the estimated volume of soil to be excavated (65 cy), the soil will be stored in 4-5 soil bins. During non-excavation hours, the soil bins will be covered. The temporary onsite soil storage bins will be secured and properly labeled until offsite transportation and disposal are ready for loading. In no case will the waste storage be longer than 90 days after its generation. Storage of any hazardous waste longer than 90 days after its generation may require a permit or approval from Santa Clara County.

### 5.4.3 Waste Segregation Operations

Each soil bin will be labeled and sampled for waste characterization and classification per the requirements of the waste disposal facility. One discrete soil sample will be collected from each soil bin to be made into a 4-point composite soil sample by the analytical laboratory. The composite soil sample will be chemically analyzed for constituents required by the permitted waste disposal facility.

### 5.4.4 Decontamination Procedures

Excavation equipment, transportation vehicles, and personnel leaving the exclusion zone will enter the decontamination zone. The decontamination zone will be used to remove soil, debris, and dust from equipment, transportation vehicles, and personnel prior to leaving the work zones. The decontamination of equipment and transportation vehicles includes dry and wet methods. Dry methods are the primary means of decontamination and consist of brushing and scraping to remove soil, debris, and dust. If dry methods are not effective, wet methods may be used such as steam cleaning and/or pressure washing. Washtubs with soap and water and rinse tubs will be provided for the cleaning of re-useable hand-held equipment.

Decontamination of personnel may include the removal and disposal of PPE (i.e. tyvek suites, rubber gloves, etc.). Disposable equipment intended for one-time use will be package for proper disposal.

Prior to leaving the Project Site all truck loads will be inspected to ensure that the exterior of the trucks are clean and clear of excess soil and debris, and that each truck load is properly covered. Each truck load will maintain the necessary documents for transport and disposal of the waste. Documentation of each truckload will be recorded in the field logbook, which will be maintained for the duration of the removal action activities.

### 5.4.5 Excavation Plan

The excavation plan has been designated into two AOCs to a total depth of approximately 1-feet resulting in an estimated volume of 65 cy of excavated soil. The location and dimensions of the excavation areas are presented on **Plate 5-3**. The location of the excavated soil staging area is presented on **Plate 5-2**.

Each AOC will be demarcated with marking paint by the environmental consultant. The soil management contractor will use an excavator in conjunction with a front loader to remove contaminated soil from the AOCs. The front loader will transport excavated soil to the soil storage bins. Each soil bin will be covered and labeled at the end of the work day.

Excavation areas and the soil staging area will be controlled to avoid dust generation using water as a dust suppressant as discussed in Section 5.7. Additional excavation may be necessary depending on the results of confirmation sampling, as discussed in Section 5.8.2.

## 5.5 METEOROLOGICAL AND AIR MONITORING

This section details the meteorological and air monitoring strategy and methodologies that will be used at the Project Site during the soil management activities. The strategy and methodologies are designed to achieve several goals:

- Identify and measure the air contaminants generated during the earth moving activities to assign the appropriate PPE and safety systems specified for those activities.
- Provide feedback to site operations personnel regarding potential hazards from exposure to hazardous air contaminants generated through site activities.
- Identify and measure air particulate matter at points outside of the earth moving activity zones. Dust monitoring will be conducted during work activities to measure potential exposure of sensitive receptors to site chemical constituents, as a result of earth moving activities.

### 5.5.1 Meteorological Monitoring

Ambient weather conditions including temperature, relative humidity, wind speed, and wind direction, will be monitored onsite during earth moving activities by the environmental consultant using a portable weather meter and wind sock. The meteorological equipment will be checked and recorded every hour during earth moving activities.

### 5.5.2 Air Quality Management

Dust control measures and monitoring activities will be implemented at the Project Site. Measured total dust levels will be compared to site action levels. Site action levels are based on the Cal-OSHA permissible exposure levels (PELs) for each COC identified in soil at the Project Site. The PEL for total dust is 10 mg/m$^3$. Therefore, assuming that total dust is present at 10 mg/m3 in air and contains the maximum concentration of each COC identified at the Project Site, then site worker exposure levels can be calculated as follows:

$$\text{Exposure Level (mg/m}^3\text{)} = \frac{\text{soil concentration (mg/kg) x total dust PEL (mg/m}^3\text{)}}{\text{1,000,000 (mg/kg)}}$$

Where as, the dust exposure levels for each COC are as follows:

$$\text{Arsenic:} \quad 0.0011 \text{ mg/m}^3 = \frac{\text{110 mg/kg x 10 mg/m}^3}{\text{1,000,000 mg/kg}}$$

Comparing the calculated dust exposure levels for each COC to their respective PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Calculated dust exposure levels are presented below in **Table 5-1**.

**Table 5-1: Dust Exposure Levels**

| Chemical of Concern | Calculated Dust Exposure Level[(a)] | CAL/OSHA PEL |
|---|---|---|
| Arsenic | 0.0011 mg/m$^3$ | 0.05 mg/m$^3$ |
| Total Dust | --- | 10 mg/m$^3$ |

Notes:

PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 mg/m$^3$ total dust.

### 5.5.3 Site Air Monitoring

Air monitoring will be performed during all Project Site activities in which contaminated soils are being handled or disturbed. During earth moving operations dust levels will be monitored at the following locations:

- One upwind location;
- One exclusion zone location; and
- Two downwind (fence line) locations.

Air/dust monitoring locations will change daily in accordance with excavation location and wind direction. Dust levels will be monitored using particulate meters (Thermo Scientific PDR 1500 or equivalent). The particulate meters will be operated in data logging mode and used to measure and record real-time airborne dust concentrations. The locations of the meters will be determined each day by the Site Safety Manager or designated personnel and will be based on the daily prevailing wind direction. The particulate meters will be checked approximately every 15 to 20 minutes during the course of earth moving activities. Each time the meters are checked, the difference between the average upwind dust concentration, and the average downwind dust concentrations, will be compared to the CARB ambient air quality standard of 0.05 mg/m$^3$ for total dust (24-hour average for PM10). This standard has been selected as the fence line action level and is protective of the public community health. Dust control measures will be implemented to comply with these standards, as needed. Site air monitoring action levels are presented in **Table 5-2**.

#### 5.5.3.1 Site Worker Air Monitoring

The dust exposure levels for each COC were calculated. Comparing the calculated dust exposure levels for each COC to their respective PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Dust control measures as described in Section 5.7 will be implemented when total dust levels reach within 50% of the Cal-OSHA PEL for total dust.

Therefore, the site action level within the exclusion zone will be 5 $mg/m^3$. Air monitoring action levels to be implemented during the soil management activities are presented below in **Table 5-2**.

**Table 5-2: Site Air Monitoring Action Levels**

| Chemical of Concern | Calculated Dust Exposure Level[(a)] | CAL/OSHA PEL | Exclusion Zone Action Level (50% of PEL) | Fence Line Action Level [(b)] |
|---|---|---|---|---|
| Arsenic | 0.0011 $mg/m^3$ | 0.01 $mg/m^3$ | --- | --- |
| Total Dust | --- | 10 $mg/m^3$ | 5 $mg/m^3$ | 0.05 $mg/m^3$ |

Notes:

PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 $mg/m^3$ total dust.
(b) – California ambient air quality standard (24 hour average for PM10).

## 5.6 HEALTH AND SAFETY PLAN

All contractors will be responsible for operating in accordance with the most current requirements of Title 8, California Code of Regulations, Section 5192 (8 CCR 5192) and Title 29, Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120), Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). On-site personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in 8 CCR General Industry and Construction Safety Orders and 29 CFR 1910 and 29 CFR 1926, Construction Industry Standards, as well as other applicable federal, state and local laws and regulations. All personnel shall operate in compliance with all California OSHA requirements.

A site-specific health and safety plan (HSP) has been prepared for the Project Site in accordance with current health and safety standards as specified by the federal and California OSHAs. A copy of the HSP is included as **Appendix B**.

The provisions of the HSP are mandatory for all personnel of the responsible party (RP) and its contractors who are at the Project Site. The RP's contractor and its subcontractors doing fieldwork in association with this SMP will either adopt and abide by the HSP, or shall develop their own safety plans which, at a minimum, meet the requirements of the HSP. All onsite personnel shall read and sign the HSP prior to initiating activity at the Project Site.

## 5.7 DUST CONTROL PLAN

The soil management contractor will implement appropriate procedures to control the generation of airborne dusts during the course of the soil removal activities. Such procedures will include, but will not be limited to the following:

- The Project Site air monitoring professional will monitor dust levels in the locations outlined in Section 5.5.2 and will have the authority to stop-work in the event that onsite activities generate dust levels in excess of the California ambient air quality standards for particulate matter (0.05 mg/m$^3$). Additionally, dust control measures will be taken if visible dust emissions are observed from the point-of-origin. Generation of dust during the removal operations will be minimized as necessary with the use of water as a dust suppressant. The water will be available via a water truck or a metered discharge from a fire hydrant located proximate to the Project Site. The soil management contractor will control dust generation by spraying water prior to daily work activities, during excavation/loading activities (as necessary to maintain concentrations below action levels), and at truck staging locations. Watering equipment will be continuously available to provide proper dust control.
- The air monitoring professional will monitor onsite meteorological instrumentation and/or coordinate with offsite meteorological professionals to identify conditions that require cessation of work. If wind speeds become elevated, initially, the increased application of water suppressant (water) will be employed. If an uncontrollable condition occurs (e.g. exceeding action levels for COC), all removal activities will cease, stockpiled soil(s) will be covered, and the excavation areas will be covered, if necessary. Work activities will not resume until conditions are stabilized or mitigation and/or effective engineering control measures are implemented, and conditions are found acceptable to proceed.
- Padre will provide measurement of airborne dust levels at locations outlined in Section 5.5.2 using real-time, data-logging particulate monitors (Thermo Scientific PDR 1500 or equivalent). These instruments will be calibrated daily and monitoring information posted daily and discussed with Site workers. The monitors will be visually read every 15 to 20 minutes. Additionally, the particulate meters will be set to log dust levels over 5-minute periods.
- During the course of all soil disturbing activities (including excavation, truck loading, soil tilling activities) dust levels will be monitored at one location upwind of the exclusion zone; one location within the exclusion zone; and two locations downwind and outside the work zone, with one located closest to the nearest residences.
- Dust control measures will be increased in the event particulate concentrations exceed 0.05 mg/m$^3$ and/or if visible dust emissions are observed from the point-of-origin.
- If needed, perimeter fencing will be equipped with wind/dust/privacy screens for added off-site dust control.

## 5.8 SAMPLING AND ANALYSIS PLAN

### 5.8.1 Waste Profiling Sampling

The soil storage bins will be profiled for acceptance by the selected disposal facilities. Waste characterization will include chemical analysis per the selected waste facilities specifications. An acceptance letter from each selected disposal facility will be obtained before any excavated soil leaves the Project Site. Documentation of waste disposal acceptance will be provided to the environmental consultant prior to any offsite shipments of waste.

It is anticipated that soils excavated from the Project Site will be managed (handled, transported and disposed of) as: (**Select all that are applicable**)

☐ a hazardous waste requiring compliance with requirements of land ban restrictions.

☐ a hazardous waste requiring no compliance with requirements of land ban restrictions.

☐ a PCB waste (>50 ppm).

☒ a non-hazardous and non-PCB waste.

### 5.8.2 Confirmation Sampling

Confirmation soil samples will be collected when the extent of planned excavation activities have been completed. Soil samples will be collected from the bottom and side walls of each excavation trench. In general sampling of the excavation bottom will be conducted at a frequency of one sample for every 250 square feet of excavation bottom or a minimum of one sample for every excavation bottom less than 250 square feet. Sidewall confirmation sampling will be conducted at a frequency of one sample for every 20-25 linear feet of continuous sidewall or one sample per sidewall if less than 25 linear feet. For deeper excavations, sidewall samples will be collected at depth intervals of 2-feet. Excavation floor confirmation soil samples will be collected from approximate depths of 0 to 6 inches. Additionally, the sidewall soil confirmation samples will be collected at a depth of approximately 6 inches from the top edge of the sidewalls. If the confirmation soil samples do not meet the established cleanup goals, additional rounds of over-excavation and reconfirmation sampling may be necessary until all cleanup goals have been met. Proposed confirmation sample locations are presented on **Plate 5-4**.

Over-excavation may be necessary if the established cleanup goals are not met. Over-excavation at identified locations will generally consist of an additional lateral excavation of 5-feet for sidewall samples, and an additional vertical excavation of 1-feet for bottom samples. Confirmation soil samples for over-excavations will be conducted at a frequency of one sample every 150 square feet from the excavation bottom and one sample every 15 linear feet from the excavation sidewalls, as needed. The soil samples will be collected at a depth of 6 inches from the top edge of the sidewalls.

**<u>Soil Sample Collection</u>**

Soil samples will be collected in pre-cleaned 2-inch x 6-inch stainless steel sampling sleeves using hand-held sampling equipment. The sample sleeves will be sealed with plastic end cap, initialed, labeled with the time and date of collection, project number, and a unique sample identification number, and then placed on ice, in a cooler, for delivery to the analytical laboratory under chain-of-custody protocol.

**<u>Decontamination Procedures</u>**

Handheld field equipment that comes into contact with potentially contaminated soil will be decontaminated consistently so as to assure the quality of samples collected. Disposable equipment intended for one-time use will not be decontaminated but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used will be decontaminated using the following procedures:

- Non-phosphate detergent and tap water wash, in a 5-gallon plastic tub, using a brush;
- Deionized/distilled water rinse, in a 5-gallon plastic tub; and
- Final deionized/distilled water rinse in a 5-gallon plastic tub.

## 5.9 TRANSPORTATION PLAN FOR OFF-SITE SOIL DISPOSAL

The waste material will be profiled and approval will be received before soil is transported off-site for lawful disposition. The soil storage bins will be loaded onto trucks, transported and properly disposed of at an approved landfill. Based on the analytical results gathered during the SMP, it is anticipated that the removed soil will be disposed of as non-hazardous waste.

Final determination of the disposal facility will be based on approval from the landfill. In addition, compliance with the land disposal restrictions and land ban requirements for hazardous wastes will be documented and provided once it is determined which disposal facility will be used.

Excavated soil is transported and disposed of by weight (i.e., tonnage). Cubic-yards of soil are converted to tons by multiplying the in-situ soil volume by an expansion factor of 1.10, and a conversion factor 1.5 to obtain the soil amount in tons.

Where as:

- In-situ soil volume (cy) x (expansion factor) x (conversion factor) = tons
- 65 cy x 1.10 (expansion factor) x 1.5 (conversion factor) = 108 tons.
- 108 tons ÷ 24 tons per load = 4.5 truck and trailer loads.

Based on the PEA soil analytical results and proposed excavation activities, the excavated soil is anticipated to be disposed of as a non-hazardous waste. The following waste facilities have been identified to accept and store and/or treat non-hazardous soil generated from the removal activities:

Landfill Facility (Non-Hazardous)

John Smith Road Landfill
2650 John Smith Road
Hollister, California 95023
(831) 637-4515

Kirby Canyon Recycling and Disposal Facility
910 Canyon Creek Golf Drive
Coyote (in San Jose), California 95037
(408) 779-2206

In the event that waste characterization identifies that the soil is required to be disposed of as a non-RCRA hazardous waste, the following waste facilities have been identified to accept and store and/or treat non-RCRA hazardous soil generated from the removal activities:

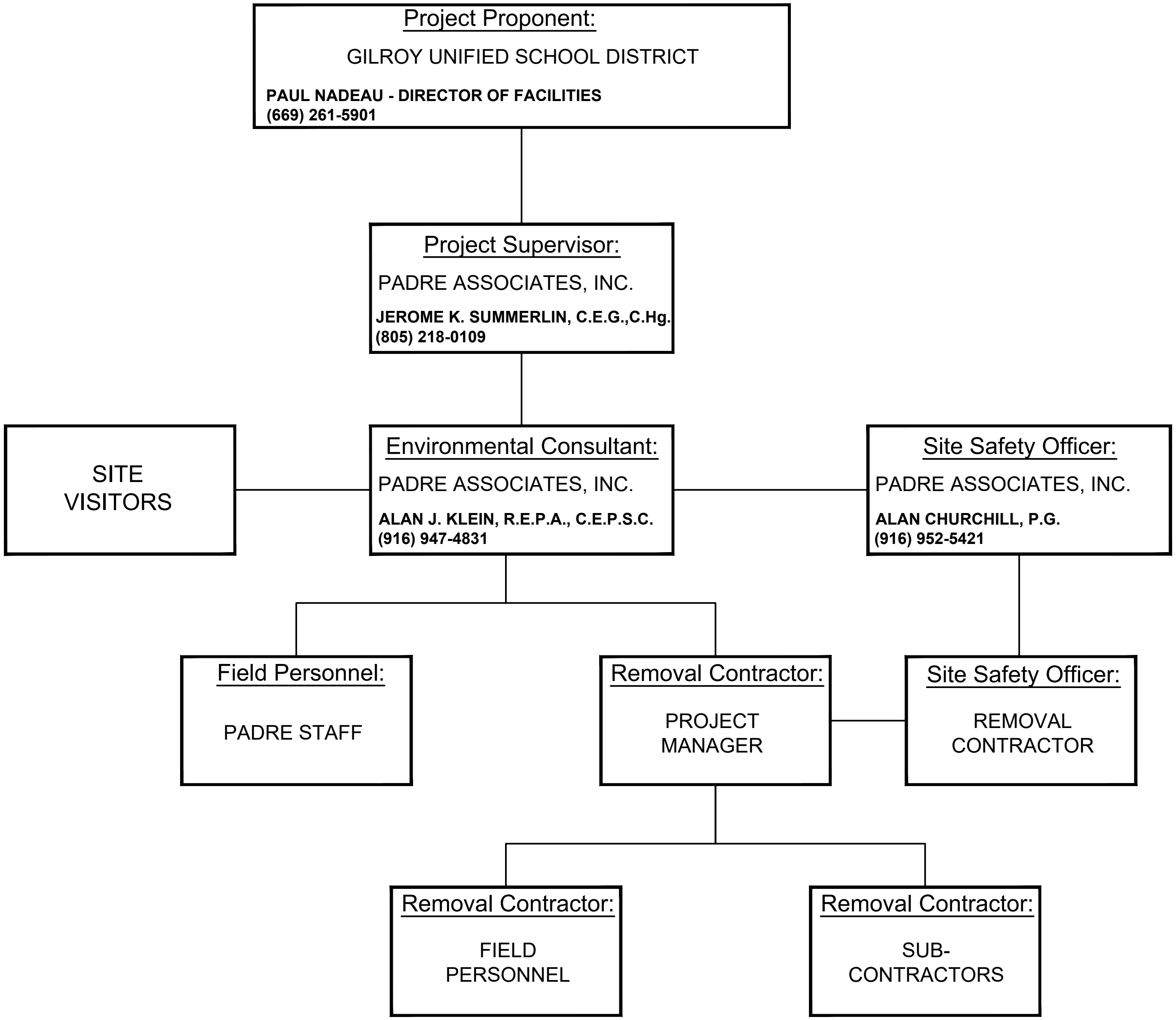
Hazardous Waste Landfill
Waste Management
Kettleman Hills (Hazardous Waste Facility)
35251 Old Skyline Blvd
Kettleman City, California 93239
(866) 909-4458

## 5.10 BACKFILL AND SITE RESTORATION

After the completion of excavation activities, the Project Site will be re-graded and restored to meet the needs of the District. At this point in time, the excavation will not be backfilled as part of the SMP.

Imported fill material is not anticipated. However, if needed, clean imported fill material will be verified in accordance with the current DTSC *Information Advisory on Clean Imported Fill Material* dated October 2001.

# SOIL MANAGEMENT PLAN

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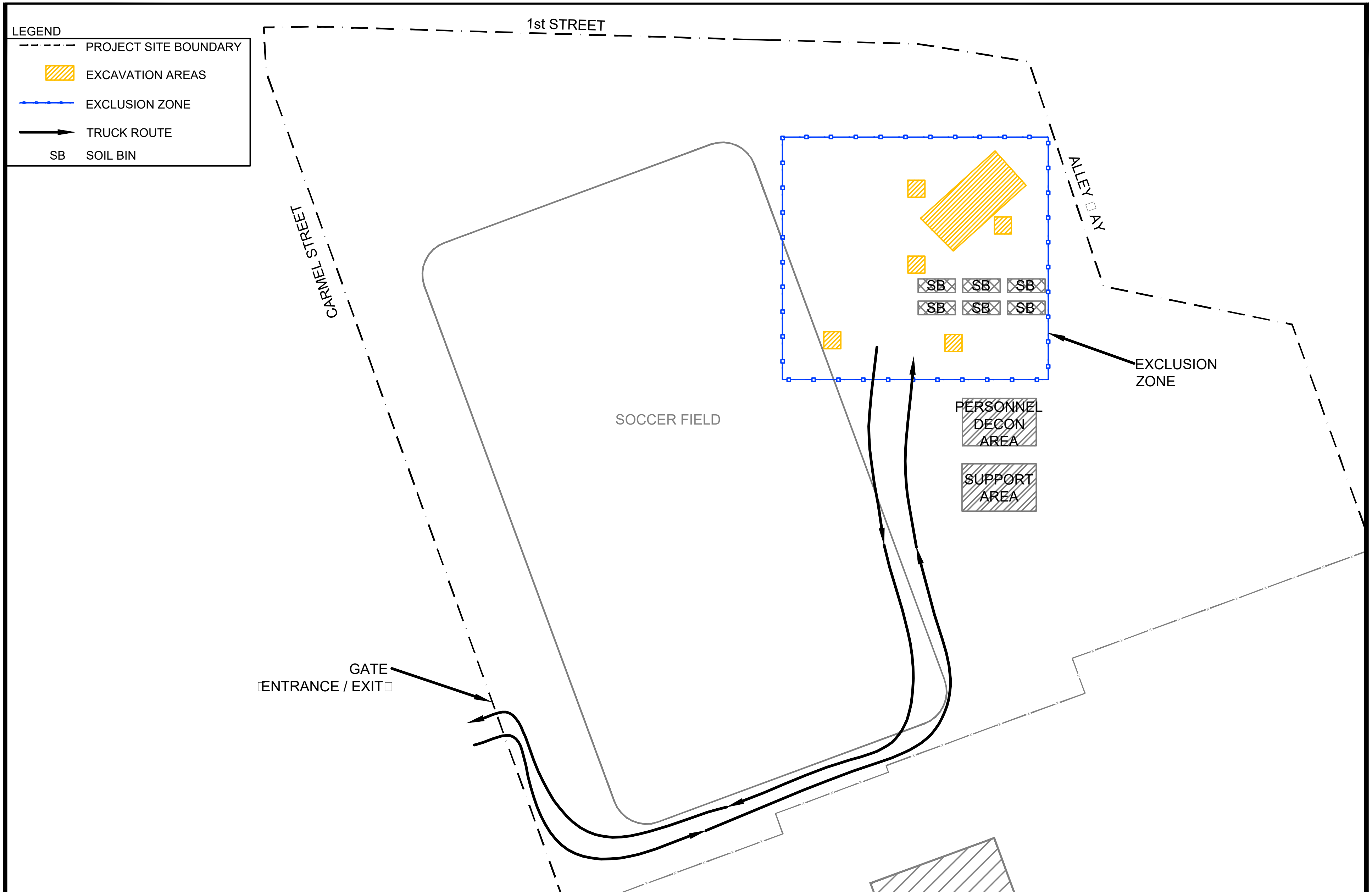
|---|---|---|---|
| 1801-0723 | 6/26/19 | AC | AJK |

PLATE 5-1

**ORGANIZATION CHART**

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0 80
FEET

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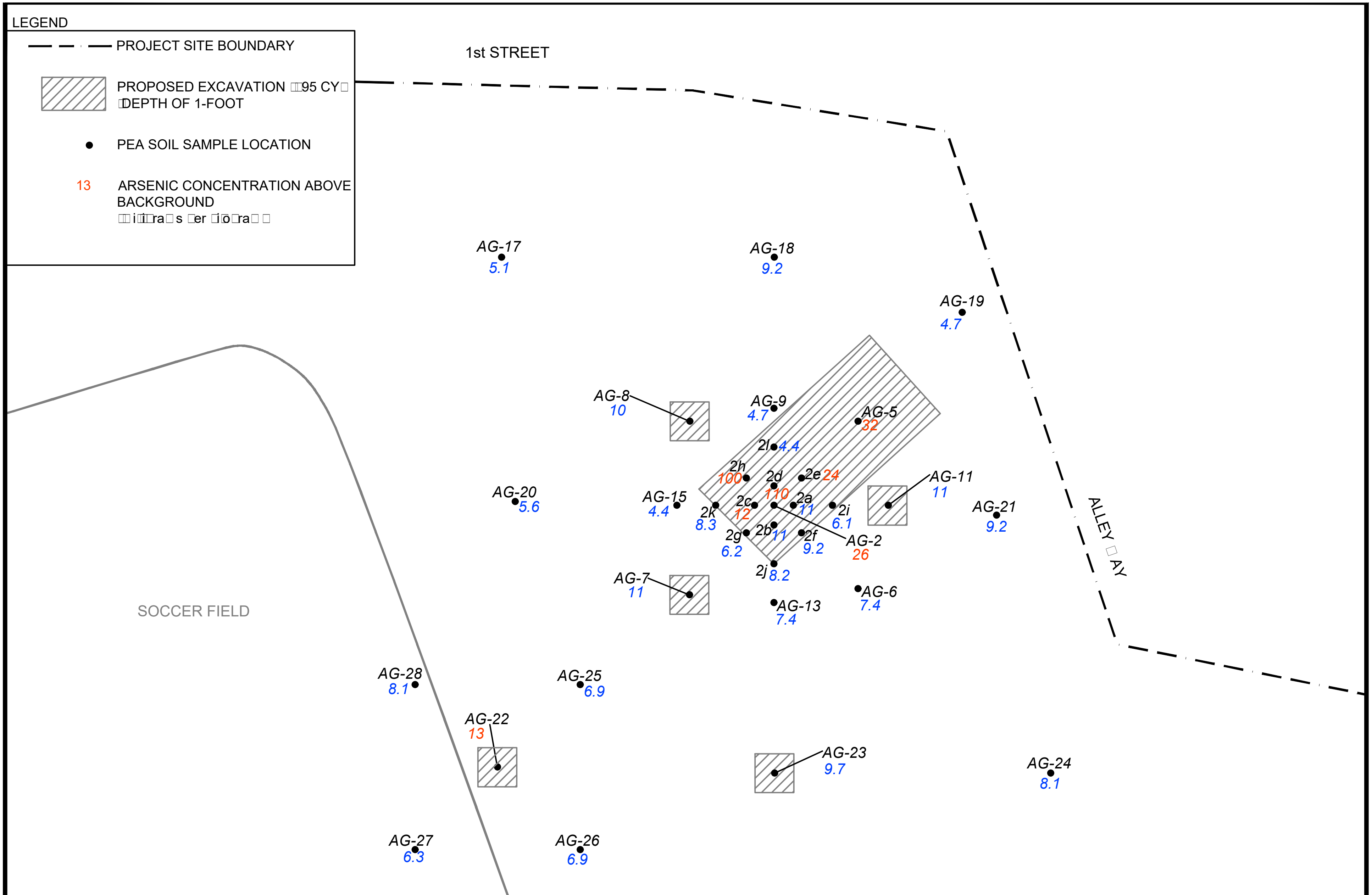
|---|---|---|---|
| 1801-0723 | 7/29/19 | AC | AJK |

PLATE 5-2

**WORK ZONES**

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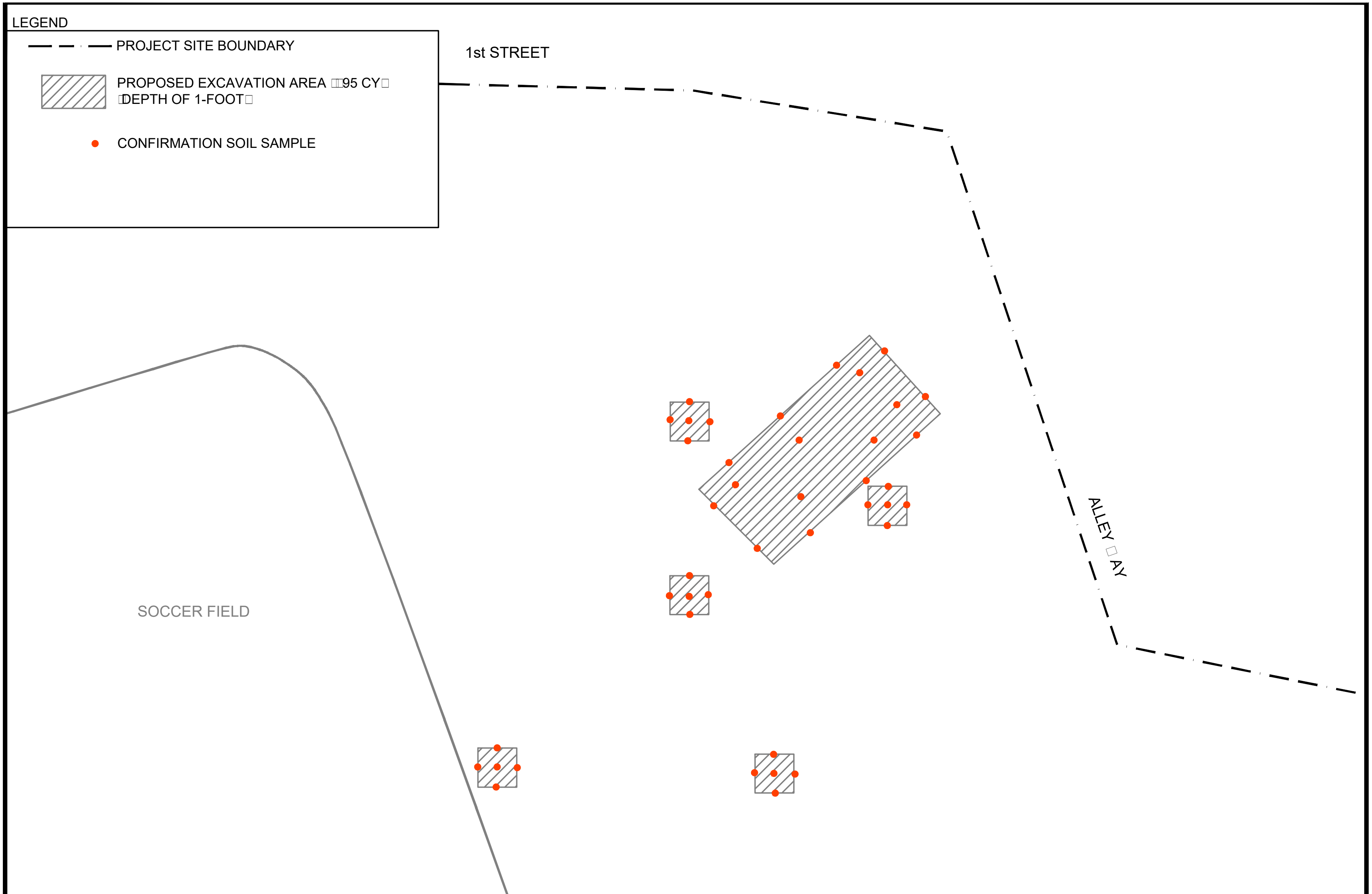
| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 8/1/19 | AC | AJK |

PLATE 5-3

**EXCAVATION AREAS**

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| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 7/30/19 | AC | AJK |

PLATE 5-□

**CONFIRMATION SOIL SAMPLES**

## 6.0 PROJECT SCHEDULE AND REPORT OF COMPLETION

The District is prepared to proceed with removal activities in July 2019. Table 6-1 summarizes the anticipated schedule of implementation and subsequent reporting for this project. A Soil Excavation Completion Report, documenting all activities conducted pursuant to the SMP and certifying that all activities have been conducted consistent with this excavation plan, will be prepared upon completion of the planned activities.

**Table 6-1: Schedule of Tasks**

| Task | Days to Complete | Notes |
|---|---|---|
| 1. Pre-Construction Meeting | 1 | July 8, 2019 |
| 2. Soil Excavation and Soil Staging | 2-3 | July 9-11, 2019 |
| 3. Confirmation Soil Sampling | 1-2 | July 11, 2019 |
| 4. Laboratory Results | 7 | July 18, 2019 |
| 5. Landfill Approval | 2-3 | July 22, 2019 |
| 6. Soil Loading, Transportation and Disposal | 1 | July 23, 2019 |
| 7. Reporting (includes receiving copies of weigh tickets from the landfill) | ~30 | August 2019 |

## 7.0 REFERENCES

Bay Area Air Quality Management District.

California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control (DTSC), *Preliminary Environmental Assessment Guidance Manual*, January 1994, Interim Final – Final October 2013.

CalEPA, DTSC – Human and Ecological Risk Office (HERO), *Human Health Risk Assessment Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*, April 2019 – Interim Update.

CalEPA, DTSC, *Interim Guidance, Evaluation of School Sites with Potential Contamination as a Result of Lead from Lead-Based-Paint, Organochlorine Pesticides from Temiticides, and Polychlorinated Biphenyls from Electrical Transformers*, revised June 9, 2006.

CalEPA, DTSC, *Interim Guidance for Sampling Agricultural Properties (Third Revision)*, dated April 30, 2008.

CalEPA, DTSC, *Arsenic Strategies, Determination of Arsenic Remediation, Development of Arsenic Cleanup Goals*, January 16, 2009.

Padre Associates, Inc., *Phase I Environmental Site Assessment and Title V Environmental Hazards Review, Brownell Middle School Site Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California*, May 2018.

Padre Associates, Inc., *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305)*, May 2019.

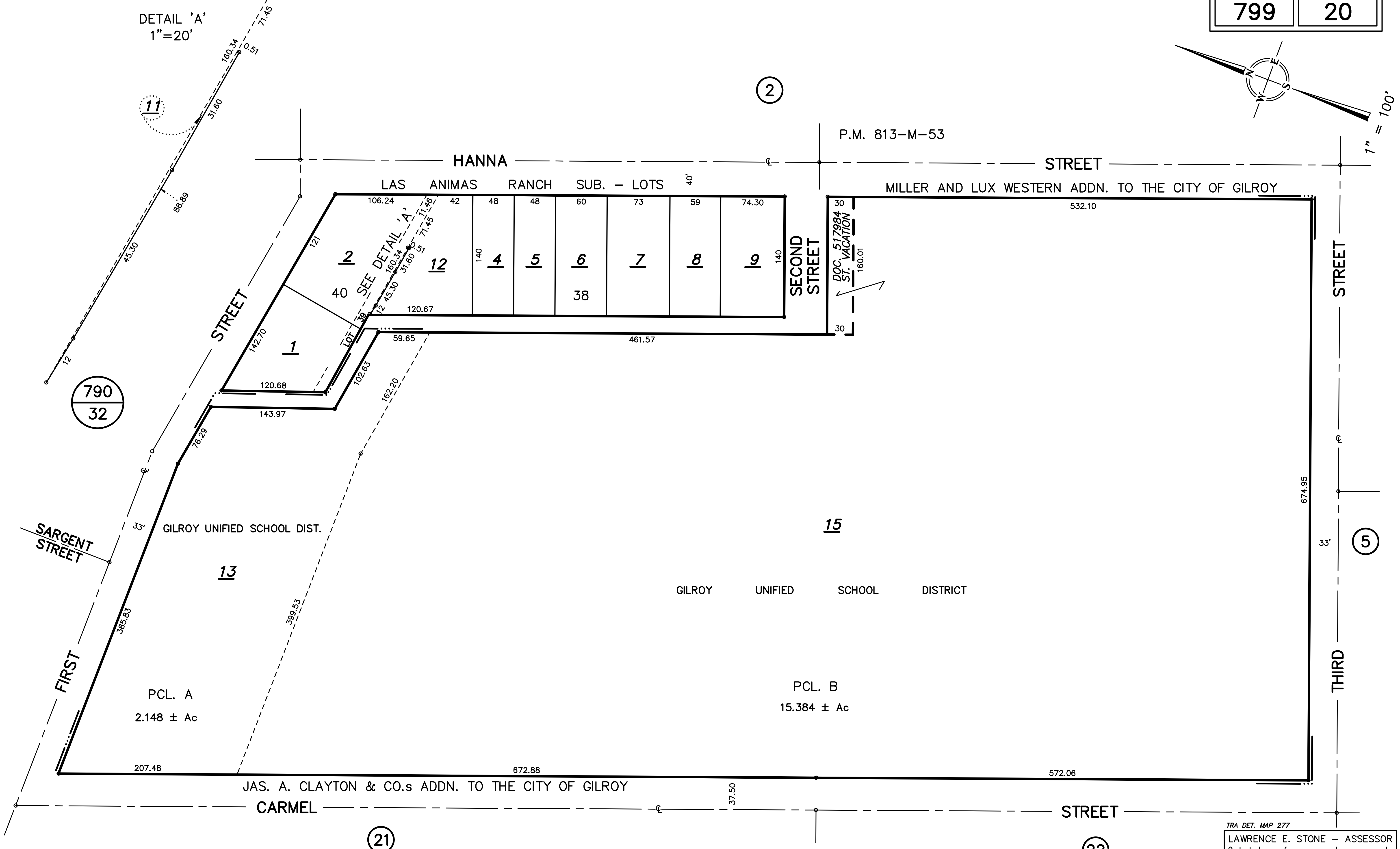
Padre Associates, Inc., *Preliminary Environmental Assessment, New Elementary School, Santa Teresa Boulevard and Club Drive, Gilroy, Santa Clara County, California (Site Code: 204286)*, May 2019.

# APPENDIX A

# ASSESSOR'S PARCEL MAP

OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA

| BOOK | PAGE |
| --- | --- |
| 799 | 20 |




LAWRENCE E. STONE – ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2017–2018

# APPENDIX B

# HEALTH & SAFETY PLAN

# APPENDIX B

# HEALTH & SAFETY PLAN

| | | | |
|---|---|---|---|
| Project Title: | Soil Management Plan for Arsenic Impacted Soil Brownell Middle School Modernization Project. | | |
| Project Address: | 7800 Carmel Street, Gilroy, Santa Clara County, California. | | |
| Project Supervisor: | Jerome K. Summerlin, C.E.G, C.Hg. | Cell Phone: | (805) 218-0109 |
| Project Manager: | Alan J. Klein, R.E.P.A, C.P.E.S.C. | Cell Phone: | (916) 947-4831 |
| Site Safety Officer: | Alan Churchill, P.G. | Cell Phone: | (916) 952-5421 |
| Office Phone: | (916) 333-5920 (Sacramento Office) | | |

## INTRODUCTION

The purpose of this Site Health and Safety Plan (HSP) is to establish requirements for protecting the health and safety of site workers for the above-referenced project. The HSP contains safety information, instructions, and procedures. The HSP will be modified and/or amended when circumstances or conditions develop that are beyond the scope of this plan.

This HSP was prepared to comply with the California Occupational Safety and Health Administration (Cal/OSHA) Hazardous Waste Operations and Emergency Response Standard – Title 8, California code of Regulations (CCR) Section 5192. Each contractor is solely responsible for the health and safety of their own employees.

The planned soil management plan (SMP) activities including soil excavation and off-site disposal and confirmation soil sampling are anticipated to last approximately 2-3 weeks.

## PROJECT DESCRIPTION

### 1.1 PROJECT DESCRIPTION

During 2018/19, Padre completed a Preliminary Environmental Assessment (PEA) at the Project Site, which identified the presence of arsenic in the north playfield area at concentrations above ambient background concentrations for the Project Site.

The PEA is documented in the Padre prepared report titled: *Preliminary Environmental Assessment, Brownell Middle School Modernization Project, 7800 Carmel Street, Gilroy, Santa Clara County, California (Site Code: 204305), May 2019.*

The volume of impacted soil was calculated to be approximately 65 cubic-yards. The selected response action to the presence of arsenic impacted soil at the Project Site is the excavation, transportation and disposal to an appropriate landfill facility.

## BACKGROUND

Based on the findings of the Phase I ESA, Padre completed a Preliminary Environmental Assessment (PEA) dated May 2019. The purpose of the PEA was to establish whether a release or potential release of hazardous materials substances, which pose a threat to human health via ingestion, dermal contact, and inhalation exposure pathways exist at the Project Site. The Final PEA report identified OCPs, arsenic, lead, and PCBs in soil above RSLs, and recommended further action to eliminate, reduce, and/or mitigate identified chemicals of concern (COC) at the Project Site.

Based on the schedule for planned modernization activities, the arsenic impacted soil located in the northern portion of the Project Site will be addressed initially as part of this SMP, and the remaining COCs (pesticides, lead, PCBs) will be addressed at a later date as part of the second phase of modernization (Summer 2020).

## SITE SAFETY OFFICER

The designated site safety officer (SSO) for Padre Associates, Inc., and is responsible for the health and safety for Padre Personnel and site visitors.

The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the Site H&SP and verify compliance with applicable safety and health requirements. The SSO must verify that all on-site personnel are qualified, trained and prepared to implement the H&SP. Before the start of each day's work the SSO will hold a safety meeting. The day's schedule of work and safe work practices will be discussed in the safety meetings.

### Removal Contractor SSO

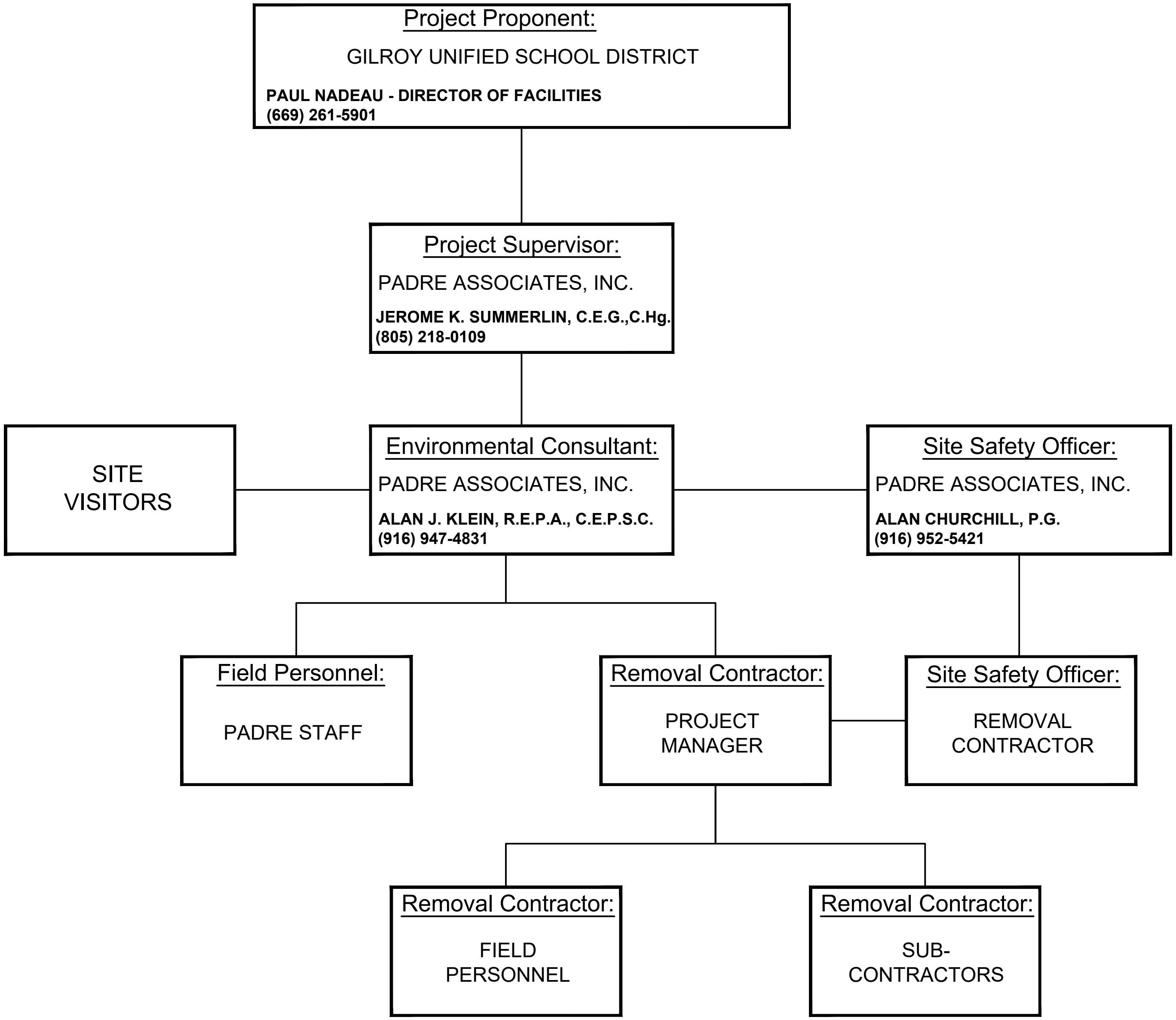
The removal contractor must appoint an SSO for the project who will be responsible for the health and safety for all contractor personnel and subcontractors. The removal contractor will be responsible for compliance with all applicable federal, state, and local laws and guidelines.

The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the Site H&SP and verify compliance with applicable safety and health requirements. The SSO must verify that all on-site personnel are qualified, trained and prepared to implement the H&SP. Before the start of each day's work the SSO will hold a safety meeting. The day's schedule of work and safe work practices will be discussed in the safety meetings.

The removal contractor SSO has the authority to suspend work in the area of the Project Site where the provisions of the H&SP and/or SMP are not being implemented. The removal contractor SSO will report to the contractor's supervisor and to Padre's SSO.

The organization chart for the removal action is presented on Plate B-1: Organization Chart.

# SOIL MANAGEMENT PLAN

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|---|---|---|---|
| 1801-0723 | 6/26/19 | AC | AJK |

PLATE B-1

**ORGANIZATION CHART**

## HSP ORGANIZATION

The following personnel are designated to carry out the stated job functions pertaining to the site activities. All site personnel have read this safety plan and are familiar with its provisions.

| | Name | Signature |
|---|---|---|
| Project Manager: | | ____________________ |
| Site Safety Officer: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |
| Field Personnel: | | ____________________ |

Work was accomplished in accordance with the Site Safety Plan, with the following exceptions:

________________________________________

________________________________________

________________________________________

Site Safety Officer: ____________________________

Date: __________________

(RETURN ORIGINAL COPY TO JOB FILE WITH SIGNATURES)

## EMERGENCY RESPONSE (DIAL 9-1-1)

| | |
|---|---|
| Nearest phone located: | Within Padre Associates, Inc. vehicle or with Padre staff. |
| Closest Emergency Facility: | St. Louise Hospital |
| Address: | 9400 N. Name Uno, Gilroy, California 95020 |
| Phone: | (408) 848-2000 |
| Ambulance response time: | Approximately 10 to 15 minutes |

Fire and Police will also be contacted by dialing 911. Ambulance service is to be used in emergencies if the injured person cannot safely be transported by a Padre Associates, Inc., vehicle. When in doubt as to the severity of the situation, call 911.

**DRIVING DIRECTIONS** - (Approximately 3.0 miles)

1. From the Project Site turn proceed north on Carmel St. towards CA-152/1st St.;
2. Turn **RIGHT** onto CA-152 / 1ST Street Murray Avenue and go ~0.4 miles;
3. Turn **LEFT** to stay on CA-152 / Monterey St. and go ~0.4 mi.;
4. Turn **RIGHT** onto CA-152 E / Leavesley Rd. and go ~0.6 mi.;
5. Turn **LEFT** onto San Ysidro Ave. and go ~0.7 mi.;
6. Turn **LEFT** onto Las Animas Avenue and the name changes to No Name Uno.

Arrive at St. Louise Hospital, follow signs to Emergency Room. A hospital location map is attached at the end of the HSP.

**SITE DESCRIPTION**

| | |
|---|---|
| Location: | 7800 Carmel Street, Gilroy, California. |
| Potential Hazards: | Soil containing arsenic. |
| Area of Interest: | Surface soil at the Project Site. |
| Surrounding Land Use: | Residential, commercial, and city park. |
| Topography: | Relatively flat. |
| Weather Conditions: | Sunny and warm (anticipated). |

**PROJECT OBJECTIVE**

The objectives of the SMP is to minimize exposure of humans to chemicals of concern (COCs) in soil through the inhalation, dermal absorption, and ingestion exposure pathways. The selected SMP remedy combines excavation with offsite disposal for arsenic-impacted soil. The planned soil management activities are summarized below:

- Excavate approximately 65 cy of soil containing arsenic above ambient background screening level;
- Soil will be stored in 20-yard roll-off bins. Composite soil samples will be collected for waste characterization and disposal purposes;
- Collect confirmation soil samples from the excavation areas and compare confirmation results to the established cleanup goal (CG). If needed, excavate an additional volume(s) of soil until the CG is met; and
- Load and transport soil bins to the appropriate disposal facility.

**CONTAMINANT CONTROL**

The following best management practices (BMPs) will be implemented to prevent the off-site migration of COCs:

- Dust control – Spraying water during earth moving activities, and perimeter fencing with wind/dust screens);
- Air monitoring – at least two downwind (fence line) monitoring locations;

- Roll-off soil bins will be closed during non-work hours;
- Decontamination of excavation equipment, transportation vehicles and personnel prior to leaving the site; and
- Site security (fencing, barriers, postings, etc.).

## AGENCY REPRESENTATIVES

| | |
|---|---|
| Name: | Harold “Bud” Duke, P.G., Project Manager |
| Agency: | California Dept. of Toxic Substances Control |
| Program: | School Property Evaluation and Cleanup Division |
| Phone Number: | (916) 255-3695 |

## SITE SETUP

A safe perimeter will be established at the Project Site. The work area will be restricted to required personnel only. No unauthorized personnel will be allowed within the established safe perimeter, or will be allowed to enter the Project Site. Control boundaries will be marked with caution tape if necessary to maintain the established safe perimeter. The onsite command post will be established at the Padre Associates, Inc. vehicle onsite.

## HAZARD EVALUATION

**Chemicals Onsite.** The following substance(s) are known or suspected to be onsite. The primary hazards of each COC are identified along with their site high concentrations in Table G-1:

**Table G-1: Chemicals of Concern (COCs)**

| Substance Involved | Primary Hazard | Concentration |
|---|---|---|
| Arsenic | Ingestion, inhalation and dermal contact | Highest Concentration Reported: **110 mg/kg** |

The nature and sources and/or use of the identified COC is discussed below:

ARSENIC - Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; however, is still used in industrial applications. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.

## HEALTH EFFECTS OF CONTAMINANTS

The health effects of identified COCs are discussed below:

ARSENIC - Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs. Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Skin contact with inorganic arsenic may cause redness and swelling. Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

## PHYSICAL HAZARDS ONSITE

The physical hazards and potential for employee exposure to the hazards (i.e., low, moderate, and high) anticipated during the field investigation are discussed below.

<u>Heavy Equipment.</u> The hazards involved with using heavy equipment (i.e., excavators; backhoes, loaders and trucks) include hazards of pinch points; impact from moving parts; fatigue; and improper operation. The potential hazard to heavy equipment is high for this project.

The following safe practices are to be followed during work around heavy equipment:

- While working onsite, wear reflective/visible safety vests, maintain visual contact with the operator at all times and remain alert.
- Never walk directly behind or to the side of heavy equipment without the operators knowledge;
- All heavy equipment must be fitted with audible back-up alarms as mandated by OSHA;
- Blades, buckets, and other hydraulic systems will be fully lowered and parking brakes engaged whenever equipment is not in use; and
- All non-essential personnel will be kept out of the work areas.

<u>Slips, Trips and Falls</u>. Site activities can pose a variety of slip, trip and fall hazards. Examples that contribute to slips, trips and falls include uneven ground surfaces and slick or wet surfaces, unstable earth slopes. The Project Site is a relatively level, however removal action activities will consist of a series of shallow excavated trenches. Therefore, the potential for employee exposure to slips, trips and falls is considered moderate to high during work activities. Safety cones, delineators, and caution tape will be used to mark the boundaries of the excavations.

Overhead and Underground Utilities. Typical site activities such as movement of equipment or intrusive activities such as excavations can present the risk of contact with overhead or underground utilities. Underground Services Alert will be contacted to mark all underground facilities in the vicinity of intrusive activities. There are numerous underground utilities (water, electric, natural gas, etc.) that are provided to the Project Site from main lines located in adjacent city streets. All utilities (gas, cable, water, etc.) were disconnected and capped at the street prior to demolition of the structures.

Heat Stress. High temperatures, direct sun, use of PPE, and labor-intensive activities may contribute to heat stress. Heat stress can involve a high risk of illness of death. The Project Site is located in the Santa Clara Valley and experiences hot weather during the summer months. Therefore, exposure to heat stress at this site is considered high.

Symptoms of heat stress or heat exhaustion include:

- Headaches, dizziness, lightheadedness or fainting;
- Weakness and moist;
- Mood changes such as irritability or confusion;
- Upset stomach or vomiting.

Preventing heat stress while working outdoors includes:

- Know the signs/symptoms of heat stress, and monitor yourself and coworkers;
- Drink lots of water; about 1 cup every 15 minutes;
- Take regular breaks away from the sun;
- Wear lightweight, light colored, loose-fitting clothes;
- Avoid alcohol, caffeinated drinks, or heavy meals.

Treatment for heat related illness includes:

- Move the worker to a cool shaded area;
- Loosen or remove heavy clothing;
- Provide cool drinking water;
- Fan and mist the person with water:
- Call 911.

Fire and Explosion. Gas or sewer lines can contain hazardous levels of explosive or toxic gases, which may pose a fire risk. The risk of fire on site may also stem from the presence of vegetation, heat and fuel sources from construction equipment and site vehicles, or from the presence of combustible gases or vapors in contaminated soil and/or wells. The potential exposure to fire and explosion hazards is considered low, due to the nature and location of the work.

Traffic Hazards. Work activities along roadways, parking areas, and entrance and exit areas create exposure to traffic hazards. The Project Site consists of a large vacant area that is fenced off to public traffic. Therefore, the potential exposure to traffic hazards is considered low.

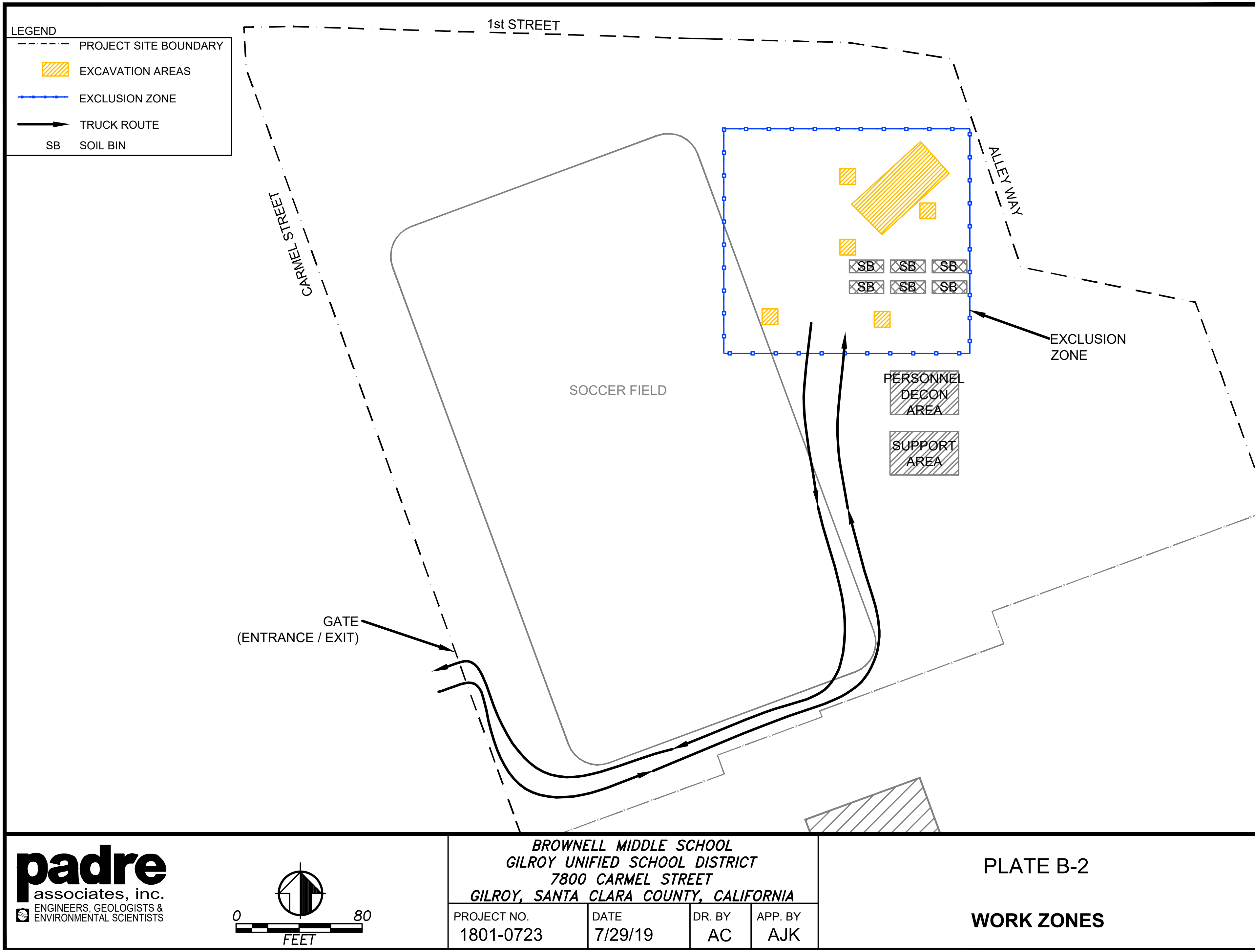
**Biological Hazards Onsite.** During field activities at the Project Site, a wide variety of insects, including bees, ticks and spiders may be encountered. Stings from bees may cause serious allergic reactions in certain individuals. Ticks are parasites that feed on the blood of an animal/human host and can carry several severe diseases, causing fever and pain for several days and even brain damage. Poisonous snakes or spiders may also be encountered. Skin contact with certain plants (i.e., poison oak and poison ivy) may cause severe reactions. However, due to the lack of vegetation at the work area, the potential exposure to biological hazards is considered low.

## ORGANIZATION OF FIELD ACTIVITIES

Field activities will be conducted in three clearly marked zones identified as 1) Exclusion Zone; 2) Decontamination Zone; and 3) Support Zone. Only essential and qualified personnel will be allowed to enter the exclusion and decontamination zones. All site visitors will report to the Command Post Supervisor at the designated area located in the support zone. The designated work zones are illustrated on **Plates B-2** and **B-3.**

## GENERAL SAFETY RULES

1. There will be no eating, drinking, or smoking within the safe perimeter set up.
2. Fire extinguishers will be onsite on or near the contractor's vehicle(s).
3. A first aid kit is located at the onsite command post.

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| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0723 | 7/29/19 | AC | AJK |

PLATE B-2

**WORK ZONES**

## PERSONAL PROTECTIVE EQUIPMENT

On the basis of the evaluation of potential hazards, the level of protection deemed appropriate for this site is Level D. Dust monitoring will be conducted to ensure site worker safety, and increased dust control measures will be implemented when monitoring levels indicate levels within 50% of the permissible exposure level for an 8-hour work day. Level D typically includes the following:

- hard hat;
- steel toe and shank boots;
- safety glasses or goggles;
- appropriate safety gloves (latex, rubber, etc.); and
- Long sleeve shirt and pants.

## DECONTAMINATION PROCEDURES

**Personnel Decontamination**. In recognition of the increased risk to workers of physical injury and exposure to chemical contaminants, an exclusion zone will be set up at the Project Site. All personnel entering the exclusion zone will wear appropriate PPE for the particular task. Upon leaving the designated exclusion zone, all personnel must undergo appropriate decontamination. The nature and extent of decontamination will be decided by the site health and safety officer and will depend on the level of PPE used and the extent of contamination. Contamination avoidance procedures shall be practiced at all times.

**Level D - Decontamination**. For Level D PPE work, the following personnel decontamination procedures must be observed by workers prior to rest breaks and upon leaving the exclusion zone:

1. Remove gross contamination from tools, monitoring equipment, boots, etc., prior to leaving the work site, using water, paper towels, Handi-Wipes®, etc.
2. Either completely decontaminate solid equipment at the work site using detergent and water (if possible), or wrap equipment in a plastic bag for transport until complete decontamination is possible.
3. Always follow established personnel decontamination procedures and remove contaminated gloves, paper towels, etc. by placing them in a plastic bag and arranging for proper disposal.
4. Wash hands and face (field wash) thoroughly with soap and water before lunch or coffee breaks, and as soon as possible after finishing work for the day.

## DISPOSAL OF WASTES DURING FIELD ACTIVITIES

Generated waste solids (gloves, bottles, wrappers, etc.) will be placed in plastic trash bag and removed from the Project Site at the end of each day.

Excavated soil will be stored in 20-yard roll-off bins, which will be closed at the end of each work day.

## ENVIRONMENTAL MONITORING

### Meteorological Monitoring

Onsite meteorological instrumentation will be utilized to measure wind velocity and direction. The meteorological instrument will be checked and recorded by the Site Safety Manager at least once and hour, and/or when a noticeable change in wind speed and direction is observed.

### Site Dust Control and Air Monitoring

During earth moving operations dust levels will be monitored at the following locations:

- One upwind location;
- One exclusion zone location; and
- Two downwind (fence line) locations.

Dust levels will be monitored using particulate meters (Thermo Scientific PDR 1500 or equivalent). The particulate meters will be operated in data logging mode and used to measure and record real-time airborne dust concentrations. The locations of the meters will be determined each day by the Site Safety Manager, and will be based on the daily prevailing wind direction.

The particulate meters will be checked every 15 to 20 minutes during earth moving operations. In consultation with DTSC this frequency may be change based on site conditions and newly available data. Increased dust control measures would consist of an increased volume and duration of water spraying during excavation and loading activities at the specific location of the activity. Each time the meters are checked, the difference between the average upwind dust concentration, and the average downwind (fence line) dust concentrations, will be compared to the ambient air quality standard of 0.05 milligrams per cubic meter (mg/m$^3$) (24-hour average for particles up 10 microns (PM10)). If this standard is exceeded, increased dust control measures will be implemented and the DTSC Project Manager notified.

Site Worker. Dust control measures and monitoring activities will be implemented at the Project Site. Measured total dust levels will be compared to site action levels. Site action levels are based on the Cal-OSHA permissible exposure levels (PELs) for the COC identified in soil at the Project Site. The PEL for total dust is 10 mg/m$^3$. Therefore, assuming that total dust is present at 10 mg/m$^3$ in air and contains the maximum concentration of arsenic identified at the Project Site, then site worker exposure levels can be calculated as follows:

$$\text{Exposure Level (mg/m}^3\text{)} = \frac{\text{soil concentration (mg/kg)} \times \text{total dust PEL (mg/m}^3\text{)}}{\text{1,000,000 (mg/kg)}}$$

The dust exposure level for arsenic is as follows:

$$\text{Arsenic:} \quad 0.0011 \text{ mg/m}^3 = \frac{110 \text{ mg/kg} \times 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$$

Comparing the calculated dust exposure levels for arsenic to the PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Air monitoring action levels for site workers are presented in Table B-2.

**Table B-2: Air Monitoring Action Levels for Site Workers**

| Chemical of Concern | Calculated Dust Exposure Level[(a)] | CAL/OSHA PEL | Exclusion Zone Action Level (50% of PEL) | Fence Line Action Level [(b)] |
|---|---|---|---|---|
| Arsenic | 0.0011mg/m$^3$ | 0.01 mg/m$^3$ | --- | --- |
| Total Dust | --- | 10 mg/m$^3$ | 5 mg/m$^3$ | 0.05 mg/m$^3$ |

Notes: PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 mg/m$^3$ total dust.
(b) – California ambient air quality standard (24 hour average for PM10).

Based on these conservative calculations and the use of engineering controls, the need for respirators is not anticipated. However, N100 respirators shall be made available onsite should their use be required.

## TRAINING AND MEDICAL SURVEILLANCE

All personnel will have 40-hour Hazardous Waste Operations (HAZWOPER) training; and 8-hour annual refresher training as required under 29 CFR 1910.120/8 CCR 5192.

All contractors are responsible for having their own Injury Illness and Prevention Program (IIPP) in accordance with Cal/OSHA regulations in CCR Title 8. The IIPP's shall include a discussion of safety measures to be implemented, including all those in this HSP, to prevent illness and injury to their employees.

All personnel entering the exclusion zone are required to participate in the Medical Surveillance Program in accordance with 29 CFR 1910.120(F)/8 CCR 5192. All field personnel must have completed either a baseline or annual medical monitoring examination with 12 months of the assignment to the Project Site. Only medically qualified personnel, as determined by the examining physician, will be permitted to conduct field activities.

## REMOVAL CONTRACTOR REQUIREMENTS

### Licenses, Certificates and Registrations

The removal contractor shall have the following licenses, certifications, and registrations:

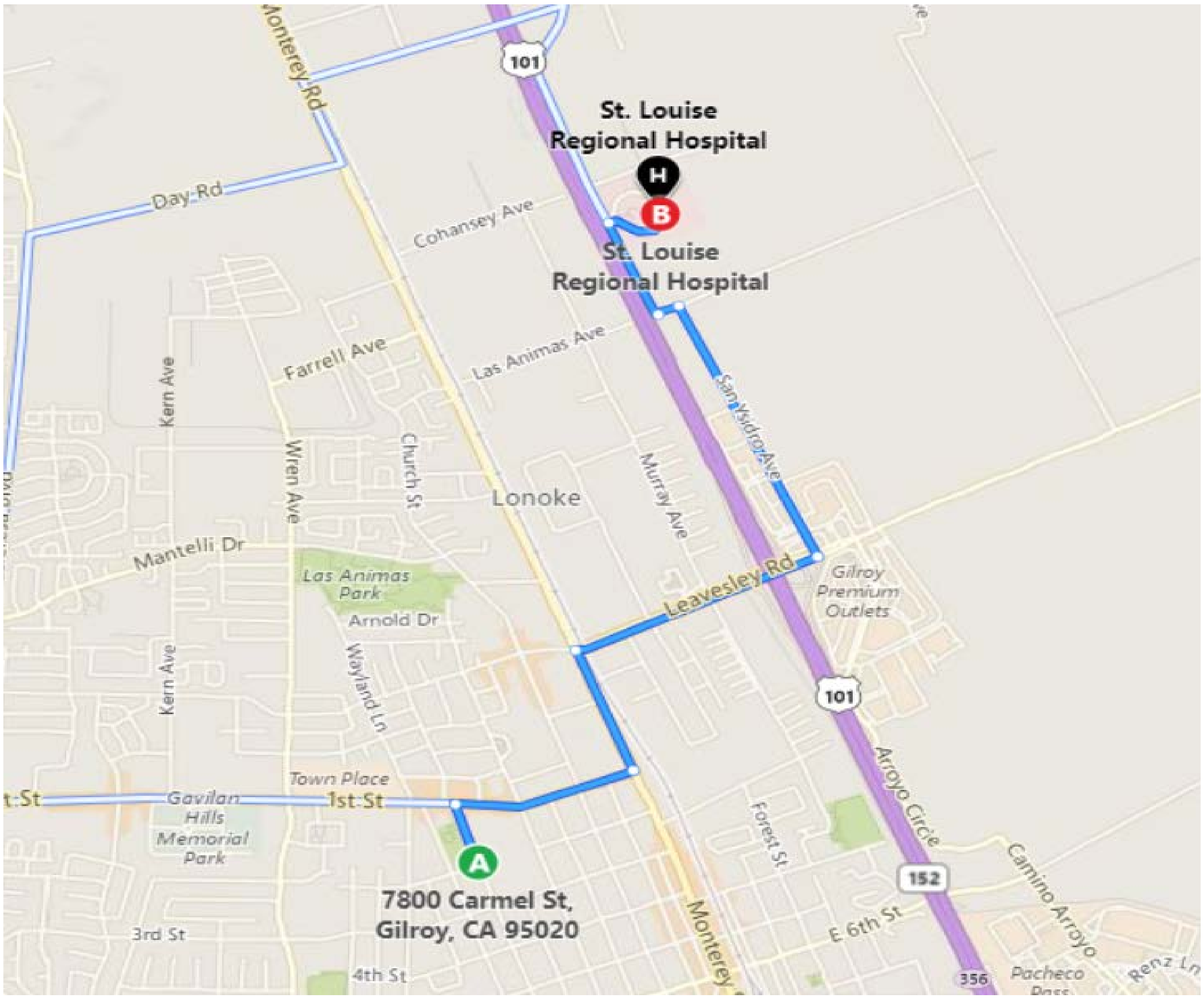
- California General Engineering A License;
- Hazardous Substances Removal and Remedial Actions Certification; and
- Registered Hazardous Waste Hauler (Trucking Contractor).

**Training Requirements**

Contractors will be required to provide equipment operators and helpers who have completed the following:

- Initial 40-hour Hazardous Waste Operations (HAZWOPER) training;
- 8-hour annual refresher training as required under 29 CFR 1910.120/8 CCR 5192;
- Respiratory Fit Testing and Training;
- First Aid / Cardiopulmonary Resuscitation Training (minimum one person onsite during removal activities).
- DOT required hazardous materials hauler training (Trucking Contractor).

All contractors are responsible for having their own Injury Illness and Prevention Program (IIPP) in accordance with Cal/OSHA regulations in CCR Title 8. The IIPP's shall include a discussion of safety measures to be implemented, including all those in this HSP, to prevent illness and injury to their employees.



St. Louise
Regional Hospital
H
B
St. Louise
Regional Hospital
7800 Carmel St,
Gilroy, CA 95020
A
101
Monterey Rd
Day Rd
Cohansey Ave
Farrell Ave
Las Animas Ave
Kern Ave
Wren Ave
Church St
Murray Ave
San Ysidro Ave
Lonoke
Mantelli Dr
Las Animas Park
Arnold Dr
Leavesley Rd
Gilroy Premium Outlets
Wayland Ln
Town Place
Gavilan Hills Memorial Park
1st St
3rd St
4th St
Forest St
Arroyo Circle
152
Camino Arroyo
E 6th St
356
Pacheco Pass
Renz Ln

# APPENDIX B
# AIR MONITORING FIELD SHEETS

## STATION #1 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING ug/m³ | WIND DIRECTION | WIND SPEED | COMMENTS | |
|---|---|---|---|---|---|---|
| 7/9/19 | 0830 | ~~on~~ | SE | 1.7 | FA01858 "South" | |
| | 0840 | 23.3 | N | 1.0 | no digging | SB540 |
| | 0900 | 21.1 | NE | 1.5 | TWA: 22.0 μg/m³ Digging | |
| | 0920 | 20.7 | SW | 3.0 | | |
| | 0940 | 19.7 | SW | 2.7 | | |
| | 1000 | 17.4 | NA | ø | TWA - 20.8 ug/m³ | |
| | 1019 | 16.7 | — | 0.0 | | |
| | 1040 | 23.0 | SW | 1.8 | Mowing grass around | |
| | 1100 | 24.4 | NW | 2.7 | TWA: 20.6 μg/m³ digging | SB518 |
| | 1120 | 23.8 | SW | 1.1 | | |
| | 1140 | 18.6 | SW | 1.9 | | |
| | 1200 | 16.2 | NA | ø | TWA - 20.8 ug/m³ | |
| | 1220 | 17.2 | NA | ø | | |
| | 1240 | 17.7 | NE | 5.0 | | |
| | Break | for supply run | | | | SB537 |
| | 1320 | 15.6 | — | 0.0 | TWA: 19.9 μg/m³ | |
| | 1340 | 13.1 | SW | 3.4 | | |
| | 1400 | 11.1 | SW | 2.5 | TWA: 19.9 μg/m³ ~~[illegible]~~ | |
| | 1420 | 13.5 | — | 0.0 | | SB520 |
| | 1440 | 19.1 | NA | ø | | |
| | 1500 | | | | Stop ex | |
| 7/10/19 | 0720 | on | SW | 1.9 | Digging | Blue Moss |
| | 0740 | 4.8 | S | 4.0 | | |
| | 0800 | 3.6 | SW | 1.9 | TWA: 6.3 μg/m³ | |
| | 0820 | 5.2 | S | 2.8 | | |
| | 0841 | 7.2 | S | 5.2 | | |
| | 0900 | 8.3 | SW | 3.4 | TWA: 6.4 μg/m³ main ex done | SB539 |
| | 0920 | 26.1 | SW | 4.1 | | |
| | 0940 | 16.0 | SW | 3.9 | | |
| | 1000 | 22.1 | SW | 1.6 | TWA - 9.5 ug/m³ | |
| | 1020 | 5.7 | SW | 2.1 | | |
| | 1040 | 9.7 | — | 0.0 | | |
| | 1100 | 13.7 | SE | 4.9 | TWA: 9.7 μg/m³ | |
| | 1120 | 6.9 | SE | 6.9 | | |
| | 1140 | 44.9 | — | 0.0 | | |
| | 1200 | 11.2 | SW | 4.2 | TWA: 10.6 μg/m³ | |
| | 1220 | 11.9 | SW | 1.8 | | |
| | 1240 | 30.1 | SW | 1.9 | | |
| | 1300 | 9.5 | SW | 2.7 | | |
| | 1320 | 19.9 | SW | 4.8 | TWA - 13.9 ug/m³ Stop ex | |

SB518 (2)

## STATION #1 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7-25-19 | 0720 | 44.3 | NA | Ø | FA01542 Truck pre-ex |
| | 0740 | 40.3 | NA | Ø | air quality poor |
| | 0800 | 42.1 | NA | Ø | |
| | 0820 | 40.1 | NA | Ø | stop ex |

**STATION #2 (Gilroy USD - Arsenic SMP)**

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7/9/19 | 0836 | on | SE | 1.4 | FA01952 "East" |
| | 0842 | 23.7 | NNE | 1.2 | no digging |
| | 0901 | 22.5 | NE | 1.7 | TWA: 26.0 µg/M³ digging |
| | 0921 | 23.6 | NA | ~~0~~ | |
| | 0941 | 21.3 | NE | 1.3 | |
| | 1001 | 20.4 | NA | 0 | TWA - 24.5 ug/m³ |
| | 1020 | 19.1 | NE | 0.8 | |
| | 1041 | 25.3 | SW | 1.8 | Moving bins around |
| | 1101 | 23.0 | N | 2.8 | TWA: 25.0 µg/m³ digging |
| | 1121 | 21.9 | N | 1.5 | |
| | 1141 | 21.5 | N | 1.2 | |
| | 1201 | 15.1 | NE | 1.9 | TWA - 24.5 ug/m³ |
| | 1221 | 20.5 | SW | 2.1 | |
| | 1241 | 20.0 | N | 2.6 | |
| | Break for Supply | | NA | | |
| | 1320 | 24.3 | NE | 2.4 | TWA: 23.3 µg/m³ |
| | 1340 | 22.7 | SW | 5.6 | |
| | 1400 | 9.9 | NE | 1.0 | TWA: 21.8 µg/m³ |
| | 1420 | 1.4 | NE | 1.3 | |
| | 1441 | 8.6 | NE | 1.2 | |
| | ~~1500~~ | | | | ~~Stop ER~~ |
| | | | | | |
| 7/10/19 | 0720 | on | SW | 4.2 | Digging |
| | 0740 | 16.2 | S | 0.6 | |
| | 0800 | 16.6 | SW | 2.6 | TWA: 15.9 µg/m³ |
| | 0820 | 19.1 | SW | 6.1 | |
| | 0841 | 20.0 | SW | 2.7 | |
| | 0900 | 20.5 | SW | 5.3 | TWA: 17.8 µg/m³ |
| | 0921 | 22.3 | SW | 3.5 | |
| | 0941 | 24.3 | SW | 1.9 | |
| | 1001 | 25.3 | SW | 3.9 | TWA - 20.3 ug/m³ |
| | 1021 | 25.1 | SW | 3.0 | |
| | 1047 | 24.7 | S | 1.6 | |
| | 1100 | 25.3 | SW | 6.0 | TWA: 21.2 µg/m³ |
| | 1120 | 27.6 | SE | 2.1 | |
| | 1140 | 28.3 | SW | 3.2 | |
| | 1201 | 40.2 | SW | 4.5 | TWA: 22.7 µg/m³ |
| | 1221 | 30.1 | SW | 4.2 | |
| | 1241 | 30.6 | SW | 2.4 | |
| | 1301 | 30.1 | SW | 2.0 | |
| | 1321 | 31.9 | SW | 4.1 | TWA - 24.5 ug/m³ |
| | | | | | |

## STATION #2 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7-25-19 | 0721 | 39.5 | NA | Ø | FA01952 Fence line |
| | 0741 | 40.2 | NA | Ø | near ex (pre-ex) |
| | 0801 | 40.1 | NA | Ø | |
| | 0821 | 42.9 | NA | Ø | |

## STATION #3 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7/9/19 | 0858 | ~~on~~ | — | 0.0 | EA02373 "North" |
| | 0843 | 17.7 | NW | 2.3 | mobilizing |
| | 0902 | 17.2 | NE | 2.7 | TWA: 18.6 $\mu g/m^3$ digging |
| | 0922 | 17.0 | NE | 1.4 | |
| | 0942 | 14.9 | N | 3.2 | |
| | 1002 | 14.7 | NA | 0 | TWA - 17.3 $ug/m^3$ |
| | 1021 | 14.8 | NE | 1.3 | |
| | 1042 | 21.3 | NW | 4.3 | Moving bags around |
| | 1102 | 18.7 | N | 0.8 | TWA: 20.8 $\mu g/m^3$ digging |
| | 1122 | 16.7 | N | 2.7 | |
| | 1142 | 15.4 | NE | 1.4 | |
| | 1202 | 11.9 | NE | 3.9 | TWA - 20.0 $ug/m^3$ |
| | 1222 | 18.4 | SW | 2.2 | |
| | 1242 | 13.6 | N | 3.0 | |
| | Break | for Supply | Run | | |
| | 1321 | 14.2 | N | 1.1 | TWA: 18.7 $\mu g/m^3$ |
| | 1341 | 10.6 | SW | 4.0 | |
| | 1401 | 8.6 | — | 0.0 | TWA: 18.0 $\mu g/m^3$ |
| | 1421 | 12.7 | — | 0.0 | |
| | 1442 | 17.1 | — | 0.0 | |
| | 1500 | | | | Stop EX |
| | 0720 | on | S | 3.8 | Digging |
| | 0740 | 6.0 | S | 4.2 | |
| | 0801 | 6.5 | SW | 2.0 | TWA: 6.8 $\mu g/m^3$ |
| | 0822 | 8.2 | SW | 1.5 | |
| | 0842 | 9.1 | SW | 3.9 | |
| | 0901 | 39.4 | SW | 2.6 | TWA: 7.6 $\mu g/m^3$ |
| | 0922 | 24.5 | S | 1.9 | |
| | 0942 | 11.5 | S | 2.1 | |
| | 1002 | 15.4 | SW | 3.4 | TWA - 9.7 $ug/m^3$ |
| | 1022 | 13.2 | SW | 1.3 | |
| | 1048 | 12.4 | SW | 3.5 | |
| | 1101 | 12.9 | S | 1.0 | TWA: 10.4 $\mu g/m^3$ |
| | 1121 | 12.8 | SE | 1.0 | |
| | 1141 | 22.3 | SE | 2.7 | |
| | 1201 | 13.6 | SE | 2.5 | TWA: 11.3 $\mu g/m^3$ |
| | 1222 | 14.1 | SE | 4.0 | |
| | 1242 | 14.7 | SW | 2.8 | |
| | 1302 | 15.6 | SW | 3.0 | |
| | 1322 | 15.2 | SW | 2.1 | TWA - 12.2 $ug/m^3$ |

## STATION #3 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7-25-19 | 0723 | 33.6 | NA | Ø | FA02372 Near 1st St |
| | 0743 | 34.8 | NA | Ø | (pre-ex) |
| | 0803 | 35.2 | NA | Ø | |
| | 0823 | 37.1 | NA | Ø | stop ex |

## STATION #4 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7/9/19 | 0839 | ~~on~~ | NW | 1.5 | PA01542 "west" |
| | 0844 | 21.4 | — | 0.0 | No digging |
| | 0904 | 20.1 | N | 2.5 | TWA: 20.7 µg/m³ digging |
| | 0924 | 19.8 | NE | 2.1 | |
| | 0944 | 18.3 | NE | 2.0 | |
| | 1004 | 17.8 | NW | 1.6 | TWA - 19.4 ug/m³ |
| | 1022 | 16.4 | NE | 0.7 | |
| | 1043 | 144.3 | W | 3.7 | Truck moving bins around |
| | 1103 | 18.2 | NW | 1.2 | TWA: 20.9 µg/m³ digging |
| | 1123 | 17.4 | NW | 1.4 | |
| | 1143 | 17.6 | NA | Ø | |
| | 1203 | 12.4 | SW | 2.6 | TWA - 20.1 ug/m³ |
| | 1223 | 16.5 | NW | 1.1 | |
| | 1242 | 14.0 | N | 2.0 | |
| | Break for Supply run | | | | |
| | 1323 | 13.4 | N | 1.0 | TWA: 18.6 µg/m³ |
| | 1341 | 12.4 | N | 5.0 | |
| | 1402 | 5.4 | — | 0.0 | TWA: 17.8 µg/m³ |
| | 1422 | 4.5 | — | 0.0 | |
| | 1443 | 8.9 | N | 2.3 | |
| | 1500 | | | | Stop EK |
| | 0720 | on | S | 4.3 | Digging |
| | 0741 | 15.8 | S | 3.7 | |
| | 0801 | 17.1 | S | 1.5 | TWA: 16.0 µg/m³ |
| | 0823 | 19.1 | SW | 3.9 | |
| | 0843 | 20.3 | S | 4.7 | |
| | 0903 | 23.0 | S | 2.3 | TWA: 18.2 µg/m³ |
| | 0923 | 22.1 | S | 2.9 | |
| | 0943 | 30.2 | SW | 2.6 | |
| | 1003 | 28.1 | S | 5.9 | TWA - 22.4 ug/m³ |
| | 1023 | 27.3 | S | 2.8 | |
| | 1048 | 28.4 | SW | 2.9 | |
| | 1102 | 47.5 | SW | 4.4 | TWA: 23.7 µg/m³ |
| | 1122 | 27.5 | SE | 3.7 | |
| | 1142 | 27.6 | S | 4.1 | |
| | 1203 | 28.6 | S | 2.1 | TWA: 24.7 µg/m³ |
| | 1223 | 29.2 | S | 3.9 | |
| | 1243 | 39.1 | S | 2.5 | ~~me~~ utility work on 1st Street |
| | 1303 | 34.0 | S | 5.0 | creating dust |
| | 1323 | 34.4 | SW | 3.5 | TWA - 26.2 ug/m³ |
| | | | | | |

## STATION #4 (Gilroy USD - Arsenic SMP)

| DATE MEASURED | TIME | READING | WIND DIRECTION | WIND SPEED | COMMENTS |
|---|---|---|---|---|---|
| 7.25.19 | 0724 | 42.7 | NA | Ø | FAD1858 near soccer field |
| | 0744 | 211.4 | NA | Ø | pre-ex |
| | 0804 | 40.4 | NA | Ø | truck hauling bin → lots of |
| | 0825 | 39.1 | NA | Ø | dust |

# APPENDIX C
# ANALYTICAL LABORATORY REPORTS

# APPENDIX C1
# CONFIRMATION SAMPLE REPORTS

McCampbell Analytical, Inc.

*"When Quality Counts"*

# Analytical Report

| | |
|---|---|
| **WorkOrder:** | 1907494 |
| **Report Created for:** | Padre Associates. Inc. |
| | 350 University Ave., Suite 250<br>Sacramento, CA 95825 |
| **Project Contact:** | Alan Churchill |
| **Project P.O.:** | 1801-0723 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School |
| **Project Received:** | 07/11/2019 |

Analytical Report reviewed & approved for release on 07/15/2019 by:

Jennifer Lagerbom
Project Manager

***The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.***

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Glossary of Terms & Qualifier Definitions

**Client:** Padre Associates. Inc.
**Project:** 1801-0723 (B); GUSD-Brownell Middle School
**WorkOrder:** 1907494

## Glossary Abbreviation

| | |
|---|---|
| %D | Serial Dilution Percent Difference |
| 95% Interval | 95% Confident Interval |
| DF | Dilution Factor |
| DI WET | (DISTLC) Waste Extraction Test using DI water |
| DISS | Dissolved (direct analysis of 0.45 µm filtered and acidified water sample) |
| DLT | Dilution Test (Serial Dilution) |
| DUP | Duplicate |
| EDL | Estimated Detection Limit |
| ERS | External reference sample. Second source calibration verification. |
| ITEF | International Toxicity Equivalence Factor |
| LCS | Laboratory Control Sample |
| MB | Method Blank |
| MB % Rec | % Recovery of Surrogate in Method Blank, if applicable |
| MDL | Method Detection Limit |
| ML | Minimum Level of Quantitation |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| N/A | Not Applicable |
| ND | Not detected at or above the indicated MDL or RL |
| NR | Data Not Reported due to matrix interference or insufficient sample amount. |
| PDS | Post Digestion Spike |
| PDSD | Post Digestion Spike Duplicate |
| PF | Prep Factor |
| RD | Relative Difference |
| RL | Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.) |
| RPD | Relative Percent Deviation |
| RRT | Relative Retention Time |
| SPK Val | Spike Value |
| SPKRef Val | Spike Reference Value |
| SPLP | Synthetic Precipitation Leachate Procedure |
| ST | Sorbent Tube |
| TCLP | Toxicity Characteristic Leachate Procedure |
| TEQ | Toxicity Equivalents |
| TZA | TimeZone Net Adjustment for sample collected outside of MAI's UTC. |
| WET (STLC) | Waste Extraction Test (Soluble Threshold Limit Concentration) |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-1-SW** | **1907494-001A** | **Soil** | **07/10/2019 14:14** | **ICP-MS2 109SMPL.D** | **181333** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.4** | 0.50 | 1 | 07/12/2019 19:16 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 102 | 70-130 | 07/12/2019 19:16 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-2-SW** | **1907494-002A** | **Soil** | **07/10/2019 14:10** | **ICP-MS2 113SMPL.D** | **181333** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.2** | 0.50 | 1 | 07/12/2019 19:41 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 102 | 70-130 | 07/12/2019 19:41 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-3-SW** | **1907494-003A** | **Soil** | **07/10/2019 14:18** | **ICP-MS2 114SMPL.D** | **181333** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.7** | 0.50 | 1 | 07/12/2019 19:47 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 104 | 70-130 | 07/12/2019 19:47 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-4-SW** | **1907494-004A** | **Soil** | **07/10/2019 14:15** | **ICP-MS2 115SMPL.D** | **181333** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **5.1** | 0.50 | 1 | 07/12/2019 19:53 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 102 | 70-130 | 07/12/2019 19:53 |

Analyst(s): MIG

*(Cont.)*

McCampbell Analytical, Inc.
"When Quality Counts"

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-5-SW | 1907494-005A | Soil | 07/10/2019 14:18 | ICP-MS2 116SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.2** | 0.50 | 1 | 07/12/2019 19:59 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 103 | 70-130 | 07/12/2019 19:59 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-5-SW DUP | 1907494-005B | Soil | 07/10/2019 14:18 | ICP-MS1 167SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.7** | 0.50 | 1 | 07/13/2019 06:32 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 99 | 70-130 | 07/13/2019 06:32 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-6-SW | 1907494-006A | Soil | 07/10/2019 14:20 | ICP-MS1 168SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **18** | 0.50 | 1 | 07/13/2019 06:39 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 95 | 70-130 | 07/13/2019 06:39 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-7-SW | 1907494-007A | Soil | 07/10/2019 14:30 | ICP-MS1 169SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.7** | 0.50 | 1 | 07/13/2019 06:47 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 99 | 70-130 | 07/13/2019 06:47 |

Analyst(s): DB

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-8-SW | 1907494-008A | Soil | 07/10/2019 14:24 | ICP-MS1 170SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/13/2019 06:54 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 97 | 70-130 | | 07/13/2019 06:54 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-9-SW | 1907494-009A | Soil | 07/10/2019 14:36 | ICP-MS1 171SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/13/2019 07:02 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 96 | 70-130 | | 07/13/2019 07:02 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-10-SW | 1907494-010A | Soil | 07/10/2019 14:29 | ICP-MS1 172SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.6** | 0.50 | 1 | 07/13/2019 07:09 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 94 | 70-130 | | 07/13/2019 07:09 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-11-B | 1907494-011A | Soil | 07/10/2019 14:40 | ICP-MS1 176SMPL.D | 181333 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/13/2019 07:39 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 93 | 70-130 | | 07/13/2019 07:39 |

Analyst(s): DB

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-12-B | 1907494-012A | Soil | 07/10/2019 14:34 | ICP-MS3 063SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/12/2019 21:11 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 102 | 70-130 | 07/12/2019 21:11 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-13-B | 1907494-013A | Soil | 07/10/2019 14:44 | ICP-MS1 177SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.8** | 0.50 | 1 | 07/13/2019 07:46 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 95 | 70-130 | 07/13/2019 07:46 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-14-B | 1907494-014A | Soil | 07/10/2019 14:38 | ICP-MS1 178SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/13/2019 07:54 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 94 | 70-130 | 07/13/2019 07:54 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-15-B | 1907494-015A | Soil | 07/10/2019 14:49 | ICP-MS1 179SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.2** | 0.50 | 1 | 07/13/2019 08:01 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 95 | 70-130 | 07/13/2019 08:01 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-15-B DUP** | **1907494-015B** | **Soil** | **07/10/2019 14:49** | **ICP-MS1 180SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.6** | 0.50 | 1 | 07/13/2019 08:09 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 97 | 70-130 | 07/13/2019 08:09 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-16-B** | **1907494-016A** | **Soil** | **07/10/2019 14:40** | **ICP-MS1 181SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.8** | 0.50 | 1 | 07/13/2019 08:16 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 97 | 70-130 | 07/13/2019 08:16 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-17-SW** | **1907494-017A** | **Soil** | **07/10/2019 14:47** | **ICP-MS1 182SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/13/2019 08:24 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 92 | 70-130 | 07/13/2019 08:24 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-18-SW** | **1907494-018A** | **Soil** | **07/10/2019 14:50** | **ICP-MS1 183SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.7** | 0.50 | 1 | 07/13/2019 08:31 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 98 | 70-130 | 07/13/2019 08:31 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-19-SW | 1907494-019A | Soil | 07/10/2019 14:56 | ICP-MS1 184SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.9** | 0.50 | 1 | 07/13/2019 08:38 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 95 | 70-130 | 07/13/2019 08:38 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-20-SW | 1907494-020A | Soil | 07/10/2019 15:01 | ICP-MS1 185SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.3** | 0.50 | 1 | 07/13/2019 08:46 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 98 | 70-130 | 07/13/2019 08:46 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-21-B | 1907494-021A | Soil | 07/10/2019 15:04 | ICP-MS1 194SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.7** | 0.50 | 1 | 07/13/2019 09:54 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 97 | 70-130 | 07/13/2019 09:54 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-22-SW | 1907494-022A | Soil | 07/10/2019 14:56 | ICP-MS1 195SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **7.4** | 0.50 | 1 | 07/13/2019 10:01 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 101 | 70-130 | 07/13/2019 10:01 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-23-SW** | **1907494-023A** | **Soil** | **07/10/2019 15:00** | **ICP-MS1 031SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.3** | 0.50 | 1 | 07/12/2019 13:43 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 105 | 70-130 | 07/12/2019 13:43 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-24-SW** | **1907494-024A** | **Soil** | **07/10/2019 15:06** | **ICP-MS1 032SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.2** | 0.50 | 1 | 07/12/2019 13:50 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 110 | 70-130 | 07/12/2019 13:50 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-25-SW** | **1907494-025A** | **Soil** | **07/10/2019 15:11** | **ICP-MS1 033SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/12/2019 13:57 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 107 | 70-130 | 07/12/2019 13:57 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-25-SW DUP** | **1907494-025B** | **Soil** | **07/10/2019 15:11** | **ICP-MS1 034SMPL.D** | **181353** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/12/2019 14:05 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 109 | 70-130 | 07/12/2019 14:05 |

Analyst(s): MIG

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-26-B | 1907494-026A | Soil | 07/10/2019 15:15 | ICP-MS1 035SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/12/2019 14:12 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 110 | 70-130 | 07/12/2019 14:12 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-27-SW | 1907494-027A | Soil | 07/10/2019 15:06 | ICP-MS1 036SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.4** | 0.50 | 1 | 07/12/2019 14:20 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 106 | 70-130 | 07/12/2019 14:20 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-28-SW | 1907494-028A | Soil | 07/10/2019 15:10 | ICP-MS1 040SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.3** | 0.50 | 1 | 07/12/2019 14:50 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 105 | 70-130 | 07/12/2019 14:50 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-29-SW | 1907494-029A | Soil | 07/10/2019 15:15 | ICP-MS1 068SMPL.D | 181353 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.9** | 0.50 | 1 | 07/12/2019 18:12 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 107 | 70-130 | 07/12/2019 18:12 |

Analyst(s): MIG

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-30-SW** | **1907494-030A** | **Soil** | **07/10/2019 15:19** | **ICP-MS3 038SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.2** | 0.50 | 1 | 07/12/2019 18:39 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 98 | 70-130 | 07/12/2019 18:39 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-31-B** | **1907494-031A** | **Soil** | **07/10/2019 15:20** | **ICP-MS1 069SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.7** | 0.50 | 1 | 07/12/2019 18:20 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 109 | 70-130 | 07/12/2019 18:20 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-32-SW** | **1907494-032A** | **Soil** | **07/10/2019 15:18** | **ICP-MS1 070SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **5.7** | 0.50 | 1 | 07/12/2019 18:27 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 107 | 70-130 | 07/12/2019 18:27 |

Analyst(s): MIG

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-33-SW** | **1907494-033A** | **Soil** | **07/10/2019 15:22** | **ICP-MS1 074SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.7** | 0.50 | 1 | 07/12/2019 18:57 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 113 | 70-130 | 07/12/2019 18:57 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-34-SW** | **1907494-034A** | **Soil** | **07/10/2019 15:26** | **ICP-MS1 075SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/12/2019 19:04 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 99 | 70-130 | | 07/12/2019 19:04 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-35-SW** | **1907494-035A** | **Soil** | **07/10/2019 15:29** | **ICP-MS1 076SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.4** | 0.50 | 1 | 07/12/2019 19:12 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 105 | 70-130 | | 07/12/2019 19:12 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-35-SW DUP** | **1907494-035B** | **Soil** | **07/10/2019 15:29** | **ICP-MS1 077SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.5** | 0.50 | 1 | 07/12/2019 19:19 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 105 | 70-130 | | 07/12/2019 19:19 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-36-B** | **1907494-036A** | **Soil** | **07/10/2019 15:32** | **ICP-MS1 078SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.7** | 0.50 | 1 | 07/12/2019 19:27 |

| Surrogates | REC (%) | Limits | | |
|---|---|---|---|---|
| Terbium | 106 | 70-130 | | 07/12/2019 19:27 |

Analyst(s): DB

*(Cont.)*

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-37-SW | 1907494-037A | Soil | 07/10/2019 15:26 | ICP-MS1 079SMPL.D | 181355 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.0** | 0.50 | 1 | 07/12/2019 19:34 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 102 | 70-130 | 07/12/2019 19:34 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-38-SW | 1907494-038A | Soil | 07/10/2019 15:30 | ICP-MS1 080SMPL.D | 181355 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **5.5** | 0.50 | 1 | 07/12/2019 19:42 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 106 | 70-130 | 07/12/2019 19:42 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-39-SW | 1907494-039A | Soil | 07/10/2019 15:32 | ICP-MS1 081SMPL.D | 181355 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **3.6** | 0.50 | 1 | 07/12/2019 19:49 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 108 | 70-130 | 07/12/2019 19:49 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| CS-40-SW | 1907494-040A | Soil | 07/10/2019 15:38 | ICP-MS1 082SMPL.D | 181355 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.3** | 0.50 | 1 | 07/12/2019 19:56 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 95 | 70-130 | 07/12/2019 19:56 |

Analyst(s): DB

*(Cont.)*

McCampbell Analytical, Inc.
*"When Quality Counts"*
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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-41-B** | **1907494-041A** | **Soil** | **07/10/2019 15:41** | **ICP-MS1 083SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.1** | 0.50 | 1 | 07/12/2019 20:04 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 103 | 70-130 | 07/12/2019 20:04 |

Analyst(s): DB

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | E200.8 |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | E200.8 |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Unit:** | µg/L |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **FB #1** | **1907494-042A** | **Water** | **07/10/2019 15:50** | **ICP-MS1 204SMPL.D** | **181349** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | ND | 0.50 | 1 | 07/13/2019 11:08 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 104 | 70-130 | 07/13/2019 11:08 |

Analyst(s): DB

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **EB #1** | **1907494-043A** | **Water** | **07/10/2019 15:55** | **ICP-MS1 205SMPL.D** | **181349** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | ND | 0.50 | 1 | 07/13/2019 11:16 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 105 | 70-130 | 07/13/2019 11:16 |

Analyst(s): DB

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181333 |
| **Date Analyzed:** | 7/12/19 - 7/13/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181333 |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Arsenic | ND | 0.14 | 0.50 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 500 | | | 500 | 100 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 51 | 53 | 50 | 102 | 106 | 75-125 | 4.36 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 520 | 550 | 500 | 104 | 110 | 70-130 | 5.52 | 20 |

*(Cont.)*

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181353 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181353<br>1907494-012AMS/MSD |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Arsenic | ND | 0.14 | 0.50 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 500 | | | 500 | 99 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 51 | 50 | 50 | 101 | 99 | 75-125 | 2.07 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 540 | 520 | 500 | 109 | 104 | 70-130 | 4.30 | 20 |

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 1 | 52 | 51 | 50 | 4.039 | 95 | 94 | 75-125 | 0.661 | 20 |
| **Surrogate Recovery** | | | | | | | | | | |
| Terbium | 1 | 520 | 520 | 500 | | 105 | 103 | 70-130 | 1.43 | 20 |

| Analyte | DLT Result | DLTRef Val | %D | %D Limit |
|---|---|---|---|---|
| Arsenic | 4.0 | 4.039 | 0.966 | - |

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

*(Cont.)*

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181355 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181355<br>1907494-030AMS/MSD |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Arsenic | ND | 0.14 | 0.50 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 490 | | | 500 | 98 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 50 | 51 | 50 | 101 | 102 | 75-125 | 1.36 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 530 | 530 | 500 | 105 | 106 | 70-130 | 0.626 | 20 |

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 1 | 52 | 53 | 50 | 4.237 | 95 | 98 | 75-125 | 2.91 | 20 |
| **Surrogate Recovery** | | | | | | | | | | |
| Terbium | 1 | 510 | 510 | 500 | | 101 | 102 | 70-130 | 0.730 | 20 |

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907494 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181349 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | E200.8 |
| **Instrument:** | ICP-MS2 | **Analytical Method:** | E200.8 |
| **Matrix:** | Water | **Unit:** | µg/L |
| **Project:** | 1801-0723 (B); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181349 |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Arsenic | ND | 0.12 | 0.50 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 510 | | | 500 | 103 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 53 | 53 | 50 | 106 | 106 | 85-115 | 0 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 530 | 530 | 500 | 105 | 105 | 70-130 | 0 | 20 |

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907494** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padrein
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (B); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **3 days;**

***Date Received:*** **07/11/2019**
***Date Logged:*** **07/11/2019**

| Lab ID | Client ID | Matrix | Collection Date | Hold | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-001 | CS-1-SW | Soil | 7/10/2019 14:14 | ☐ | A | | | | | | | | | | | |
| 1907494-002 | CS-2-SW | Soil | 7/10/2019 14:10 | ☐ | A | | | | | | | | | | | |
| 1907494-003 | CS-3-SW | Soil | 7/10/2019 14:18 | ☐ | A | | | | | | | | | | | |
| 1907494-004 | CS-4-SW | Soil | 7/10/2019 14:15 | ☐ | A | | | | | | | | | | | |
| 1907494-005 | CS-5-SW | Soil | 7/10/2019 14:18 | ☐ | A | | | | | | | | | | | |
| 1907494-005 | CS-5-SW DUP | Soil | 7/10/2019 14:18 | ☐ | B | | | | | | | | | | | |
| 1907494-006 | CS-6-SW | Soil | 7/10/2019 14:20 | ☐ | A | | | | | | | | | | | |
| 1907494-007 | CS-7-SW | Soil | 7/10/2019 14:30 | ☐ | A | | | | | | | | | | | |
| 1907494-008 | CS-8-SW | Soil | 7/10/2019 14:24 | ☐ | A | | | | | | | | | | | |
| 1907494-009 | CS-9-SW | Soil | 7/10/2019 14:36 | ☐ | A | | | | | | | | | | | |
| 1907494-010 | CS-10-SW | Soil | 7/10/2019 14:29 | ☐ | A | | | | | | | | | | | |
| 1907494-011 | CS-11-B | Soil | 7/10/2019 14:40 | ☐ | A | | | | | | | | | | | |
| 1907494-012 | CS-12-B | Soil | 7/10/2019 14:34 | ☐ | A | | | | | | | | | | | |
| 1907494-013 | CS-13-B | Soil | 7/10/2019 14:44 | ☐ | A | | | | | | | | | | | |
| 1907494-014 | CS-14-B | Soil | 7/10/2019 14:38 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | ASMS_6020_TTLC_S | 2 | ASMS_TTLC_W | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas** **Prepared by: Kena Ponce**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907494** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padrein
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (B); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **3 days;**

***Date Received:*** **07/11/2019**
***Date Logged:*** **07/11/2019**

| Lab ID | Client ID | Matrix | Collection Date | Hold | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-015 | CS-15-B | Soil | 7/10/2019 14:49 | ☐ | A | | | | | | | | | | | |
| 1907494-015 | CS-15-B DUP | Soil | 7/10/2019 14:49 | ☐ | B | | | | | | | | | | | |
| 1907494-016 | CS-16-B | Soil | 7/10/2019 14:40 | ☐ | A | | | | | | | | | | | |
| 1907494-017 | CS-17-SW | Soil | 7/10/2019 14:47 | ☐ | A | | | | | | | | | | | |
| 1907494-018 | CS-18-SW | Soil | 7/10/2019 14:50 | ☐ | A | | | | | | | | | | | |
| 1907494-019 | CS-19-SW | Soil | 7/10/2019 14:56 | ☐ | A | | | | | | | | | | | |
| 1907494-020 | CS-20-SW | Soil | 7/10/2019 15:01 | ☐ | A | | | | | | | | | | | |
| 1907494-021 | CS-21-B | Soil | 7/10/2019 15:04 | ☐ | A | | | | | | | | | | | |
| 1907494-022 | CS-22-SW | Soil | 7/10/2019 14:56 | ☐ | A | | | | | | | | | | | |
| 1907494-023 | CS-23-SW | Soil | 7/10/2019 15:00 | ☐ | A | | | | | | | | | | | |
| 1907494-024 | CS-24-SW | Soil | 7/10/2019 15:06 | ☐ | A | | | | | | | | | | | |
| 1907494-025 | CS-25-SW | Soil | 7/10/2019 15:11 | ☐ | A | | | | | | | | | | | |
| 1907494-025 | CS-25-SW DUP | Soil | 7/10/2019 15:11 | ☐ | B | | | | | | | | | | | |
| 1907494-026 | CS-26-B | Soil | 7/10/2019 15:15 | ☐ | A | | | | | | | | | | | |
| 1907494-027 | CS-27-SW | Soil | 7/10/2019 15:06 | ☐ | A | | | | | | | | | | | |

Requested Tests (See legend below): columns 1–12

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | ASMS_6020_TTLC_S | 2 | ASMS_TTLC_W | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas**

**Prepared by: Kena Ponce**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
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# McCampbell Analytical, Inc.

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907494** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padrein
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (B); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **3 days;**

***Date Received:*** **07/11/2019**
***Date Logged:*** **07/11/2019**

| Lab ID | Client ID | Matrix | Collection Date | Hold | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-028 | CS-28-SW | Soil | 7/10/2019 15:10 | ☐ | A | | | | | | | | | | | |
| 1907494-029 | CS-29-SW | Soil | 7/10/2019 15:15 | ☐ | A | | | | | | | | | | | |
| 1907494-030 | CS-30-SW | Soil | 7/10/2019 15:19 | ☐ | A | | | | | | | | | | | |
| 1907494-031 | CS-31-B | Soil | 7/10/2019 15:20 | ☐ | A | | | | | | | | | | | |
| 1907494-032 | CS-32-SW | Soil | 7/10/2019 15:18 | ☐ | A | | | | | | | | | | | |
| 1907494-033 | CS-33-SW | Soil | 7/10/2019 15:22 | ☐ | A | | | | | | | | | | | |
| 1907494-034 | CS-34-SW | Soil | 7/10/2019 15:26 | ☐ | A | | | | | | | | | | | |
| 1907494-035 | CS-35-SW | Soil | 7/10/2019 15:29 | ☐ | A | | | | | | | | | | | |
| 1907494-035 | CS-35-SW DUP | Soil | 7/10/2019 15:29 | ☐ | B | | | | | | | | | | | |
| 1907494-036 | CS-36-B | Soil | 7/10/2019 15:32 | ☐ | A | | | | | | | | | | | |
| 1907494-037 | CS-37-SW | Soil | 7/10/2019 15:26 | ☐ | A | | | | | | | | | | | |
| 1907494-038 | CS-38-SW | Soil | 7/10/2019 15:30 | ☐ | A | | | | | | | | | | | |
| 1907494-039 | CS-39-SW | Soil | 7/10/2019 15:32 | ☐ | A | | | | | | | | | | | |
| 1907494-040 | CS-40-SW | Soil | 7/10/2019 15:38 | ☐ | A | | | | | | | | | | | |
| 1907494-041 | CS-41-B | Soil | 7/10/2019 15:41 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | ASMS_6020_TTLC_S | 2 | ASMS_TTLC_W | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas** **Prepared by: Kena Ponce**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907494** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padrein
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (B); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **3 days;**

***Date Received:*** **07/11/2019**
***Date Logged:*** **07/11/2019**

| | | | | | Requested Tests (See legend below) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID** | **Client ID** | **Matrix** | **Collection Date** | **Hold** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| 1907494-042 | FB #1 | Water | 7/10/2019 15:50 | ☐ | | A | | | | | | | | | | |
| 1907494-043 | EB #1 | Water | 7/10/2019 15:55 | ☐ | | A | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | ASMS_6020_TTLC_S | 2 | ASMS_TTLC_W | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas**

**Prepared by: Kena Ponce**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
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http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC.
**Project:** 1801-0723 (B); GUSD-Brownell Middle School
**Work Order:** 1907494
**Client Contact:** Alan Churchill
**QC Level:** LEVEL 2
**Contact's Email:** achurchill@padreinc.com; aklein@padreinc.com
**Comments:**
**Date Logged:** 7/11/2019

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-001A | CS-1-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:14 | 3 days | | ☐ | |
| 1907494-002A | CS-2-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:10 | 3 days | | ☐ | |
| 1907494-003A | CS-3-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:18 | 3 days | | ☐ | |
| 1907494-004A | CS-4-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:15 | 3 days | | ☐ | |
| 1907494-005A | CS-5-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:18 | 3 days | | ☐ | |
| 1907494-005B | CS-5-SW DUP | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:18 | 3 days | | ☐ | |
| 1907494-006A | CS-6-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:20 | 3 days | | ☐ | |
| 1907494-007A | CS-7-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:30 | 3 days | | ☐ | |
| 1907494-008A | CS-8-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:24 | 3 days | | ☐ | |
| 1907494-009A | CS-9-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:36 | 3 days | | ☐ | |
| 1907494-010A | CS-10-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:29 | 3 days | | ☐ | |
| 1907494-011A | CS-11-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:40 | 3 days | | ☐ | |
| 1907494-012A | CS-12-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:34 | 3 days | | ☐ | |
| 1907494-013A | CS-13-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:44 | 3 days | | ☐ | |
| 1907494-014A | CS-14-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:38 | 3 days | | ☐ | |
| 1907494-015A | CS-15-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:49 | 3 days | | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

**- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

McCampbell Analytical, Inc.
*"When Quality Counts"*
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC. **Project:** 1801-0723 (B); GUSD-Brownell Middle School **Work Order:** 1907494
**Client Contact:** Alan Churchill **QC Level:** LEVEL 2
**Contact's Email:** achurchill@padreinc.com; aklein@padreinc.com **Comments:** **Date Logged:** 7/11/2019

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-015B | CS-15-B DUP | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:49 | 3 days | | ☐ | |
| 1907494-016A | CS-16-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:40 | 3 days | | ☐ | |
| 1907494-017A | CS-17-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:47 | 3 days | | ☐ | |
| 1907494-018A | CS-18-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:50 | 3 days | | ☐ | |
| 1907494-019A | CS-19-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:56 | 3 days | | ☐ | |
| 1907494-020A | CS-20-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:01 | 3 days | | ☐ | |
| 1907494-021A | CS-21-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:04 | 3 days | | ☐ | |
| 1907494-022A | CS-22-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:56 | 3 days | | ☐ | |
| 1907494-023A | CS-23-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:00 | 3 days | | ☐ | |
| 1907494-024A | CS-24-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:06 | 3 days | | ☐ | |
| 1907494-025A | CS-25-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:11 | 3 days | | ☐ | |
| 1907494-025B | CS-25-SW DUP | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:11 | 3 days | | ☐ | |
| 1907494-026A | CS-26-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:15 | 3 days | | ☐ | |
| 1907494-027A | CS-27-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:06 | 3 days | | ☐ | |
| 1907494-028A | CS-28-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:10 | 3 days | | ☐ | |
| 1907494-029A | CS-29-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:15 | 3 days | | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

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# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC. **Project:** 1801-0723 (B); GUSD-Brownell Middle School **Work Order:** 1907494

**Client Contact:** Alan Churchill **QC Level:** LEVEL 2

**Contact's Email:** achurchill@padreinc.com; aklein@padreinc.com **Comments:** **Date Logged:** 7/11/2019

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907494-030A | CS-30-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:19 | 3 days | | ☐ | |
| 1907494-031A | CS-31-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:20 | 3 days | | ☐ | |
| 1907494-032A | CS-32-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:18 | 3 days | | ☐ | |
| 1907494-033A | CS-33-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:22 | 3 days | | ☐ | |
| 1907494-034A | CS-34-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:26 | 3 days | | ☐ | |
| 1907494-035A | CS-35-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:29 | 3 days | | ☐ | |
| 1907494-035B | CS-35-SW DUP | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:29 | 3 days | | ☐ | |
| 1907494-036A | CS-36-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:32 | 3 days | | ☐ | |
| 1907494-037A | CS-37-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:26 | 3 days | | ☐ | |
| 1907494-038A | CS-38-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:30 | 3 days | | ☐ | |
| 1907494-039A | CS-39-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:32 | 3 days | | ☐ | |
| 1907494-040A | CS-40-SW | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:38 | 3 days | | ☐ | |
| 1907494-041A | CS-41-B | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 15:41 | 3 days | | ☐ | |
| 1907494-042A | FB #1 | Water | E200.8 (Arsenic) | 1 | 250mL HDPE w/ HNO3 | ☐ | 7/10/2019 15:50 | 3 days | None | ☐ | |
| 1907494-043A | EB #1 | Water | E200.8 (Arsenic) | 1 | 250mL HDPE w/ HNO3 | ☐ | 7/10/2019 15:55 | 3 days | None | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

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General COC

MAI Work Order # 1907494

# McCAMPBELL ANALYTICAL, INC.

RUSH

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

## CHAIN OF CUSTODY RECORD

| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | | Quote # | |
|---|---|---|---|---|---|---|---|---|---|
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # | |
| Delivery Format: | PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: O916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (B)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: [signature]

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | | Arsenic (6020) | | | Split\run dupe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS-1-SW | 7-10-19 | 1414 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-2-SW | 7-10-19 | 1410 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-3-SW | 7-10-19 | 1418 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-4-SW | 7-10-19 | 1415 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-5-SW | 7-10-19 | 1418 | 1 | S | 1 | | | ● | | | ● | | | | | | | | | | | | | |
| CS-6-SW | 7-10-19 | 1420 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-7-SW | 7-10-19 | 1430 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-8-SW | 7-10-19 | 1424 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-9-SW | 7-10-19 | 1436 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-10-SW | 7-10-19 | 1429 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7.11.19 | 0947 | PJS | 7/11/19 | 947 |
| PJS | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ____ °C Initials ____

Page 1 of 5

General COC

MAI Work Order # ______________

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www.mccampbell.com main@mccampbell.com

## CHAIN OF CUSTODY RECORD

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | | Quote # |
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # |
| Delivery Format: | PDF | ● | GeoTracker EDF | EDD | | Write On (DW) | | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: 0916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (B)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: [signature]

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | Arsenic (6020) | Split\run dupe |
|---|---|---|---|---|---|---|---|
| CS-11-B | 7-10-19 | 1440 | 1 | S | 1 | ● | |
| CS-12-B | 7-10-19 | 1434 | 1 | S | 1 | ● | |
| CS-13-B | 7-10-19 | 1444 | 1 | S | 1 | ● | |
| CS-14-B | 7-10-19 | 1438 | 1 | S | 1 | ● | |
| CS-15-B | 7-10-19 | 1449 | 1 | S | 1 | ● | ● |
| CS-16-B | 7-10-19 | 1440 | 1 | S | 1 | ● | |
| CS-17-SW | 7-10-19 | 1447 | 1 | S | 1 | ● | |
| CS-18-SW | 7-10-19 | 1450 | 1 | S | 1 | ● | |
| CS-19-SW | 7-10-19 | 1456 | 1 | S | 1 | ● | |
| CS-20-SW | 7-10-19 | 1501 | 1 | S | 1 | ● | |

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Comments / Instructions

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7.11.19 | 0947 | PD | 7/11/19 | 947 |
| PD | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 2 of 5

General COC

MAI Work Order # ____________

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## CHAIN OF CUSTODY RECORD

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | | Quote # |
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # |
| Delivery Format: | PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: O916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (B)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature:

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | | Arsenic (6020) | | | Split\run dupe | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS-21-B | 7-10-19 | 1504 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-22-SW | 7-10-19 | 1456 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-23-SW | 7-10-19 | 1500 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-24-SW | 7-10-19 | 1506 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-25-SW | 7-10-19 | 1511 | 1 | S | 1 | | | ● | | | ● | | | | | | | | | | | | | | | | |
| CS-26-B | 7-10-19 | 1515 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-27-SW | 7-10-19 | 1506 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-28-SW | 7-10-19 | 1510 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-29-SW | 7-10-19 | 1515 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |
| CS-30-SW | 7-10-19 | 1519 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | | | | |

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| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7.11.19 | 0947 | PD | 7/11/19 | 947 |
| BJ | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 3 of 5

General COC

MAI Work Order # ______________

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Telephone: (877) 252-9262 / Fax: (925) 252-9269

www.mccampbell.com main@mccampbell.com

## CHAIN OF CUSTODY RECORD

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | Quote # |
| J-Flag / MDL | | ESL | | Cleanup Approved | | | Bottle Order # |
| Delivery Format: PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | EQuIS |

Report To: Alan Klein | Bill To:

Company: Padre Associates Inc.

Email: aklein@padreinc.com

Alt Email: achurchill@padreinc.com | Tele: 0916-333-5920, ext. 240

Project Name: GUSD - Brownell Middle School | Project #: 1801-0723 (B)

Project Location: Gilroy, CA | PO # 1801-0723

Sampler Signature: A. K.

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | | Arsenic (6020) | | | Split\run dupe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS-31-B | 7-10-19 | 1520 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-32-SW | 7-10-19 | 1518 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-33-SW | 7-10-19 | 1522 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-34-SW | 7-10-19 | 1526 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-35-SW | 7-10-19 | 1529 | 1 | S | 1 | | | ● | | | ● | | | | | | | | | | | | | |
| CS-36-B | 7-10-19 | 1532 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-37-SW | 7-10-19 | 1526 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-38-SW | 7-10-19 | 1530 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-39-SW | 7-10-19 | 1532 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |
| CS-40-SW | 7-10-19 | 1538 | 1 | S | 1 | | | ● | | | | | | | | | | | | | | | | |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| A. K. / PADRE | 7·11·19 | 0947 | PB | 7/11/19 | 947 |
| PB | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 4 of 5

General COC

MAI Work Order # ____________

# McCAMPBELL ANALYTICAL, INC.

RUSH

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www.mccampbell.com main@mccampbell.com

## CHAIN OF CUSTODY RECORD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | | Quote # | |
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # | |
| Delivery Format: | PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: O916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (B)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: [signature]

Analysis Requested

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | | Arsenic (6020) | | | Arsenic (200.8) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CS-41-B | 7-10-19 | 1541 | 1 | S | 1 | | | ● | | | |
| | | | | | | | | | | | |
| FB #1 | 7-10-19 | 1550 | 1 | W | 1,4 | | | | | | ● |
| EB #1 | 7-10-19 | 1555 | 1 | W | 1,4 | | | | | | ● |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.
Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7-11-19 | 0947 | [initials] | 7/11/19 | 947 |
| [initials] | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other
Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 5 of 5

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Padre Associates. Inc.** | Date and Time Received | **7/11/2019 12:15** |
| Project: | **1801-0723 (B); GUSD-Brownell Middle School** | Date Logged: | **7/11/2019** |
| | | Received by: | Kena Ponce |
| WorkOrder №: | **1907494** Matrix: Soil/Water | Logged by: | Kena Ponce |
| Carrier: | Patrick Johnson (MAI Courier) | | |

## Chain of Custody (COC) Information

| | Yes | No | NA |
|---|---|---|---|
| Chain of custody present? | ☑ | ☐ | |
| Chain of custody signed when relinquished and received? | ☑ | ☐ | |
| Chain of custody agrees with sample labels? | ☑ | ☐ | |
| Sample IDs noted by Client on COC? | ☑ | ☐ | |
| Date and Time of collection noted by Client on COC? | ☑ | ☐ | |
| Sampler's name noted on COC? | ☑ | ☐ | |
| COC agrees with Quote? | ☐ | ☐ | ☑ |

## Sample Receipt Information

| | Yes | No | NA |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | ☐ | ☐ | ☑ |
| Shipping container/cooler in good condition? | ☑ | ☐ | |
| Samples in proper containers/bottles? | ☑ | ☐ | |
| Sample containers intact? | ☑ | ☐ | |
| Sufficient sample volume for indicated test? | ☑ | ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | Yes | No | NA |
|---|---|---|---|
| All samples received within holding time? | ☑ | ☐ | ☐ |
| Samples Received on Ice? (Ice Type: WET ICE ) | ☑ | ☐ | |
| Sample/Temp Blank temperature | Temp: 1.7°C | | ☐ |
| Water - VOA vials have zero headspace / no bubbles? | ☐ | ☐ | ☑ |
| Sample labels checked for correct preservation? | ☑ | ☐ | |
| pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)? | ☑ | ☐ | ☐ |

UCMR Samples:

| | Yes | No | NA |
|---|---|---|---|
| pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)? | ☐ | ☐ | ☑ |
| Free Chlorine tested and acceptable upon receipt (<0.1mg/L)? | ☐ | ☐ | ☑ |

Comments:

McCampbell Analytical, Inc.

"When Quality Counts"

# Analytical Report

**WorkOrder:** 1907C32

**Report Created for:** Padre Associates. Inc.

350 University Ave., Suite 250
Sacramento, CA 95825

**Project Contact:** Alan J. Klein
**Project P.O.:** 1801-0723
**Project:** 1801-0723 ©; GUSD-Brownell Middle School

**Project Received:** 07/25/2019

Analytical Report reviewed & approved for release on 07/26/2019 by:

Susan Thompson
Project Manager

***The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Padre Associates. Inc.
**Project:** 1801-0723 ©; GUSD-Brownell Middle School
**WorkOrder:** 1907C32

## Glossary Abbreviation

| | |
|---|---|
| %D | Serial Dilution Percent Difference |
| 95% Interval | 95% Confident Interval |
| DF | Dilution Factor |
| DI WET | (DISTLC) Waste Extraction Test using DI water |
| DISS | Dissolved (direct analysis of 0.45 µm filtered and acidified water sample) |
| DLT | Dilution Test (Serial Dilution) |
| DUP | Duplicate |
| EDL | Estimated Detection Limit |
| ERS | External reference sample. Second source calibration verification. |
| ITEF | International Toxicity Equivalence Factor |
| LCS | Laboratory Control Sample |
| MB | Method Blank |
| MB % Rec | % Recovery of Surrogate in Method Blank, if applicable |
| MDL | Method Detection Limit |
| ML | Minimum Level of Quantitation |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| N/A | Not Applicable |
| ND | Not detected at or above the indicated MDL or RL |
| NR | Data Not Reported due to matrix interference or insufficient sample amount. |
| PDS | Post Digestion Spike |
| PDSD | Post Digestion Spike Duplicate |
| PF | Prep Factor |
| RD | Relative Difference |
| RL | Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.) |
| RPD | Relative Percent Deviation |
| RRT | Relative Retention Time |
| SPK Val | Spike Value |
| SPKRef Val | Spike Reference Value |
| SPLP | Synthetic Precipitation Leachate Procedure |
| ST | Sorbent Tube |
| TCLP | Toxicity Characteristic Leachate Procedure |
| TEQ | Toxicity Equivalents |
| TZA | TimeZone Net Adjustment for sample collected outside of MAI's UTC. |
| WET (STLC) | Waste Extraction Test (Soluble Threshold Limit Concentration) |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907C32 |
| **Date Received:** | 7/25/19 12:35 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/25/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 ©; GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Arsenic

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **CS-6-SW (A)** | **1907C32-001A** | **Soil** | **07/25/2019 08:30** | **ICP-MS3 032SMPL.D** | **182380** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Arsenic | **4.8** | 0.50 | 1 | 07/26/2019 12:37 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 120 | 70-130 | 07/26/2019 12:37 |

Analyst(s): ND

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907C32 |
| **Date Prepared:** | 7/25/19 | **BatchID:** | 182380 |
| **Date Analyzed:** | 7/26/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS1 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 ©; GUSD-Brownell Middle School | **Sample ID:** | MB/LCS-182380 |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Arsenic | ND | 0.14 | 0.50 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 510 | | | 500 | 102 | 70-130 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 50 | - | 50 | 100 | - | 75-125 | - | - |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 530 | - | 500 | 107 | - | 70-130 | - | - |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907C32** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan J. Klein
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: aklein@padreinc.com
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 ©; GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **1 day;**

***Date Received:*** **07/25/2019**
***Date Logged:*** **07/25/2019**

| Lab ID | Client ID | Matrix | Collection Date | Hold | Requested Tests (See legend below) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907C32-001 | CS-6-SW (A) | Soil | 7/25/2019 08:30 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | ASMS_6020_TTLC_S | 2 | | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas**

**Prepared by: Kena Ponce**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC. **Project:** 1801-0723 ©; GUSD-Brownell Middle School **Work Order:** 1907C32
**Client Contact:** Alan J. Klein **QC Level:** LEVEL 2
**Contact's Email:** aklein@padreinc.com **Comments:** **Date Logged:** 7/25/2019

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907C32-001A | CS-6-SW (A) | Soil | SW6020 (Arsenic) | 1 | Stainless Steel tube 2"x3" | ☐ | 7/25/2019 8:30 | 1 day | | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

**- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

RUSH!

MAI Work Order # 1907C32

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## CHAIN OF CUSTODY RECORD

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | ● | 2 Day Rush | | 3 Day Rush | | STD | | Quote # |
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # |
| Delivery Format: | PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: 0916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #: 1801-0723 (C)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: AK

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | | Arsenic (6020) |
|---|---|---|---|---|---|---|---|---|
| CS-6-SW (A) | 7-25-19 | 0830 | 1 | S | 1 | | | ● |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| AK / PADRE | 7.25.19 | 1235 | [signature] | 7/25/19 | 12:35 |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 5.0 °C Initials T.D.

Page 1 of 1

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Padre Associates. Inc.** | Date and Time Received | **7/25/2019 12:35** |
| Project: | **1801-0723 ©; GUSD-Brownell Middle School** | Date Logged: | **7/25/2019** |
| | | Received by: | Tina Perez |
| WorkOrder №: | **1907C32** Matrix: Soil | Logged by: | Kena Ponce |
| Carrier: | Client Drop-In | | |

## Chain of Custody (COC) Information

|  | Yes | No | NA |
|---|---|---|---|
| Chain of custody present? | ☑ | ☐ | |
| Chain of custody signed when relinquished and received? | ☑ | ☐ | |
| Chain of custody agrees with sample labels? | ☑ | ☐ | |
| Sample IDs noted by Client on COC? | ☑ | ☐ | |
| Date and Time of collection noted by Client on COC? | ☑ | ☐ | |
| Sampler's name noted on COC? | ☑ | ☐ | |
| COC agrees with Quote? | ☐ | ☐ | ☑ |

## Sample Receipt Information

|  | Yes | No | NA |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | ☐ | ☐ | ☑ |
| Shipping container/cooler in good condition? | ☑ | ☐ | |
| Samples in proper containers/bottles? | ☑ | ☐ | |
| Sample containers intact? | ☑ | ☐ | |
| Sufficient sample volume for indicated test? | ☑ | ☐ | |

## Sample Preservation and Hold Time (HT) Information

|  | Yes | No | NA |
|---|---|---|---|
| All samples received within holding time? | ☑ | ☐ | ☐ |
| Samples Received on Ice? | ☑ | ☐ | |
| (Ice Type: WET ICE ) | | | |
| Sample/Temp Blank temperature | Temp: 5°C | | ☐ |
| Water - VOA vials have zero headspace / no bubbles? | ☐ | ☐ | ☑ |
| Sample labels checked for correct preservation? | ☑ | ☐ | |
| pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)? | ☐ | ☐ | ☑ |

UCMR Samples:

|  | Yes | No | NA |
|---|---|---|---|
| pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)? | ☐ | ☐ | ☑ |
| Free Chlorine tested and acceptable upon receipt (<0.1mg/L)? | ☐ | ☐ | ☑ |

Comments:

# APPENDIX C2
# SOIL BINS SAMPLE REPORTS

McCampbell Analytical, Inc.

"When Quality Counts"

# Analytical Report

**WorkOrder:** 1907495

**Report Created for:** Padre Associates. Inc.

350 University Ave., Suite 250
Sacramento, CA 95825

**Project Contact:** Alan Churchill
**Project P.O.:** 1801-0723
**Project:** 1801-0723 (A); GUSD-Brownell Middle School

**Project Received:** 07/11/2019

Analytical Report reviewed & approved for release on 07/16/2019 by:

Heidi Fruhlinger
Project Manager

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NELAP ACCREDITED TNI LABORATORY

# Glossary of Terms & Qualifier Definitions

**Client:** Padre Associates. Inc.
**Project:** 1801-0723 (A); GUSD-Brownell Middle School
**WorkOrder:** 1907495

## Glossary Abbreviation

| | |
|---|---|
| %D | Serial Dilution Percent Difference |
| 95% Interval | 95% Confident Interval |
| DF | Dilution Factor |
| DI WET | (DISTLC) Waste Extraction Test using DI water |
| DISS | Dissolved (direct analysis of 0.45 µm filtered and acidified water sample) |
| DLT | Dilution Test (Serial Dilution) |
| DUP | Duplicate |
| EDL | Estimated Detection Limit |
| ERS | External reference sample. Second source calibration verification. |
| ITEF | International Toxicity Equivalence Factor |
| LCS | Laboratory Control Sample |
| MB | Method Blank |
| MB % Rec | % Recovery of Surrogate in Method Blank, if applicable |
| MDL | Method Detection Limit |
| ML | Minimum Level of Quantitation |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| N/A | Not Applicable |
| ND | Not detected at or above the indicated MDL or RL |
| NR | Data Not Reported due to matrix interference or insufficient sample amount. |
| PDS | Post Digestion Spike |
| PDSD | Post Digestion Spike Duplicate |
| PF | Prep Factor |
| RD | Relative Difference |
| RL | Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.) |
| RPD | Relative Percent Deviation |
| RRT | Relative Retention Time |
| SPK Val | Spike Value |
| SPKRef Val | Spike Reference Value |
| SPLP | Synthetic Precipitation Leachate Procedure |
| ST | Sorbent Tube |
| TCLP | Toxicity Characteristic Leachate Procedure |
| TEQ | Toxicity Equivalents |
| TZA | TimeZone Net Adjustment for sample collected outside of MAI's UTC. |
| WET (STLC) | Waste Extraction Test (Soluble Threshold Limit Concentration) |

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# Glossary of Terms & Qualifier Definitions

**Client:** Padre Associates. Inc.
**Project:** 1801-0723 (A); GUSD-Brownell Middle School
**WorkOrder:** 1907495

## Analytical Qualifiers

| | |
|---|---|
| B | Analyte detected in the associated Method Blank and in the sample |
| J | Result is less than the RL/ML but greater than the MDL. The reported concentration is an estimated value. |
| P | Agreement between quantitative confirmation results exceed method recommended limits |

## Quality Control Qualifiers

| | |
|---|---|
| F2 | LCS/LCSD recovery and/or RPD/RSD is out of acceptance criteria. |

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC20 07111979.D | 181359 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Aldrin | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| a-BHC | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| b-BHC | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| d-BHC | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| g-BHC | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Chlordane (Technical) | ND | | 0.025 | 1 | 07/12/2019 07:54 |
| a-Chlordane | **0.0011** | | 0.0010 | 1 | 07/12/2019 07:54 |
| g-Chlordane | **0.0012** | P | 0.0010 | 1 | 07/12/2019 07:54 |
| p,p-DDD | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| p,p-DDE | **0.053** | | 0.0010 | 1 | 07/12/2019 07:54 |
| p,p-DDT | **0.019** | | 0.0010 | 1 | 07/12/2019 07:54 |
| Dieldrin | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endosulfan I | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endosulfan II | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endosulfan sulfate | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endrin | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endrin aldehyde | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Endrin ketone | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Heptachlor | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Heptachlor epoxide | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Hexachlorobenzene | ND | | 0.010 | 1 | 07/12/2019 07:54 |
| Hexachlorocyclopentadiene | ND | | 0.020 | 1 | 07/12/2019 07:54 |
| Methoxychlor | ND | | 0.0010 | 1 | 07/12/2019 07:54 |
| Toxaphene | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1016 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1221 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1232 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1242 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1248 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1254 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| Aroclor1260 | ND | | 0.050 | 1 | 07/12/2019 07:54 |
| PCBs, total | ND | | 0.050 | 1 | 07/12/2019 07:54 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Decachlorobiphenyl | 99 | 69-143 | 07/12/2019 07:54 |

Analyst(s): CK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8081A/8082 |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Organochlorine Pesticides + PCBs

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC20 07111960.D | 181359 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Aldrin | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| a-BHC | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| b-BHC | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| d-BHC | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| g-BHC | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Chlordane (Technical) | ND | 0.050 | 2 | 07/12/2019 03:06 |
| a-Chlordane | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| g-Chlordane | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| p,p-DDD | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| p,p-DDE | **0.024** | 0.0020 | 2 | 07/12/2019 03:06 |
| p,p-DDT | **0.0062** | 0.0020 | 2 | 07/12/2019 03:06 |
| Dieldrin | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endosulfan I | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endosulfan II | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endosulfan sulfate | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endrin | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endrin aldehyde | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Endrin ketone | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Heptachlor | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Heptachlor epoxide | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Hexachlorobenzene | ND | 0.020 | 2 | 07/12/2019 03:06 |
| Hexachlorocyclopentadiene | ND | 0.040 | 2 | 07/12/2019 03:06 |
| Methoxychlor | ND | 0.0020 | 2 | 07/12/2019 03:06 |
| Toxaphene | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1016 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1221 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1232 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1242 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1248 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1254 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| Aroclor1260 | ND | 0.10 | 2 | 07/12/2019 03:06 |
| PCBs, total | ND | 0.10 | 2 | 07/12/2019 03:06 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Decachlorobiphenyl | 97 | 69-143 | 07/12/2019 03:06 |

Analyst(s): CK

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC16 07131953.D | 181363 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 07/15/2019 04:31 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Benzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Bromobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Bromochloromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Bromodichloromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Bromoform | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Bromomethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 2-Butanone (MEK) | ND | 0.050 | 1 | 07/15/2019 04:31 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 07/15/2019 04:31 |
| n-Butyl benzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Carbon Disulfide | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Chlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Chloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Chloroform | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Chloromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Dibromochloromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 07/15/2019 04:31 |
| Dibromomethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 07/15/2019 04:31 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 07/15/2019 04:31 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC16 07131953.D | 181363 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Ethylbenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Freon 113 | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Hexachloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 2-Hexanone | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Isopropylbenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Methylene chloride | ND | 0.020 | 1 | 07/15/2019 04:31 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Naphthalene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| n-Propyl benzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Styrene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Tetrachloroethene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Toluene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Trichloroethene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Vinyl Chloride | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| m,p-Xylene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| o-Xylene | ND | 0.0050 | 1 | 07/15/2019 04:31 |
| Xylenes, Total | ND | 0.0050 | 1 | 07/15/2019 04:31 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-1,2,3** | **1907495-001A** | **Soil** | **07/10/2019 13:59** | **GC16 07131953.D** | **181363** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| **Surrogates** | **REC (%)** | **Limits** | | |
| Dibromofluoromethane | 90 | 66-116 | | 07/15/2019 04:31 |
| Toluene-d8 | 108 | 86-110 | | 07/15/2019 04:31 |
| 4-BFB | 85 | 71-114 | | 07/15/2019 04:31 |
| Benzene-d6 | 86 | 62-122 | | 07/15/2019 04:31 |
| Ethylbenzene-d10 | 107 | 69-130 | | 07/15/2019 04:31 |
| 1,2-DCB-d4 | 77 | 55-108 | | 07/15/2019 04:31 |

Analyst(s): KF

*(Cont.)*

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|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC16 07151930.D | 181363 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Acetone | ND | 0.10 | 1 | 07/16/2019 02:31 |
| tert-Amyl methyl ether (TAME) | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Benzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Bromobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Bromochloromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Bromodichloromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Bromoform | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Bromomethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 2-Butanone (MEK) | ND | 0.050 | 1 | 07/16/2019 02:31 |
| t-Butyl alcohol (TBA) | ND | 0.050 | 1 | 07/16/2019 02:31 |
| n-Butyl benzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| sec-Butyl benzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| tert-Butyl benzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Carbon Disulfide | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Carbon Tetrachloride | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Chlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Chloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Chloroform | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Chloromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 2-Chlorotoluene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 4-Chlorotoluene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Dibromochloromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2-Dibromo-3-chloropropane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2-Dibromoethane (EDB) | ND | 0.0040 | 1 | 07/16/2019 02:31 |
| Dibromomethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2-Dichlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,3-Dichlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,4-Dichlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Dichlorodifluoromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,1-Dichloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0040 | 1 | 07/16/2019 02:31 |
| 1,1-Dichloroethene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| cis-1,2-Dichloroethene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| trans-1,2-Dichloroethene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2-Dichloropropane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,3-Dichloropropane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 2,2-Dichloropropane | ND | 0.0050 | 1 | 07/16/2019 02:31 |

*(Cont.)*

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-4,5,6** | **1907495-002A** | **Soil** | **07/10/2019 14:05** | **GC16 07151930.D** | **181363** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| 1,1-Dichloropropene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| cis-1,3-Dichloropropene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| trans-1,3-Dichloropropene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Diisopropyl ether (DIPE) | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Ethylbenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Freon 113 | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Hexachlorobutadiene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Hexachloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 2-Hexanone | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Isopropylbenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 4-Isopropyl toluene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Methyl-t-butyl ether (MTBE) | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Methylene chloride | ND | 0.020 | 1 | 07/16/2019 02:31 |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Naphthalene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| n-Propyl benzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Styrene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,1,1,2-Tetrachloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,1,2,2-Tetrachloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Tetrachloroethene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Toluene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2,3-Trichlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2,4-Trichlorobenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,1,1-Trichloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,1,2-Trichloroethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Trichloroethene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Trichlorofluoromethane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2,3-Trichloropropane | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,2,4-Trimethylbenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| 1,3,5-Trimethylbenzene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Vinyl Chloride | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| m,p-Xylene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| o-Xylene | ND | 0.0050 | 1 | 07/16/2019 02:31 |
| Xylenes, Total | ND | 0.0050 | 1 | 07/16/2019 02:31 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5030B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8260B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/kg |

## Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-4,5,6** | **1907495-002A** | **Soil** | **07/10/2019 14:05** | **GC16 07151930.D** | **181363** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Surrogates | REC (%) | Limits | | |
| Dibromofluoromethane | 96 | 66-116 | | 07/16/2019 02:31 |
| Toluene-d8 | 103 | 86-110 | | 07/16/2019 02:31 |
| 4-BFB | 83 | 71-114 | | 07/16/2019 02:31 |
| Benzene-d6 | 84 | 62-122 | | 07/16/2019 02:31 |
| Ethylbenzene-d10 | 102 | 69-130 | | 07/16/2019 02:31 |
| 1,2-DCB-d4 | 75 | 55-108 | | 07/16/2019 02:31 |

Analyst(s): KF

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC21 07121931.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| Acenaphthylene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| Acetochlor | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Anthracene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| Benzidine | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| Benzo (a) anthracene | **0.0057** | | 0.0050 | 1 | 07/12/2019 22:59 |
| Benzo (a) pyrene | **0.0050** | | 0.0025 | 1 | 07/12/2019 22:59 |
| Benzo (b) fluoranthene | **0.0036** | | 0.0013 | 1 | 07/12/2019 22:59 |
| Benzo (g,h,i) perylene | **0.0079** | | 0.0025 | 1 | 07/12/2019 22:59 |
| Benzo (k) fluoranthene | **0.0027** | B | 0.0013 | 1 | 07/12/2019 22:59 |
| Benzyl Alcohol | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| 1,1-Biphenyl | ND | | 0.013 | 1 | 07/12/2019 22:59 |
| Bis (2-chloroethoxy) Methane | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Bis (2-chloroethyl) Ether | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Bis (2-chloroisopropyl) Ether | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Bis (2-ethylhexyl) Adipate | ND | | 0.50 | 1 | 07/12/2019 22:59 |
| Bis (2-ethylhexyl) Phthalate | **0.012** | | 0.0050 | 1 | 07/12/2019 22:59 |
| 4-Bromophenyl Phenyl Ether | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Butylbenzyl Phthalate | ND | | 0.025 | 1 | 07/12/2019 22:59 |
| 4-Chloroaniline | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| 4-Chloro-3-methylphenol | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 2-Chloronaphthalene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 2-Chlorophenol | ND | | 0.0050 | 1 | 07/12/2019 22:59 |
| 4-Chlorophenyl Phenyl Ether | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Chrysene | **0.0038** | | 0.0025 | 1 | 07/12/2019 22:59 |
| Dibenzo (a,h) anthracene | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Dibenzofuran | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Di-n-butyl Phthalate | **0.0044** | | 0.0025 | 1 | 07/12/2019 22:59 |
| 1,2-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 1,3-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 1,4-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 3,3-Dichlorobenzidine | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| 2,4-Dichlorophenol | ND | | 0.013 | 1 | 07/12/2019 22:59 |
| Diethyl Phthalate | ND | | 0.0050 | 1 | 07/12/2019 22:59 |
| 2,4-Dimethylphenol | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Dimethyl Phthalate | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| 4,6-Dinitro-2-methylphenol | ND | | 1.2 | 1 | 07/12/2019 22:59 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC21 07121931.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| 2,4-Dinitrophenol | ND | | 0.13 | 1 | 07/12/2019 22:59 |
| 2,4-Dinitrotoluene | ND | | 0.0063 | 1 | 07/12/2019 22:59 |
| 2,6-Dinitrotoluene | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Di-n-octyl Phthalate | ND | | 0.0050 | 1 | 07/12/2019 22:59 |
| 1,2-Diphenylhydrazine | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Fluoranthene | **0.0046** | | 0.0013 | 1 | 07/12/2019 22:59 |
| Fluorene | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Hexachlorobenzene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| Hexachlorobutadiene | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Hexachlorocyclopentadiene | ND | | 2.0 | 1 | 07/12/2019 22:59 |
| Hexachloroethane | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| Indeno (1,2,3-cd) pyrene | **0.0048** | | 0.0025 | 1 | 07/12/2019 22:59 |
| Isophorone | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 1-Methylnaphthalene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| 2-Methylnaphthalene | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| 2-Methylphenol (o-Cresol) | ND | | 0.50 | 1 | 07/12/2019 22:59 |
| 3 & 4-Methylphenol (m,p-Cresol) | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Naphthalene | ND | | 0.0013 | 1 | 07/12/2019 22:59 |
| 2-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| 3-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| 4-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| Nitrobenzene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 2-Nitrophenol | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| 4-Nitrophenol | ND | | 1.2 | 1 | 07/12/2019 22:59 |
| N-Nitrosodiphenylamine | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| N-Nitrosodi-n-propylamine | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| Pentachlorophenol | ND | | 0.031 | 1 | 07/12/2019 22:59 |
| Phenanthrene | ND | | 0.0050 | 1 | 07/12/2019 22:59 |
| Phenol | ND | | 0.0050 | 1 | 07/12/2019 22:59 |
| Pyrene | **0.0049** | | 0.0025 | 1 | 07/12/2019 22:59 |
| Pyridine | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 1,2,4-Trichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 22:59 |
| 2,4,5-Trichlorophenol | ND | | 0.0025 | 1 | 07/12/2019 22:59 |
| 2,4,6-Trichlorophenol | ND | | 0.013 | 1 | 07/12/2019 22:59 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC21 07121931.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Surrogates | REC (%) | | Limits | | |
| 2-Fluorophenol | 124 | | 56-152 | | 07/12/2019 22:59 |
| Phenol-d5 | 114 | | 54-146 | | 07/12/2019 22:59 |
| Nitrobenzene-d5 | 96 | | 47-147 | | 07/12/2019 22:59 |
| 2-Fluorobiphenyl | 85 | | 46-141 | | 07/12/2019 22:59 |
| 2,4,6-Tribromophenol | 61 | | 25-166 | | 07/12/2019 22:59 |
| 4-Terphenyl-d14 | 103 | | 39-153 | | 07/12/2019 22:59 |

Analyst(s): REB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC21 07121932.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| Acenaphthylene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| Acetochlor | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Anthracene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| Benzidine | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| Benzo (a) anthracene | **0.0057** | | 0.0050 | 1 | 07/12/2019 23:26 |
| Benzo (a) pyrene | **0.0041** | | 0.0025 | 1 | 07/12/2019 23:26 |
| Benzo (b) fluoranthene | **0.0031** | | 0.0013 | 1 | 07/12/2019 23:26 |
| Benzo (g,h,i) perylene | **0.0055** | | 0.0025 | 1 | 07/12/2019 23:26 |
| Benzo (k) fluoranthene | **0.0026** | B | 0.0013 | 1 | 07/12/2019 23:26 |
| Benzyl Alcohol | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| 1,1-Biphenyl | ND | | 0.013 | 1 | 07/12/2019 23:26 |
| Bis (2-chloroethoxy) Methane | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Bis (2-chloroethyl) Ether | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Bis (2-chloroisopropyl) Ether | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Bis (2-ethylhexyl) Adipate | ND | | 0.50 | 1 | 07/12/2019 23:26 |
| Bis (2-ethylhexyl) Phthalate | **0.0094** | | 0.0050 | 1 | 07/12/2019 23:26 |
| 4-Bromophenyl Phenyl Ether | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Butylbenzyl Phthalate | ND | | 0.025 | 1 | 07/12/2019 23:26 |
| 4-Chloroaniline | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| 4-Chloro-3-methylphenol | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 2-Chloronaphthalene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 2-Chlorophenol | ND | | 0.0050 | 1 | 07/12/2019 23:26 |
| 4-Chlorophenyl Phenyl Ether | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Chrysene | **0.0036** | | 0.0025 | 1 | 07/12/2019 23:26 |
| Dibenzo (a,h) anthracene | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Dibenzofuran | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Di-n-butyl Phthalate | **0.0034** | | 0.0025 | 1 | 07/12/2019 23:26 |
| 1,2-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 1,3-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 1,4-Dichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 3,3-Dichlorobenzidine | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| 2,4-Dichlorophenol | ND | | 0.013 | 1 | 07/12/2019 23:26 |
| Diethyl Phthalate | ND | | 0.0050 | 1 | 07/12/2019 23:26 |
| 2,4-Dimethylphenol | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Dimethyl Phthalate | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| 4,6-Dinitro-2-methylphenol | ND | | 1.2 | 1 | 07/12/2019 23:26 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC21 07121932.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| 2,4-Dinitrophenol | ND | | 0.13 | 1 | 07/12/2019 23:26 |
| 2,4-Dinitrotoluene | ND | | 0.0063 | 1 | 07/12/2019 23:26 |
| 2,6-Dinitrotoluene | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Di-n-octyl Phthalate | ND | | 0.0050 | 1 | 07/12/2019 23:26 |
| 1,2-Diphenylhydrazine | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Fluoranthene | **0.0045** | | 0.0013 | 1 | 07/12/2019 23:26 |
| Fluorene | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Hexachlorobenzene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| Hexachlorobutadiene | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Hexachlorocyclopentadiene | ND | | 2.0 | 1 | 07/12/2019 23:26 |
| Hexachloroethane | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| Indeno (1,2,3-cd) pyrene | **0.0033** | | 0.0025 | 1 | 07/12/2019 23:26 |
| Isophorone | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 1-Methylnaphthalene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| 2-Methylnaphthalene | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| 2-Methylphenol (o-Cresol) | ND | | 0.50 | 1 | 07/12/2019 23:26 |
| 3 & 4-Methylphenol (m,p-Cresol) | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Naphthalene | ND | | 0.0013 | 1 | 07/12/2019 23:26 |
| 2-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| 3-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| 4-Nitroaniline | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| Nitrobenzene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 2-Nitrophenol | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| 4-Nitrophenol | ND | | 1.2 | 1 | 07/12/2019 23:26 |
| N-Nitrosodiphenylamine | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| N-Nitrosodi-n-propylamine | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| Pentachlorophenol | ND | | 0.031 | 1 | 07/12/2019 23:26 |
| Phenanthrene | ND | | 0.0050 | 1 | 07/12/2019 23:26 |
| Phenol | ND | | 0.0050 | 1 | 07/12/2019 23:26 |
| Pyrene | **0.0047** | | 0.0025 | 1 | 07/12/2019 23:26 |
| Pyridine | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 1,2,4-Trichlorobenzene | ND | | 0.25 | 1 | 07/12/2019 23:26 |
| 2,4,5-Trichlorophenol | ND | | 0.0025 | 1 | 07/12/2019 23:26 |
| 2,4,6-Trichlorophenol | ND | | 0.013 | 1 | 07/12/2019 23:26 |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/12/19 | **Analytical Method:** | SW8270C |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Semi-Volatile Organics

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC21 07121932.D | 181473 |

| Analytes | Result | Qualifiers | RL | DF | Date Analyzed |
|---|---|---|---|---|---|
| Surrogates | REC (%) | | Limits | | |
| 2-Fluorophenol | 127 | | 56-152 | | 07/12/2019 23:26 |
| Phenol-d5 | 116 | | 54-146 | | 07/12/2019 23:26 |
| Nitrobenzene-d5 | 96 | | 47-147 | | 07/12/2019 23:26 |
| 2-Fluorobiphenyl | 87 | | 46-141 | | 07/12/2019 23:26 |
| 2,4,6-Tribromophenol | 71 | | 25-166 | | 07/12/2019 23:26 |
| 4-Terphenyl-d14 | 107 | | 39-153 | | 07/12/2019 23:26 |

Analyst(s): REB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | ICP-MS2 155SMPL.D | 181355 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | **0.58** | 0.50 | 1 | 07/12/2019 23:59 |
| Arsenic | **8.8** | 0.50 | 1 | 07/12/2019 23:59 |
| Barium | **200** | 5.0 | 1 | 07/12/2019 23:59 |
| Beryllium | **0.60** | 0.50 | 1 | 07/12/2019 23:59 |
| Cadmium | ND | 0.25 | 1 | 07/12/2019 23:59 |
| Chromium | **76** | 0.50 | 1 | 07/12/2019 23:59 |
| Cobalt | **15** | 0.50 | 1 | 07/12/2019 23:59 |
| Copper | **36** | 0.50 | 1 | 07/12/2019 23:59 |
| Lead | **18** | 0.50 | 1 | 07/12/2019 23:59 |
| Mercury | ND | 0.050 | 1 | 07/12/2019 23:59 |
| Molybdenum | **0.76** | 0.50 | 1 | 07/12/2019 23:59 |
| Nickel | **85** | 0.50 | 1 | 07/12/2019 23:59 |
| Selenium | ND | 0.50 | 1 | 07/12/2019 23:59 |
| Silver | ND | 0.50 | 1 | 07/12/2019 23:59 |
| Thallium | ND | 0.50 | 1 | 07/12/2019 23:59 |
| Vanadium | **79** | 0.50 | 1 | 07/12/2019 23:59 |
| Zinc | **77** | 5.0 | 1 | 07/12/2019 23:59 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| Terbium | 103 | 70-130 | 07/12/2019 23:59 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3050B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## CAM / CCR 17 Metals

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-4,5,6** | **1907495-002A** | **Soil** | **07/10/2019 14:05** | **ICP-MS2 156SMPL.D** | **181355** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Antimony | ND | 0.50 | 1 | 07/13/2019 00:05 |
| Arsenic | **7.2** | 0.50 | 1 | 07/13/2019 00:05 |
| Barium | **160** | 5.0 | 1 | 07/13/2019 00:05 |
| Beryllium | **0.53** | 0.50 | 1 | 07/13/2019 00:05 |
| Cadmium | **0.27** | 0.25 | 1 | 07/13/2019 00:05 |
| Chromium | **58** | 0.50 | 1 | 07/13/2019 00:05 |
| Cobalt | **12** | 0.50 | 1 | 07/13/2019 00:05 |
| Copper | **29** | 0.50 | 1 | 07/13/2019 00:05 |
| Lead | **11** | 0.50 | 1 | 07/13/2019 00:05 |
| Mercury | ND | 0.050 | 1 | 07/13/2019 00:05 |
| Molybdenum | **0.64** | 0.50 | 1 | 07/13/2019 00:05 |
| Nickel | **63** | 0.50 | 1 | 07/13/2019 00:05 |
| Selenium | ND | 0.50 | 1 | 07/13/2019 00:05 |
| Silver | ND | 0.50 | 1 | 07/13/2019 00:05 |
| Thallium | ND | 0.50 | 1 | 07/13/2019 00:05 |
| Vanadium | **80** | 0.50 | 1 | 07/13/2019 00:05 |
| Zinc | **68** | 5.0 | 1 | 07/13/2019 00:05 |

| Surrogates | REC (%) | Limits | |
|---|---|---|---|
| Terbium | 104 | 70-130 | 07/13/2019 00:05 |

Analyst(s): DB

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW5035 |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8021B/8015Bm |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | GC19 07131906.D | 181362 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 07/13/2019 12:14 |
| MTBE | --- | 0.050 | 1 | 07/13/2019 12:14 |
| Benzene | --- | 0.0050 | 1 | 07/13/2019 12:14 |
| Toluene | --- | 0.0050 | 1 | 07/13/2019 12:14 |
| Ethylbenzene | --- | 0.0050 | 1 | 07/13/2019 12:14 |
| m,p-Xylene | --- | 0.010 | 1 | 07/13/2019 12:14 |
| o-Xylene | --- | 0.0050 | 1 | 07/13/2019 12:14 |
| Xylenes | --- | 0.0050 | 1 | 07/13/2019 12:14 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| 2-Fluorotoluene | 85 | 62-126 | 07/13/2019 12:14 |

Analyst(s): IA

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | GC19 07131907.D | 181362 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH(g) (C6-C12) | ND | 1.0 | 1 | 07/13/2019 12:45 |
| MTBE | --- | 0.050 | 1 | 07/13/2019 12:45 |
| Benzene | --- | 0.0050 | 1 | 07/13/2019 12:45 |
| Toluene | --- | 0.0050 | 1 | 07/13/2019 12:45 |
| Ethylbenzene | --- | 0.0050 | 1 | 07/13/2019 12:45 |
| m,p-Xylene | --- | 0.010 | 1 | 07/13/2019 12:45 |
| o-Xylene | --- | 0.0050 | 1 | 07/13/2019 12:45 |
| Xylenes | --- | 0.0050 | 1 | 07/13/2019 12:45 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| 2-Fluorotoluene | 84 | 62-126 | 07/13/2019 12:45 |

Analyst(s): IA

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | SW3550B |
| **Date Prepared:** | 7/11/19 | **Analytical Method:** | SW8015B |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/Kg |

## Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-1,2,3** | **1907495-001A** | **Soil** | **07/10/2019 13:59** | **GC6B 07151927.D** | **181360** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 07/15/2019 19:07 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 07/15/2019 19:07 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| C9 | 90 | 74-123 | 07/15/2019 19:07 |

Analyst(s): JIS

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| **SB-4,5,6** | **1907495-002A** | **Soil** | **07/10/2019 14:05** | **GC6B 07151929.D** | **181360** |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 1.0 | 1 | 07/15/2019 19:47 |
| TPH-Motor Oil (C18-C36) | ND | 5.0 | 1 | 07/15/2019 19:47 |

| Surrogates | REC (%) | Limits | Date Analyzed |
|---|---|---|---|
| C9 | 94 | 74-123 | 07/15/2019 19:47 |

Analyst(s): JIS

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181359 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC20 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181359<br>1907495-001AMS/MSD |

## QC Summary Report for SW8081A/8082

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Aldrin | ND | 0.00027 | 0.0010 | - | - | - |
| a-BHC | ND | 0.00010 | 0.0010 | - | - | - |
| b-BHC | ND | 0.00025 | 0.0010 | - | - | - |
| d-BHC | ND | 0.00037 | 0.0010 | - | - | - |
| g-BHC | ND | 0.000097 | 0.0010 | - | - | - |
| Chlordane (Technical) | ND | 0.016 | 0.025 | - | - | - |
| a-Chlordane | ND | 0.00047 | 0.0010 | - | - | - |
| g-Chlordane | ND | 0.00021 | 0.0010 | - | - | - |
| p,p-DDD | ND | 0.00014 | 0.0010 | - | - | - |
| p,p-DDE | ND | 0.00032 | 0.0010 | - | - | - |
| p,p-DDT | ND | 0.00043 | 0.0010 | - | - | - |
| Dieldrin | ND | 0.00033 | 0.0010 | - | - | - |
| Endosulfan I | ND | 0.00065 | 0.0010 | - | - | - |
| Endosulfan II | ND | 0.00020 | 0.0010 | - | - | - |
| Endosulfan sulfate | ND | 0.00063 | 0.0010 | - | - | - |
| Endrin | ND | 0.00042 | 0.0010 | - | - | - |
| Endrin aldehyde | ND | 0.00020 | 0.0010 | - | - | - |
| Endrin ketone | ND | 0.00013 | 0.0010 | - | - | - |
| Heptachlor | ND | 0.00021 | 0.0010 | - | - | - |
| Heptachlor epoxide | ND | 0.00020 | 0.0010 | - | - | - |
| Hexachlorobenzene | ND | 0.00027 | 0.010 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.00040 | 0.020 | - | - | - |
| Methoxychlor | ND | 0.00089 | 0.0010 | - | - | - |
| Toxaphene | ND | 0.035 | 0.050 | - | - | - |
| Aroclor1016 | ND | 0.0051 | 0.050 | - | - | - |
| Aroclor1221 | ND | 0.011 | 0.050 | - | - | - |
| Aroclor1232 | ND | 0.0063 | 0.050 | - | - | - |
| Aroclor1242 | ND | 0.0067 | 0.050 | - | - | - |
| Aroclor1248 | ND | 0.0040 | 0.050 | - | - | - |
| Aroclor1254 | ND | 0.0068 | 0.050 | - | - | - |
| Aroclor1260 | ND | 0.0061 | 0.050 | - | - | - |
| PCBs, total | ND | N/A | 0.050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Decachlorobiphenyl | 0.050 | | | 0.050 | 101 | 75-136 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181359 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC20 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181359<br>1907495-001AMS/MSD |

## QC Summary Report for SW8081A/8082

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Aldrin | 0.058 | 0.058 | 0.050 | 116 | 117 | 92-133 | 0.574 | 20 |
| a-BHC | 0.053 | 0.053 | 0.050 | 105 | 106 | 96-140 | 0.895 | 20 |
| b-BHC | 0.054 | 0.055 | 0.050 | 108 | 109 | 77-137 | 0.931 | 20 |
| d-BHC | 0.063 | 0.063 | 0.050 | 125 | 127 | 89-145 | 1.23 | 20 |
| g-BHC | 0.056 | 0.057 | 0.050 | 112 | 114 | 92-134 | 1.14 | 20 |
| a-Chlordane | 0.057 | 0.058 | 0.050 | 115 | 116 | 72-134 | 0.916 | 20 |
| g-Chlordane | 0.059 | 0.059 | 0.050 | 117 | 118 | 86-132 | 0.664 | 20 |
| p,p-DDD | 0.055 | 0.056 | 0.050 | 110 | 112 | 35-140 | 1.66 | 20 |
| p,p-DDE | 0.059 | 0.059 | 0.050 | 117 | 119 | 83-138 | 1.47 | 20 |
| p,p-DDT | 0.054 | 0.056 | 0.050 | 109 | 112 | 70-137 | 2.88 | 20 |
| Dieldrin | 0.060 | 0.061 | 0.050 | 120 | 121 | 99-141 | 0.859 | 20 |
| Endosulfan I | 0.056 | 0.057 | 0.050 | 113 | 114 | 93-121 | 0.918 | 20 |
| Endosulfan II | 0.055 | 0.055 | 0.050 | 109 | 111 | 74-125 | 1.39 | 20 |
| Endosulfan sulfate | 0.056 | 0.057 | 0.050 | 112 | 113 | 66-138 | 1.58 | 20 |
| Endrin | 0.062 | 0.063 | 0.050 | 125 | 126 | 92-137 | 0.842 | 20 |
| Endrin aldehyde | 0.058 | 0.059 | 0.050 | 116 | 118 | 77-135 | 1.77 | 20 |
| Endrin ketone | 0.054 | 0.054 | 0.050 | 107 | 108 | 72-126 | 0.989 | 20 |
| Heptachlor | 0.058 | 0.058 | 0.050 | 115 | 117 | 89-136 | 1.17 | 20 |
| Heptachlor epoxide | 0.054 | 0.054 | 0.050 | 107 | 107 | 85-121 | 0 | 20 |
| Hexachlorobenzene | 0.051 | 0.052 | 0.050 | 103 | 104 | 87-127 | 1.40 | 20 |
| Hexachlorocyclopentadiene | 0.044 | 0.046 | 0.050 | 88 | 91 | 41-145 | 3.04 | 20 |
| Methoxychlor | 0.064 | 0.064 | 0.050 | 128 | 128 | 82-142 | 0 | 20 |
| Aroclor1016 | 0.17 | 0.17 | 0.15 | 113 | 112 | 90-125 | 0.212 | 20 |
| Aroclor1260 | 0.16 | 0.17 | 0.15 | 110 | 112 | 77-122 | 1.73 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Decachlorobiphenyl | 0.052 | 0.049 | 0.050 | 104 | 99 | 75-136 | 5.36 | 20 |
| Decachlorobiphenyl | | - | 0 | F2 | - | - | - | - |

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Aldrin | 1 | 0.053 | 0.054 | 0.050 | ND | 106 | 109 | 59-143 | 2.30 | 20 |
| a-BHC | 1 | 0.051 | 0.052 | 0.050 | ND | 102 | 105 | 42-159 | 2.87 | 20 |
| b-BHC | 1 | 0.048 | 0.050 | 0.050 | ND | 97 | 99 | 67-141 | 2.59 | 20 |
| d-BHC | 1 | 0.057 | 0.059 | 0.050 | ND | 114 | 117 | 38-164 | 2.62 | 20 |
| g-BHC | 1 | 0.047 | 0.048 | 0.050 | ND | 94 | 96 | 51-148 | 2.62 | 20 |
| a-Chlordane | 1 | 0.053 | 0.054 | 0.050 | 0.001098 | 105 | 106 | 70-130 | 1.52 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181359 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC20 | **Analytical Method:** | SW8081A/8082 |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181359<br>1907495-001AMS/MSD |

## QC Summary Report for SW8081A/8082

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| g-Chlordane | 1 | 0.055 | 0.056 | 0.050 | 0.001162 | 108 | 110 | 61-146 | 1.58 | 20 |
| p,p-DDD | 1 | 0.052 | 0.053 | 0.050 | ND | 102 | 104 | 10-158 | 2.39 | 20 |
| p,p-DDE | 1 | 0.10 | 0.11 | 0.050 | 0.05268 | 102 | 105 | 52-151 | 1.30 | 20 |
| p,p-DDT | 1 | 0.070 | 0.068 | 0.050 | 0.01920 | 101 | 97 | 53-137 | 2.99 | 20 |
| Dieldrin | 1 | 0.056 | 0.057 | 0.050 | ND | 112 | 115 | 58-163 | 2.26 | 20 |
| Endosulfan I | 1 | 0.053 | 0.054 | 0.050 | ND | 107 | 109 | 64-136 | 1.76 | 20 |
| Endosulfan II | 1 | 0.051 | 0.052 | 0.050 | ND | 103 | 105 | 46-141 | 1.97 | 20 |
| Endosulfan sulfate | 1 | 0.052 | 0.053 | 0.050 | ND | 104 | 106 | 45-144 | 2.47 | 20 |
| Endrin | 1 | 0.059 | 0.060 | 0.050 | ND | 118 | 120 | 56-153 | 2.00 | 20 |
| Endrin aldehyde | 1 | 0.055 | 0.056 | 0.050 | ND | 109 | 113 | 63-134 | 3.12 | 20 |
| Endrin ketone | 1 | 0.050 | 0.051 | 0.050 | ND | 99 | 101 | 53-130 | 1.91 | 20 |
| Heptachlor | 1 | 0.053 | 0.055 | 0.050 | ND | 106 | 109 | 55-147 | 2.57 | 20 |
| Heptachlor epoxide | 1 | 0.049 | 0.050 | 0.050 | ND | 98 | 100 | 63-128 | 2.01 | 20 |
| Hexachlorobenzene | 1 | 0.048 | 0.050 | 0.050 | ND | 96 | 99 | 71-132 | 3.05 | 20 |
| Hexachlorocyclopentadiene | 1 | 0.042 | 0.042 | 0.050 | ND | 84 | 84 | 12-144 | 0 | 20 |
| Methoxychlor | 1 | 0.061 | 0.061 | 0.050 | ND | 121 | 123 | 70-150 | 0.927 | 20 |
| **Surrogate Recovery** | | | | | | | | | | |
| Decachlorobiphenyl | 1 | 0.051 | 0.050 | 0.050 | | 102 | 99 | 69-143 | 2.65 | 20 |
| Decachlorobiphenyl | 1 | 0.054 | 0.053 | 0.050 | | 108 | 105 | 69-143 | 2.65 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Acetone | ND | 0.039 | 0.10 | - | - | - |
| tert-Amyl methyl ether (TAME) | ND | 0.0010 | 0.0050 | - | - | - |
| Benzene | ND | 0.0016 | 0.0050 | - | - | - |
| Bromobenzene | ND | 0.0030 | 0.0050 | - | - | - |
| Bromochloromethane | ND | 0.0015 | 0.0050 | - | - | - |
| Bromodichloromethane | ND | 0.0012 | 0.0050 | - | - | - |
| Bromoform | ND | 0.0012 | 0.0050 | - | - | - |
| Bromomethane | ND | 0.0020 | 0.0050 | - | - | - |
| 2-Butanone (MEK) | ND | 0.021 | 0.050 | - | - | - |
| t-Butyl alcohol (TBA) | ND | 0.0053 | 0.050 | - | - | - |
| n-Butyl benzene | ND | 0.0035 | 0.0050 | - | - | - |
| sec-Butyl benzene | ND | 0.0034 | 0.0050 | - | - | - |
| tert-Butyl benzene | ND | 0.0029 | 0.0050 | - | - | - |
| Carbon Disulfide | ND | 0.0036 | 0.0050 | - | - | - |
| Carbon Tetrachloride | ND | 0.0017 | 0.0050 | - | - | - |
| Chlorobenzene | ND | 0.0018 | 0.0050 | - | - | - |
| Chloroethane | ND | 0.0016 | 0.0050 | - | - | - |
| Chloroform | ND | 0.0016 | 0.0050 | - | - | - |
| Chloromethane | ND | 0.0017 | 0.0050 | - | - | - |
| 2-Chlorotoluene | ND | 0.0022 | 0.0050 | - | - | - |
| 4-Chlorotoluene | ND | 0.0024 | 0.0050 | - | - | - |
| Dibromochloromethane | ND | 0.0011 | 0.0050 | - | - | - |
| 1,2-Dibromo-3-chloropropane | ND | 0.0037 | 0.0050 | - | - | - |
| 1,2-Dibromoethane (EDB) | ND | 0.0013 | 0.0040 | - | - | - |
| Dibromomethane | ND | 0.0014 | 0.0050 | - | - | - |
| 1,2-Dichlorobenzene | ND | 0.0032 | 0.0050 | - | - | - |
| 1,3-Dichlorobenzene | ND | 0.0018 | 0.0050 | - | - | - |
| 1,4-Dichlorobenzene | ND | 0.0018 | 0.0050 | - | - | - |
| Dichlorodifluoromethane | ND | 0.0011 | 0.0050 | - | - | - |
| 1,1-Dichloroethane | ND | 0.0017 | 0.0050 | - | - | - |
| 1,2-Dichloroethane (1,2-DCA) | ND | 0.0014 | 0.0040 | - | - | - |
| 1,1-Dichloroethene | ND | 0.0017 | 0.0050 | - | - | - |
| cis-1,2-Dichloroethene | ND | 0.0015 | 0.0050 | - | - | - |
| trans-1,2-Dichloroethene | ND | 0.0016 | 0.0050 | - | - | - |
| 1,2-Dichloropropane | ND | 0.0014 | 0.0050 | - | - | - |
| 1,3-Dichloropropane | ND | 0.0016 | 0.0050 | - | - | - |
| 2,2-Dichloropropane | ND | 0.0013 | 0.0050 | - | - | - |
| 1,1-Dichloropropene | ND | 0.0018 | 0.0050 | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | ND | 0.0015 | 0.0050 | - | - | - |
| trans-1,3-Dichloropropene | ND | 0.0014 | 0.0050 | - | - | - |
| Diisopropyl ether (DIPE) | ND | 0.0014 | 0.0050 | - | - | - |
| Ethylbenzene | ND | 0.0025 | 0.0050 | - | - | - |
| Ethyl tert-butyl ether (ETBE) | ND | 0.0013 | 0.0050 | - | - | - |
| Freon 113 | ND | 0.0016 | 0.0050 | - | - | - |
| Hexachlorobutadiene | ND | 0.0050 | 0.0050 | - | - | - |
| Hexachloroethane | ND | 0.0025 | 0.0050 | - | - | - |
| 2-Hexanone | ND | 0.0022 | 0.0050 | - | - | - |
| Isopropylbenzene | ND | 0.0032 | 0.0050 | - | - | - |
| 4-Isopropyl toluene | ND | 0.0032 | 0.0050 | - | - | - |
| Methyl-t-butyl ether (MTBE) | ND | 0.0013 | 0.0050 | - | - | - |
| Methylene chloride | ND | 0.010 | 0.020 | - | - | - |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.00080 | 0.0050 | - | - | - |
| Naphthalene | ND | 0.0044 | 0.0050 | - | - | - |
| n-Propyl benzene | ND | 0.0029 | 0.0050 | - | - | - |
| Styrene | ND | 0.0030 | 0.0050 | - | - | - |
| 1,1,1,2-Tetrachloroethane | ND | 0.0016 | 0.0050 | - | - | - |
| 1,1,2,2-Tetrachloroethane | ND | 0.0013 | 0.0050 | - | - | - |
| Tetrachloroethene | ND | 0.0023 | 0.0050 | - | - | - |
| Toluene | ND | 0.0024 | 0.0050 | - | - | - |
| 1,2,3-Trichlorobenzene | ND | 0.0030 | 0.0050 | - | - | - |
| 1,2,4-Trichlorobenzene | ND | 0.0029 | 0.0050 | - | - | - |
| 1,1,1-Trichloroethane | ND | 0.0018 | 0.0050 | - | - | - |
| 1,1,2-Trichloroethane | ND | 0.0019 | 0.0050 | - | - | - |
| Trichloroethene | ND | 0.0017 | 0.0050 | - | - | - |
| Trichlorofluoromethane | ND | 0.0016 | 0.0050 | - | - | - |
| 1,2,3-Trichloropropane | ND | 0.0019 | 0.0050 | - | - | - |
| 1,2,4-Trimethylbenzene | ND | 0.0028 | 0.0050 | - | - | - |
| 1,3,5-Trimethylbenzene | ND | 0.0026 | 0.0050 | - | - | - |
| Vinyl Chloride | ND | 0.0015 | 0.0050 | - | - | - |
| m,p-Xylene | ND | 0.0040 | 0.0050 | - | - | - |
| o-Xylene | ND | 0.0018 | 0.0050 | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | |
| Dibromofluoromethane | 0.11 | | | 0.12 | 85 | 66-112 |
| Toluene-d8 | 0.13 | | | 0.12 | 105 | 92-109 |
| 4-BFB | 0.012 | | | 0.012 | 93 | 72-112 |
| Benzene-d6 | 0.088 | | | 0.10 | 88 | 81-126 |
| Ethylbenzene-d10 | 0.11 | | | 0.10 | 107 | 92-138 |
| 1,2-DCB-d4 | 0.082 | | | 0.10 | 82 | 68-108 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Acetone | 0.16 | 0.13 | 0.20 | 78 | 64 | 59-127 | 18.3 | 20 |
| tert-Amyl methyl ether (TAME) | 0.016 | 0.016 | 0.020 | 80 | 80 | 54-98 | 0 | 20 |
| Benzene | 0.019 | 0.019 | 0.020 | 96 | 94 | 71-115 | 1.98 | 20 |
| Bromobenzene | 0.018 | 0.017 | 0.020 | 91 | 87 | 69-120 | 3.79 | 20 |
| Bromochloromethane | 0.018 | 0.018 | 0.020 | 89 | 89 | 63-117 | 0 | 20 |
| Bromodichloromethane | 0.017 | 0.017 | 0.020 | 85 | 84 | 61-109 | 1.22 | 20 |
| Bromoform | 0.012 | 0.012 | 0.020 | 59 | 58 | 46-87 | 2.50 | 20 |
| Bromomethane | 0.031 | 0.030 | 0.020 | 154 | 152 | 22-195 | 1.25 | 20 |
| 2-Butanone (MEK) | 0.074 | 0.067 | 0.080 | 93 | 84 | 53-124 | 9.81 | 20 |
| t-Butyl alcohol (TBA) | 0.076 | 0.073 | 0.080 | 94 | 91 | 29-142 | 4.05 | 20 |
| n-Butyl benzene | 0.027 | 0.026 | 0.020 | 137 | 129 | 102-169 | 6.09 | 20 |
| sec-Butyl benzene | 0.027 | 0.025 | 0.020 | 135 | 126 | 100-166 | 6.95 | 20 |
| tert-Butyl benzene | 0.024 | 0.023 | 0.020 | 121 | 116 | 91-153 | 3.87 | 20 |
| Carbon Disulfide | 0.018 | 0.017 | 0.020 | 88 | 87 | 60-125 | 1.35 | 20 |
| Carbon Tetrachloride | 0.018 | 0.018 | 0.020 | 92 | 90 | 69-124 | 2.41 | 20 |
| Chlorobenzene | 0.019 | 0.019 | 0.020 | 95 | 93 | 73-116 | 1.91 | 20 |
| Chloroethane | 0.016 | 0.015 | 0.020 | 78 | 76 | 47-140 | 1.94 | 20 |
| Chloroform | 0.018 | 0.017 | 0.020 | 89 | 87 | 69-118 | 2.07 | 20 |
| Chloromethane | 0.013 | 0.013 | 0.020 | 63 | 64 | 30-132 | 0.399 | 20 |
| 2-Chlorotoluene | 0.021 | 0.021 | 0.020 | 107 | 104 | 75-147 | 3.24 | 20 |
| 4-Chlorotoluene | 0.020 | 0.019 | 0.020 | 100 | 96 | 75-137 | 3.84 | 20 |
| Dibromochloromethane | 0.016 | 0.015 | 0.020 | 78 | 75 | 57-105 | 3.10 | 20 |
| 1,2-Dibromo-3-chloropropane | 0.0061 | 0.0062 | 0.010 | 61 | 62 | 36-103 | 1.18 | 20 |
| 1,2-Dibromoethane (EDB) | 0.0087 | 0.0085 | 0.010 | 87 | 85 | 66-101 | 2.78 | 20 |
| Dibromomethane | 0.017 | 0.017 | 0.020 | 84 | 83 | 61-103 | 2.10 | 20 |
| 1,2-Dichlorobenzene | 0.016 | 0.015 | 0.020 | 78 | 75 | 59-104 | 3.32 | 20 |
| 1,3-Dichlorobenzene | 0.019 | 0.019 | 0.020 | 97 | 94 | 70-133 | 3.60 | 20 |
| 1,4-Dichlorobenzene | 0.019 | 0.018 | 0.020 | 94 | 91 | 68-123 | 3.86 | 20 |
| Dichlorodifluoromethane | 0.0082 | 0.0083 | 0.020 | 41 | 41 | 13-107 | 0 | 20 |
| 1,1-Dichloroethane | 0.018 | 0.017 | 0.020 | 88 | 87 | 69-118 | 1.67 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 0.018 | 0.017 | 0.020 | 88 | 86 | 59-112 | 2.04 | 20 |
| 1,1-Dichloroethene | 0.019 | 0.018 | 0.020 | 93 | 91 | 69-126 | 2.19 | 20 |
| cis-1,2-Dichloroethene | 0.019 | 0.019 | 0.020 | 95 | 93 | 69-116 | 2.08 | 20 |
| trans-1,2-Dichloroethene | 0.019 | 0.019 | 0.020 | 96 | 95 | 73-116 | 1.13 | 20 |
| 1,2-Dichloropropane | 0.018 | 0.017 | 0.020 | 88 | 86 | 65-111 | 2.23 | 20 |
| 1,3-Dichloropropane | 0.018 | 0.018 | 0.020 | 92 | 89 | 67-110 | 3.14 | 20 |
| 2,2-Dichloropropane | 0.018 | 0.018 | 0.020 | 90 | 88 | 65-125 | 2.30 | 20 |
| 1,1-Dichloropropene | 0.018 | 0.018 | 0.020 | 89 | 88 | 70-123 | 1.29 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 0.018 | 0.018 | 0.020 | 92 | 89 | 68-126 | 3.28 | 20 |
| trans-1,3-Dichloropropene | 0.017 | 0.016 | 0.020 | 86 | 82 | 69-117 | 4.34 | 20 |
| Diisopropyl ether (DIPE) | 0.017 | 0.017 | 0.020 | 85 | 84 | 57-110 | 1.79 | 20 |
| Ethylbenzene | 0.021 | 0.020 | 0.020 | 105 | 101 | 80-128 | 3.88 | 20 |
| Ethyl tert-butyl ether (ETBE) | 0.017 | 0.016 | 0.020 | 84 | 82 | 54-106 | 1.76 | 20 |
| Freon 113 | 0.017 | 0.016 | 0.020 | 84 | 82 | 60-108 | 2.27 | 20 |
| Hexachlorobutadiene | 0.022 | 0.021 | 0.020 | 111 | 106 | 67-182 | 4.93 | 20 |
| Hexachloroethane | 0.021 | 0.020 | 0.020 | 105 | 100 | 85-156 | 5.63 | 20 |
| 2-Hexanone | 0.014 | 0.013 | 0.020 | 69 | 66 | 37-90 | 4.72 | 20 |
| Isopropylbenzene | 0.021 | 0.020 | 0.020 | 106 | 101 | 64-167 | 4.54 | 20 |
| 4-Isopropyl toluene | 0.025 | 0.023 | 0.020 | 125 | 117 | 88-167 | 6.97 | 20 |
| Methyl-t-butyl ether (MTBE) | 0.017 | 0.017 | 0.020 | 85 | 84 | 60-102 | 1.72 | 20 |
| Methylene chloride | 0.018 | 0.018 | 0.020 | 92 | 91 | 71-117 | 1.56 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.015 | 0.014 | 0.020 | 75 | 71 | 48-90 | 4.61 | 20 |
| Naphthalene | 0.0090 | 0.0089 | 0.020 | 45 | 45 | 29-65 | 0 | 20 |
| n-Propyl benzene | 0.024 | 0.023 | 0.020 | 122 | 116 | 88-161 | 4.91 | 20 |
| Styrene | 0.018 | 0.017 | 0.020 | 89 | 84 | 70-108 | 5.81 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.018 | 0.017 | 0.020 | 88 | 85 | 69-117 | 3.57 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.016 | 0.016 | 0.020 | 82 | 79 | 53-96 | 4.07 | 20 |
| Tetrachloroethene | 0.021 | 0.020 | 0.020 | 105 | 101 | 78-128 | 3.59 | 20 |
| Toluene | 0.020 | 0.019 | 0.020 | 100 | 96 | 78-121 | 4.29 | 20 |
| 1,2,3-Trichlorobenzene | 0.010 | 0.010 | 0.020 | 52 | 52 | 35-80 | 0 | 20 |
| 1,2,4-Trichlorobenzene | 0.014 | 0.013 | 0.020 | 69 | 67 | 46-101 | 2.66 | 20 |
| 1,1,1-Trichloroethane | 0.019 | 0.018 | 0.020 | 93 | 91 | 69-121 | 1.70 | 20 |
| 1,1,2-Trichloroethane | 0.018 | 0.018 | 0.020 | 91 | 88 | 64-104 | 3.53 | 20 |
| Trichloroethene | 0.018 | 0.018 | 0.020 | 89 | 88 | 73-118 | 1.34 | 20 |
| Trichlorofluoromethane | 0.017 | 0.017 | 0.020 | 84 | 83 | 31-119 | 1.31 | 20 |
| 1,2,3-Trichloropropane | 0.0093 | 0.0087 | 0.010 | 93 | 87 | 65-107 | 7.04 | 20 |
| 1,2,4-Trimethylbenzene | 0.023 | 0.022 | 0.020 | 116 | 111 | 80-147 | 4.10 | 20 |
| 1,3,5-Trimethylbenzene | 0.024 | 0.023 | 0.020 | 120 | 114 | 83-156 | 5.39 | 20 |
| Vinyl Chloride | 0.0084 | 0.0083 | 0.010 | 84 | 83 | 40-125 | 1.45 | 20 |
| m,p-Xylene | 0.042 | 0.040 | 0.040 | 105 | 101 | 80-122 | 3.47 | 20 |
| o-Xylene | 0.020 | 0.019 | 0.020 | 98 | 95 | 79-116 | 3.17 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | | |
| Dibromofluoromethane | 0.11 | 0.11 | 0.12 | 85 | 85 | 66-112 | 0 | 20 |
| Toluene-d8 | 0.13 | 0.13 | 0.12 | 105 | 103 | 92-109 | 2.19 | 20 |
| 4-BFB | 0.012 | 0.011 | 0.012 | 92 | 91 | 72-112 | 1.54 | 20 |
| Benzene-d6 | 0.099 | 0.095 | 0.10 | 99 | 95 | 81-126 | 3.91 | 20 |
| Ethylbenzene-d10 | 0.11 | 0.11 | 0.10 | 113 | 107 | 92-138 | 5.52 | 20 |
| 1,2-DCB-d4 | 0.087 | 0.083 | 0.10 | 87 | 83 | 68-108 | 4.81 | 20 |

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 1 | 0.17 | 0.17 | 0.20 | ND | 87 | 86 | 48-114 | 1.29 | 20 |
| tert-Amyl methyl ether (TAME) | 1 | 0.013 | 0.013 | 0.020 | ND | 64 | 64 | 44-94 | 0 | 20 |
| Benzene | 1 | 0.014 | 0.014 | 0.020 | ND | 72 | 72 | 50-115 | 0 | 20 |
| Bromobenzene | 1 | 0.015 | 0.015 | 0.020 | ND | 77 | 76 | 60-114 | 5.93 | 20 |
| Bromochloromethane | 1 | 0.014 | 0.015 | 0.020 | ND | 70 | 73 | 50-113 | 2.48 | 20 |
| Bromodichloromethane | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 68 | 46-109 | 0 | 20 |
| Bromoform | 1 | 0.011 | 0.010 | 0.020 | ND | 53 | 52 | 38-83 | 1.41 | 20 |
| Bromomethane | 1 | 0.014 | 0.014 | 0.020 | ND | 69 | 69 | 10-149 | 0 | 20 |
| 2-Butanone (MEK) | 1 | 0.058 | 0.058 | 0.080 | ND | 73 | 72 | 46-111 | 4.29 | 20 |
| t-Butyl alcohol (TBA) | 1 | 0.051 | 0.053 | 0.080 | ND | 64 | 67 | 32-112 | 0.985 | 20 |
| n-Butyl benzene | 1 | 0.021 | 0.023 | 0.020 | ND | 106 | 113 | 71-156 | 2.07 | 20 |
| sec-Butyl benzene | 1 | 0.021 | 0.021 | 0.020 | ND | 103 | 103 | 28-190 | 0 | 20 |
| tert-Butyl benzene | 1 | 0.016 | 0.017 | 0.020 | ND | 82 | 83 | 69-145 | 3.66 | 20 |
| Carbon Disulfide | 1 | 0.014 | 0.014 | 0.020 | ND | 71 | 71 | 19-135 | 0 | 20 |
| Carbon Tetrachloride | 1 | 0.015 | 0.015 | 0.020 | ND | 73 | 74 | 51-120 | 3.58 | 20 |
| Chlorobenzene | 1 | 0.015 | 0.014 | 0.020 | ND | 74 | 72 | 63-108 | 3.84 | 20 |
| Chloroethane | 1 | 0.016 | 0.016 | 0.020 | ND | 80 | 79 | 40-122 | 14.8 | 20 |
| Chloroform | 1 | 0.015 | 0.015 | 0.020 | ND | 75 | 75 | 55-114 | 0 | 20 |
| Chloromethane | 1 | 0.015 | 0.015 | 0.020 | ND | 77 | 74 | 14-128 | 17.6 | 20 |
| 2-Chlorotoluene | 1 | 0.016 | 0.016 | 0.020 | ND | 81 | 82 | 45-153 | 6.59 | 20 |
| 4-Chlorotoluene | 1 | 0.016 | 0.016 | 0.020 | ND | 82 | 81 | 65-126 | 3.37 | 20 |
| Dibromochloromethane | 1 | 0.012 | 0.012 | 0.020 | ND | 62 | 62 | 48-97 | 0 | 20 |
| 1,2-Dibromo-3-chloropropane | 1 | 0.0067 | 0.0065 | 0.010 | ND | 67 | 65 | 32-95 | 6.34 | 20 |
| 1,2-Dibromoethane (EDB) | 1 | 0.0070 | 0.0069 | 0.010 | ND | 70 | 69 | 52-99 | 2.03 | 20 |
| Dibromomethane | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 68 | 50-100 | 0 | 20 |
| 1,2-Dichlorobenzene | 1 | 0.014 | 0.014 | 0.020 | ND | 70 | 67 | 38-116 | 4.99 | 20 |

*(Cont.)*

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,3-Dichlorobenzene | 1 | 0.017 | 0.017 | 0.020 | ND | 83 | 83 | 58-127 | 0 | 20 |
| 1,4-Dichlorobenzene | 1 | 0.016 | 0.016 | 0.020 | ND | 79 | 78 | 54-123 | 3.61 | 20 |
| Dichlorodifluoromethane | 1 | 0.0082 | 0.0083 | 0.020 | ND | 41 | 42 | 8-93 | 14.4 | 20 |
| 1,1-Dichloroethane | 1 | 0.015 | 0.015 | 0.020 | ND | 73 | 73 | 53-115 | 0 | 20 |
| 1,2-Dichloroethane (1,2-DCA) | 1 | 0.013 | 0.013 | 0.020 | ND | 67 | 67 | 48-105 | 0 | 20 |
| 1,1-Dichloroethene | 1 | 0.015 | 0.015 | 0.020 | ND | 75 | 75 | 47-127 | 0 | 20 |
| cis-1,2-Dichloroethene | 1 | 0.014 | 0.014 | 0.020 | ND | 72 | 72 | 56-111 | 0 | 20 |
| trans-1,2-Dichloroethene | 1 | 0.014 | 0.014 | 0.020 | ND | 69 | 69 | 51-115 | 0 | 20 |
| 1,2-Dichloropropane | 1 | 0.013 | 0.013 | 0.020 | ND | 67 | 67 | 51-111 | 0 | 20 |
| 1,3-Dichloropropane | 1 | 0.014 | 0.014 | 0.020 | ND | 71 | 71 | 51-109 | 0 | 20 |
| 2,2-Dichloropropane | 1 | 0.016 | 0.016 | 0.020 | ND | 79 | 79 | 50-116 | 0 | 20 |
| 1,1-Dichloropropene | 1 | 0.014 | 0.014 | 0.020 | ND | 72 | 72 | 46-124 | 0 | 20 |
| cis-1,3-Dichloropropene | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 68 | 41-127 | 0 | 20 |
| trans-1,3-Dichloropropene | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 68 | 50-111 | 0 | 20 |
| Diisopropyl ether (DIPE) | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 69 | 50-103 | 1.68 | 20 |
| Ethylbenzene | 1 | 0.015 | 0.015 | 0.020 | ND | 74 | 74 | 65-119 | 0 | 20 |
| Ethyl tert-butyl ether (ETBE) | 1 | 0.014 | 0.014 | 0.020 | ND | 68 | 68 | 47-100 | 0 | 20 |
| Freon 113 | 1 | 0.013 | 0.013 | 0.020 | ND | 63 | 63 | 48-98 | 0 | 20 |
| Hexachlorobutadiene | 1 | 0.018 | 0.019 | 0.020 | ND | 91 | 94 | 36-166 | 2.98 | 20 |
| Hexachloroethane | 1 | 0.017 | 0.017 | 0.020 | ND | 85 | 85 | 61-146 | 0 | 20 |
| 2-Hexanone | 1 | 0.012 | 0.012 | 0.020 | ND | 60 | 58 | 31-87 | 8.57 | 20 |
| Isopropylbenzene | 1 | 0.019 | 0.019 | 0.020 | ND | 96 | 96 | 24-171 | 0 | 20 |
| 4-Isopropyl toluene | 1 | 0.019 | 0.020 | 0.020 | ND | 96 | 99 | 69-150 | 3.90 | 20 |
| Methyl-t-butyl ether (MTBE) | 1 | 0.014 | 0.014 | 0.020 | ND | 69 | 68 | 50-95 | 16.3 | 20 |
| Methylene chloride | 1 | 0.016 | 0.015 | 0.020 | ND | 78 | 77 | 39-123 | 4.41 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 1 | 0.013 | 0.012 | 0.020 | ND | 63 | 62 | 41-83 | 8.78 | 20 |
| Naphthalene | 1 | 0.011 | 0.0092 | 0.020 | ND | 53 | 46 | 13-77 | 13.1 | 20 |
| n-Propyl benzene | 1 | 0.018 | 0.018 | 0.020 | ND | 92 | 91 | 26-184 | 5.85 | 20 |
| Styrene | 1 | 0.013 | 0.012 | 0.020 | ND | 64 | 62 | 54-105 | 6.85 | 20 |
| 1,1,1,2-Tetrachloroethane | 1 | 0.013 | 0.013 | 0.020 | ND | 67 | 67 | 60-108 | 0 | 20 |
| 1,1,2,2-Tetrachloroethane | 1 | 0.014 | 0.014 | 0.020 | ND | 72 | 72 | 37-108 | 0 | 20 |
| Tetrachloroethene | 1 | 0.015 | 0.015 | 0.020 | ND | 74 | 75 | 54-127 | 4.40 | 20 |
| Toluene | 1 | 0.015 | 0.015 | 0.020 | ND | 74 | 74 | 63-114 | 0 | 20 |
| 1,2,3-Trichlorobenzene | 1 | 0.011 | 0.010 | 0.020 | ND | 57 | 50 | 14-97 | 13.5 | 20 |
| 1,2,4-Trichlorobenzene | 1 | 0.013 | 0.013 | 0.020 | ND | 65 | 64 | 31-106 | 3.01 | 20 |
| 1,1,1-Trichloroethane | 1 | 0.015 | 0.015 | 0.020 | ND | 73 | 73 | 55-114 | 0 | 20 |
| 1,1,2-Trichloroethane | 1 | 0.013 | 0.013 | 0.020 | ND | 65 | 65 | 50-104 | 0 | 20 |
| Trichloroethene | 1 | 0.015 | 0.015 | 0.020 | ND | 74 | 74 | 47-127 | 0 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181363 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW5030B |
| **Instrument:** | GC10, GC16 | **Analytical Method:** | SW8260B |
| **Matrix:** | Soil | **Unit:** | mg/kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181363<br>1907495-001AMS/MSD |

## QC Summary Report for SW8260B

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Trichlorofluoromethane | 1 | 0.014 | 0.013 | 0.020 | ND | 67 | 67 | 9-119 | 0 | 20 |
| 1,2,3-Trichloropropane | 1 | 0.0082 | 0.0083 | 0.010 | ND | 82 | 83 | 45-115 | 0.0181 | 20 |
| 1,2,4-Trimethylbenzene | 1 | 0.017 | 0.018 | 0.020 | ND | 87 | 91 | 69-133 | 1.13 | 20 |
| 1,3,5-Trimethylbenzene | 1 | 0.018 | 0.019 | 0.020 | ND | 92 | 95 | 27-172 | 1.50 | 20 |
| Vinyl Chloride | 1 | 0.0070 | 0.0070 | 0.010 | ND | 70 | 70 | 33-114 | 0 | 20 |
| m,p-Xylene | 1 | 0.029 | 0.029 | 0.040 | ND | 72 | 72 | 62-117 | 0 | 20 |
| o-Xylene | 1 | 0.014 | 0.014 | 0.020 | ND | 72 | 72 | 19-144 | 0 | 20 |
| **Surrogate Recovery** | | | | | | | | | | |
| Dibromofluoromethane | 1 | 0.12 | 0.12 | 0.12 | | 94 | 94 | 66-116 | 0 | 20 |
| Toluene-d8 | 1 | 0.13 | 0.13 | 0.12 | | 103 | 103 | 86-110 | 0 | 20 |
| 4-BFB | 1 | 0.011 | 0.011 | 0.012 | | 87 | 87 | 71-114 | 0 | 20 |
| Benzene-d6 | 1 | 0.081 | 0.081 | 0.10 | | 81 | 81 | 62-122 | 0 | 20 |
| Ethylbenzene-d10 | 1 | 0.096 | 0.096 | 0.10 | | 96 | 96 | 69-130 | 0 | 20 |
| 1,2-DCB-d4 | 1 | 0.075 | 0.076 | 0.10 | | 75 | 76 | 55-108 | 2.06 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| 1,1-Biphenyl | 0.0024,J | 0.0023 | 0.013 | - | - | - |
| 1,2,4-Trichlorobenzene | ND | 0.15 | 0.25 | - | - | - |
| 1,2-Dichlorobenzene | ND | 0.15 | 0.25 | - | - | - |
| 1,2-Diphenylhydrazine | ND | 0.15 | 0.25 | - | - | - |
| 1,3-Dichlorobenzene | ND | 0.13 | 0.25 | - | - | - |
| 1,4-Dichlorobenzene | ND | 0.18 | 0.25 | - | - | - |
| 1-Methylnaphthalene | ND | 0.0011 | 0.0013 | - | - | - |
| 2,4,5-Trichlorophenol | ND | 0.0013 | 0.0025 | - | - | - |
| 2,4,6-Trichlorophenol | ND | 0.0012 | 0.013 | - | - | - |
| 2,4-Dichlorophenol | ND | 0.0017 | 0.013 | - | - | - |
| 2,4-Dimethylphenol | ND | 0.16 | 0.25 | - | - | - |
| 2,4-Dinitrophenol | ND | 0.051 | 0.13 | - | - | - |
| 2,4-Dinitrotoluene | ND | 0.0011 | 0.0063 | - | - | - |
| 2,6-Dinitrotoluene | ND | 0.0013 | 0.0025 | - | - | - |
| 2-Chloronaphthalene | ND | 0.14 | 0.25 | - | - | - |
| 2-Chlorophenol | ND | 0.0020 | 0.0050 | - | - | - |
| 2-Methylnaphthalene | ND | 0.0017 | 0.0025 | - | - | - |
| 2-Methylphenol (o-Cresol) | ND | 0.27 | 0.50 | - | - | - |
| 2-Nitroaniline | ND | 0.69 | 1.2 | - | - | - |
| 2-Nitrophenol | ND | 0.66 | 1.2 | - | - | - |
| 3 & 4-Methylphenol (m,p-Cresol) | ND | 0.24 | 0.25 | - | - | - |
| 3,3-Dichlorobenzidine | ND | 0.0016 | 0.0025 | - | - | - |
| 3-Nitroaniline | ND | 0.84 | 1.2 | - | - | - |
| 4,6-Dinitro-2-methylphenol | ND | 0.81 | 1.2 | - | - | - |
| 4-Bromophenyl Phenyl Ether | ND | 0.15 | 0.25 | - | - | - |
| 4-Chloro-3-methylphenol | ND | 0.20 | 0.25 | - | - | - |
| 4-Chloroaniline | ND | 0.0016 | 0.0025 | - | - | - |
| 4-Chlorophenyl Phenyl Ether | ND | 0.16 | 0.25 | - | - | - |
| 4-Nitroaniline | ND | 1.1 | 1.2 | - | - | - |
| 4-Nitrophenol | ND | 0.77 | 1.2 | - | - | - |
| Acenaphthene | ND | 0.00077 | 0.0013 | - | - | - |
| Acenaphthylene | ND | 0.00041 | 0.0013 | - | - | - |
| Acetochlor | ND | 0.25 | 0.25 | - | - | - |
| Anthracene | ND | 0.00082 | 0.0013 | - | - | - |
| Benzidine | ND | 0.67 | 1.2 | - | - | - |
| Benzo (a) anthracene | ND | 0.0043 | 0.0050 | - | - | - |
| Benzo (a) pyrene | ND | 0.0012 | 0.0025 | - | - | - |
| Benzo (b) fluoranthene | ND | 0.00074 | 0.0013 | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Benzo (g,h,i) perylene | ND | 0.0011 | 0.0025 | - | - | - |
| Benzo (k) fluoranthene | 0.00080,J | 0.00079 | 0.0013 | - | - | - |
| Benzyl Alcohol | ND | 0.76 | 1.2 | - | - | - |
| Bis (2-chloroethoxy) Methane | ND | 0.15 | 0.25 | - | - | - |
| Bis (2-chloroethyl) Ether | ND | 0.0016 | 0.0025 | - | - | - |
| Bis (2-chloroisopropyl) Ether | ND | 0.0014 | 0.0025 | - | - | - |
| Bis (2-ethylhexyl) Adipate | ND | 0.15 | 0.50 | - | - | - |
| Bis (2-ethylhexyl) Phthalate | ND | 0.0034 | 0.0050 | - | - | - |
| Butylbenzyl Phthalate | ND | 0.021 | 0.025 | - | - | - |
| Chrysene | ND | 0.00080 | 0.0025 | - | - | - |
| Dibenzo (a,h) anthracene | ND | 0.0015 | 0.0025 | - | - | - |
| Dibenzofuran | ND | 0.16 | 0.25 | - | - | - |
| Diethyl Phthalate | ND | 0.0036 | 0.0050 | - | - | - |
| Dimethyl Phthalate | ND | 0.0025 | 0.0025 | - | - | - |
| Di-n-butyl Phthalate | ND | 0.0020 | 0.0025 | - | - | - |
| Di-n-octyl Phthalate | ND | 0.0043 | 0.0050 | - | - | - |
| Fluoranthene | ND | 0.0011 | 0.0013 | - | - | - |
| Fluorene | ND | 0.00086 | 0.0025 | - | - | - |
| Hexachlorobenzene | ND | 0.00057 | 0.0013 | - | - | - |
| Hexachlorobutadiene | ND | 0.00042 | 0.0025 | - | - | - |
| Hexachlorocyclopentadiene | ND | 0.11 | 2.0 | - | - | - |
| Hexachloroethane | ND | 0.0011 | 0.0025 | - | - | - |
| Indeno (1,2,3-cd) pyrene | ND | 0.0010 | 0.0025 | - | - | - |
| Isophorone | ND | 0.15 | 0.25 | - | - | - |
| Naphthalene | ND | 0.00069 | 0.0013 | - | - | - |
| Nitrobenzene | ND | 0.16 | 0.25 | - | - | - |
| N-Nitrosodimethylamine | ND | 0.65 | 1.2 | - | - | - |
| N-Nitrosodi-n-propylamine | ND | 0.14 | 0.25 | - | - | - |
| N-Nitrosodiphenylamine | ND | 0.15 | 0.25 | - | - | - |
| Pentachlorophenol | ND | 0.014 | 0.031 | - | - | - |
| Phenanthrene | ND | 0.00067 | 0.0050 | - | - | - |
| Phenol | 0.0011,J | 0.00094 | 0.0050 | - | - | - |
| Pyrene | ND | 0.0014 | 0.0025 | - | - | - |
| Pyridine | ND | 0.18 | 0.25 | - | - | - |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | |
| 2-Fluorophenol | 1.5 | | | 1.25 | 119 | 54-131 |
| Phenol-d5 | 1.4 | | | 1.25 | 114 | 52-129 |
| Nitrobenzene-d5 | 1.4 | | | 1.25 | 109 | 43-127 |
| 2-Fluorobiphenyl | 1.2 | | | 1.25 | 99 | 42-116 |
| 2,4,6-Tribromophenol | 1.1 | | | 1.25 | 90 | 39-119 |
| 4-Terphenyl-d14 | 1.3 | | | 1.25 | 102 | 36-118 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | 2.6 | 2.7 | 2.5 | 105 | 107 | 69-130 | 1.93 | 30 |
| 1,2-Dichlorobenzene | 2.4 | 2.4 | 2.5 | 95 | 97 | 68-114 | 1.92 | 30 |
| 1,2-Diphenylhydrazine | 2.5 | 2.6 | 2.5 | 102 | 106 | 62-142 | 3.81 | 30 |
| 1,3-Dichlorobenzene | 2.3 | 2.4 | 2.5 | 93 | 97 | 69-116 | 4.05 | 30 |
| 1,4-Dichlorobenzene | 2.2 | 2.3 | 2.5 | 89 | 93 | 64-117 | 4.50 | 30 |
| 1-Methylnaphthalene | 0.15 | 0.16 | 0.12 | 124 | 126 | 65-134 | 2.22 | 30 |
| 2,4,5-Trichlorophenol | 0.19 | 0.18 | 0.12 | 152, F2 | 143 | 68-150 | 6.23 | 30 |
| 2,4,6-Trichlorophenol | 0.15 | 0.16 | 0.12 | 123 | 126 | 70-144 | 1.96 | 30 |
| 2,4-Dichlorophenol | 3.0 | 3.0 | 2.5 | 119 | 122 | 78-144 | 1.97 | 30 |
| 2,4-Dimethylphenol | 3.0 | 3.0 | 2.5 | 119 | 122 | 71-152 | 1.90 | 30 |
| 2,4-Dinitrophenol | 0.56 | 0.60 | 0.62 | 89 | 96 | 1-156 | 7.13 | 30 |
| 2,4-Dinitrotoluene | 0.17 | 0.18 | 0.12 | 139 | 142 | 68-144 | 2.11 | 30 |
| 2,6-Dinitrotoluene | 0.16 | 0.17 | 0.12 | 129 | 135 | 69-148 | 4.62 | 30 |
| 2-Chloronaphthalene | 2.8 | 2.8 | 2.5 | 113 | 113 | 71-133 | 0 | 30 |
| 2-Chlorophenol | 0.13 | 0.14 | 0.12 | 107 | 109 | 73-133 | 1.86 | 30 |
| 2-Methylnaphthalene | 0.16 | 0.16 | 0.12 | 124 | 128 | 72-139 | 2.63 | 30 |
| 2-Methylphenol (o-Cresol) | 2.6 | 2.7 | 2.5 | 104 | 110 | 69-138 | 5.11 | 30 |
| 2-Nitroaniline | 14 | 15 | 12.5 | 114 | 118 | 72-143 | 2.93 | 30 |
| 2-Nitrophenol | 16 | 16 | 12.5 | 125 | 130 | 80-141 | 3.79 | 30 |
| 3 & 4-Methylphenol (m,p-Cresol) | 2.3 | 2.3 | 2.5 | 93 | 94 | 69-128 | 1.23 | 30 |
| 3,3-Dichlorobenzidine | 0.12 | 0.12 | 0.12 | 98 | 100 | 11-163 | 1.61 | 30 |
| 3-Nitroaniline | 12 | 12 | 12.5 | 97 | 99 | 57-122 | 1.99 | 30 |
| 4,6-Dinitro-2-methylphenol | 15 | 16 | 12.5 | 123 | 127 | 14-155 | 3.90 | 30 |
| 4-Bromophenyl Phenyl Ether | 2.6 | 2.6 | 2.5 | 104 | 105 | 68-136 | 0.917 | 30 |
| 4-Chloro-3-methylphenol | 3.0 | 3.0 | 2.5 | 121 | 121 | 78-149 | 0 | 30 |
| 4-Chloroaniline | 0.10 | 0.10 | 0.12 | 83 | 84 | 46-130 | 1.26 | 30 |
| 4-Chlorophenyl Phenyl Ether | 2.5 | 2.6 | 2.5 | 100 | 104 | 71-132 | 3.13 | 30 |
| 4-Nitroaniline | 15 | 15 | 12.5 | 116 | 118 | 68-133 | 1.56 | 30 |
| 4-Nitrophenol | 14 | 15 | 12.5 | 110 | 117 | 67-144 | 5.93 | 30 |
| Acenaphthene | 0.15 | 0.15 | 0.12 | 118 | 119 | 68-134 | 0.339 | 30 |
| Acenaphthylene | 0.15 | 0.15 | 0.12 | 118 | 120 | 65-141 | 1.24 | 30 |
| Anthracene | 0.15 | 0.15 | 0.12 | 120 | 122 | 65-147 | 1.27 | 30 |
| Benzidine | 3.9 | 4.2 | 12.5 | 31 | 33 | 7-97 | 6.34 | 30 |
| Benzo (a) anthracene | 0.15 | 0.15 | 0.12 | 116 | 118 | 61-136 | 1.57 | 30 |
| Benzo (a) pyrene | 0.16 | 0.17 | 0.12 | 131 | 135 | 59-150 | 2.70 | 30 |
| Benzo (b) fluoranthene | 0.15 | 0.16 | 0.12 | 122 | 127 | 43-160 | 3.78 | 30 |
| Benzo (g,h,i) perylene | 0.15 | 0.16 | 0.12 | 122 | 124 | 54-142 | 1.62 | 30 |
| Benzo (k) fluoranthene | 0.16 | 0.17 | 0.12 | 129 | 134 | 59-141 | 3.81 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Benzyl Alcohol | 7.9 | 8.2 | 12.5 | 63 | 66 | 48-145 | 4.13 | 30 |
| Bis (2-chloroethoxy) Methane | 2.5 | 2.5 | 2.5 | 98 | 101 | 71-138 | 2.24 | 30 |
| Bis (2-chloroethyl) Ether | 0.13 | 0.13 | 0.12 | 105 | 106 | 60-128 | 1.63 | 30 |
| Bis (2-chloroisopropyl) Ether | 0.14 | 0.14 | 0.12 | 111 | 115 | 67-129 | 3.14 | 30 |
| Bis (2-ethylhexyl) Adipate | 2.3 | 2.3 | 2.5 | 92 | 92 | 56-162 | 0 | 30 |
| Bis (2-ethylhexyl) Phthalate | 0.13 | 0.13 | 0.12 | 103 | 104 | 49-168 | 0.932 | 30 |
| Butylbenzyl Phthalate | 0.14 | 0.14 | 0.12 | 112 | 113 | 57-161 | 0.843 | 30 |
| Chrysene | 0.15 | 0.16 | 0.12 | 122 | 124 | 58-140 | 2.17 | 30 |
| Dibenzo (a,h) anthracene | 0.16 | 0.17 | 0.12 | 131 | 135 | 57-151 | 3.23 | 30 |
| Dibenzofuran | 2.4 | 2.4 | 2.5 | 95 | 96 | 70-134 | 0.909 | 30 |
| Diethyl Phthalate | 0.14 | 0.14 | 0.12 | 113 | 113 | 67-146 | 0 | 30 |
| Dimethyl Phthalate | 0.15 | 0.15 | 0.12 | 117 | 119 | 70-135 | 1.52 | 30 |
| Di-n-butyl Phthalate | 0.14 | 0.14 | 0.12 | 113 | 112 | 65-147 | 0.747 | 30 |
| Di-n-octyl Phthalate | 0.15 | 0.16 | 0.12 | 122 | 125 | 51-175 | 2.60 | 30 |
| Fluoranthene | 0.16 | 0.16 | 0.12 | 126 | 125 | 66-146 | 0.825 | 30 |
| Fluorene | 0.17 | 0.17 | 0.12 | 135 | 137 | 72-142 | 1.04 | 30 |
| Hexachlorobenzene | 0.13 | 0.14 | 0.12 | 107 | 110 | 65-127 | 2.41 | 30 |
| Hexachlorobutadiene | 0.13 | 0.13 | 0.12 | 101 | 104 | 68-131 | 2.97 | 30 |
| Hexachlorocyclopentadiene | 11 | 11 | 12.5 | 86 | 89 | 38-134 | 3.39 | 30 |
| Hexachloroethane | 0.12 | 0.12 | 0.12 | 94 | 98 | 57-117 | 4.29 | 30 |
| Indeno (1,2,3-cd) pyrene | 0.16 | 0.16 | 0.12 | 128 | 131 | 57-145 | 2.12 | 30 |
| Isophorone | 2.2 | 2.4 | 2.5 | 90 | 95 | 69-139 | 5.56 | 30 |
| Naphthalene | 0.11 | 0.12 | 0.12 | 92 | 93 | 64-127 | 1.40 | 30 |
| Nitrobenzene | 2.6 | 2.6 | 2.5 | 104 | 103 | 66-136 | 0.944 | 30 |
| N-Nitrosodi-n-propylamine | 2.1 | 2.2 | 2.5 | 84 | 88 | 74-118 | 4.09 | 30 |
| N-Nitrosodiphenylamine | 2.3 | 2.4 | 2.5 | 94 | 95 | 67-138 | 1.52 | 30 |
| Pentachlorophenol | 0.86 | 0.86 | 0.62 | 138 | 137 | 50-153 | 0.531 | 30 |
| Phenanthrene | 0.15 | 0.15 | 0.12 | 120 | 121 | 66-129 | 0.941 | 30 |
| Phenol | 0.43 | 0.44 | 0.50 | 86 | 88 | 58-136 | 2.25 | 30 |
| Pyrene | 0.14 | 0.15 | 0.12 | 112 | 117 | 55-148 | 4.14 | 30 |
| Pyridine | 1.3 | 1.2 | 2.5 | 51 | 46 | 46-93 | 9.59 | 30 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/12/19 | **BatchID:** | 181473 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC21 | **Analytical Method:** | SW8270C |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181473 |

## QC Summary Report for SW8270C

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| **Surrogate Recovery** | | | | | | | | |
| 2-Fluorophenol | 1.2 | 1.2 | 1.25 | 94 | 98 | 68-128 | 3.72 | 30 |
| Phenol-d5 | 1.1 | 1.1 | 1.25 | 90 | 91 | 73-121 | 1.63 | 30 |
| Nitrobenzene-d5 | 1.3 | 1.3 | 1.25 | 100 | 102 | 59-138 | 2.02 | 30 |
| 2-Fluorobiphenyl | 1.2 | 1.2 | 1.25 | 97 | 97 | 59-129 | 0 | 30 |
| 2,4,6-Tribromophenol | 1.1 | 1.1 | 1.25 | 87 | 87 | 46-142 | 0 | 30 |
| 4-Terphenyl-d14 | 1.3 | 1.4 | 1.25 | 105 | 109 | 50-143 | 3.73 | 30 |

# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181355 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181355 |

## QC Summary Report for Metals

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| Antimony | ND | 0.094 | 0.50 | - | - | - |
| Arsenic | ND | 0.14 | 0.50 | - | - | - |
| Barium | ND | 0.97 | 5.0 | - | - | - |
| Beryllium | ND | 0.072 | 0.50 | - | - | - |
| Cadmium | ND | 0.058 | 0.25 | - | - | - |
| Chromium | ND | 0.092 | 0.50 | - | - | - |
| Cobalt | ND | 0.056 | 0.50 | - | - | - |
| Copper | ND | 0.069 | 0.50 | - | - | - |
| Lead | ND | 0.094 | 0.50 | - | - | - |
| Mercury | ND | 0.0050 | 0.050 | - | - | - |
| Molybdenum | ND | 0.23 | 0.50 | - | - | - |
| Nickel | ND | 0.072 | 0.50 | - | - | - |
| Selenium | ND | 0.13 | 0.50 | - | - | - |
| Silver | ND | 0.055 | 0.50 | - | - | - |
| Thallium | ND | 0.10 | 0.50 | - | - | - |
| Vanadium | ND | 0.064 | 0.50 | - | - | - |
| Zinc | ND | 1.4 | 5.0 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| Terbium | 490 | | | 500 | 98 | 70-130 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181355 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW3050B |
| **Instrument:** | ICP-MS3 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181355 |

## QC Summary Report for Metals

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Antimony | 50 | 50 | 50 | 100 | 100 | 75-125 | 0 | 20 |
| Arsenic | 50 | 51 | 50 | 101 | 102 | 75-125 | 1.36 | 20 |
| Barium | 510 | 510 | 500 | 102 | 103 | 75-125 | 0.489 | 20 |
| Beryllium | 53 | 54 | 50 | 106 | 107 | 75-125 | 1.29 | 20 |
| Cadmium | 50 | 51 | 50 | 101 | 102 | 75-125 | 0.671 | 20 |
| Chromium | 51 | 52 | 50 | 102 | 103 | 75-125 | 1.44 | 20 |
| Cobalt | 51 | 52 | 50 | 102 | 104 | 75-125 | 1.34 | 20 |
| Copper | 50 | 51 | 50 | 101 | 102 | 75-125 | 1.03 | 20 |
| Lead | 49 | 50 | 50 | 98 | 100 | 75-125 | 1.59 | 20 |
| Mercury | 1.3 | 1.2 | 1.25 | 101 | 99 | 75-125 | 1.44 | 20 |
| Molybdenum | 49 | 49 | 50 | 98 | 98 | 75-125 | 0 | 20 |
| Nickel | 51 | 52 | 50 | 102 | 103 | 75-125 | 1.37 | 20 |
| Selenium | 49 | 50 | 50 | 98 | 100 | 75-125 | 1.86 | 20 |
| Silver | 49 | 50 | 50 | 99 | 100 | 75-125 | 0.966 | 20 |
| Thallium | 48 | 49 | 50 | 96 | 97 | 75-125 | 0.931 | 20 |
| Vanadium | 51 | 51 | 50 | 101 | 103 | 75-125 | 1.69 | 20 |
| Zinc | 510 | 510 | 500 | 102 | 102 | 75-125 | 0 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| Terbium | 530 | 530 | 500 | 105 | 106 | 70-130 | 0.626 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181362 |
| **Date Analyzed:** | 7/12/19 | **Extraction Method:** | SW5035 |
| **Instrument:** | GC3 | **Analytical Method:** | SW8021B/8015Bm |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181362 |

## QC Summary Report for SW8021B/8015Bm

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| TPH(g) (C6-C12) | 0.11,J | 0.090 | 1.0 | - | - | - |
| MTBE | ND | 0.0023 | 0.050 | - | - | - |
| Benzene | ND | 0.0010 | 0.0050 | - | - | - |
| Toluene | ND | 0.0012 | 0.0050 | - | - | - |
| Ethylbenzene | ND | 0.0020 | 0.0050 | - | - | - |
| m,p-Xylene | ND | 0.0013 | 0.010 | - | - | - |
| o-Xylene | ND | 0.0013 | 0.0050 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| 2-Fluorotoluene | 0.095 | | | 0.10 | 95 | 75-134 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH(btex) | 0.62 | 0.60 | 0.60 | 103 | 99 | 82-118 | 3.41 | 20 |
| MTBE | 0.084 | 0.086 | 0.10 | 84 | 86 | 61-119 | 2.55 | 20 |
| Benzene | 0.095 | 0.094 | 0.10 | 95 | 94 | 77-128 | 0.836 | 20 |
| Toluene | 0.10 | 0.10 | 0.10 | 102 | 100 | 74-132 | 1.85 | 20 |
| Ethylbenzene | 0.10 | 0.098 | 0.10 | 101 | 98 | 84-127 | 2.73 | 20 |
| m,p-Xylene | 0.20 | 0.20 | 0.20 | 102 | 99 | 80-120 | 3.12 | 20 |
| o-Xylene | 0.098 | 0.095 | 0.10 | 98 | 95 | 80-120 | 3.27 | 20 |
| **Surrogate Recovery** | | | | | | | | |
| 2-Fluorotoluene | 0.096 | 0.095 | 0.10 | 96 | 95 | 75-134 | 1.41 | 20 |

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/11/19 | **BatchID:** | 181360 |
| **Date Analyzed:** | 7/12/19 - 7/15/19 | **Extraction Method:** | SW3550B |
| **Instrument:** | GC11B, GC6B | **Analytical Method:** | SW8015B |
| **Matrix:** | Soil | **Unit:** | mg/Kg |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181360<br>1907495-002AMS/MSD |

## QC Report for SW8015B w/out SG Clean-Up

| Analyte | MB Result | MDL | RL | SPK Val | MB SS %REC | MB SS Limits |
|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | ND | 0.83 | 1.0 | - | - | - |
| TPH-Motor Oil (C18-C36) | ND | 3.8 | 5.0 | - | - | - |
| **Surrogate Recovery** | | | | | | |
| C9 | 22 | | | 25 | 89 | 72-122 |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 41 | 41 | 40 | 102 | 103 | 75-128 | 0.866 | 30 |
| **Surrogate Recovery** | | | | | | | | |
| C9 | 22 | 22 | 25 | 90 | 89 | 72-122 | 0.750 | 30 |

| Analyte | MS DF | MS Result | MSD Result | SPK Val | SPKRef Val | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| TPH-Diesel (C10-C23) | 1 | 40 | 40 | 40 | ND | 100 | 100 | 71-134 | 0 | 30 |
| **Surrogate Recovery** | | | | | | | | | | |
| C9 | 1 | 23 | 24 | 25 | | 93 | 94 | 78-126 | 4.24 | 30 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907495** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padrein
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (A); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** 3 days;

***Date Received:*** 07/11/2019
***Date Logged:*** 07/11/2019

| Lab ID | Client ID | Matrix | Collection Date | Hold | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Requested Tests (See legend below) | | | | | | | | | | | |
| 1907495-001 | SB-1,2,3 | Soil | 7/10/2019 13:59 | ☐ | A | A | A | A | A | A | | | | | | |
| 1907495-002 | SB-4,5,6 | Soil | 7/10/2019 14:05 | ☐ | A | A | A | A | A | A | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 8081PCB_S | 2 | 8260B_S | 3 | 8270_SCSM_S | 4 | CAM17MS_TTLC_S |
| 5 | G-MBTEX_S | 6 | TPH(DMO)_S | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas** **Prepared by: Kena Ponce**

The following SampIDs: 001A, 002A contain testgroup Multi Range_S.

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC. **Project:** 1801-0723 (A); GUSD-Brownell Middle School **Work Order:** 1907495

**Client Contact:** Alan Churchill **QC Level:** LEVEL 2

**Contact's Email:** achurchill@padreinc.com; aklein@padreinc.com **Comments:** **Date Logged:** 7/11/2019

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | De-chlorinated | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907495-001A | SB-1,2,3 | Soil | Multi-Range TPH | 3 / (3:1) | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 13:59 | 3 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8270C (SVOCs) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) | | | ☐ | | 3 days | | ☐ | |
| 1907495-002A | SB-4,5,6 | Soil | Multi-Range TPH | 3 / (3:1) | Stainless Steel tube 2"x6" | ☐ | 7/10/2019 14:05 | 3 days | | ☐ | |
| | | | SW6020 (CAM 17) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8270C (SVOCs) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8260B (VOCs) | | | ☐ | | 3 days | | ☐ | |
| | | | SW8081A/8082 (OC Pesticides+PCBs) | | | ☐ | | 3 days | | ☐ | |

**NOTES:** **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

**- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

RUSH

MAI Work Order # 1907495

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## CHAIN OF CUSTODY RECORD

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | Quote # | |
| J-Flag / MDL | ESL | | Cleanup Approved | | | | Bottle Order # | |
| Delivery Format: | PDF | ● | GeoTracker EDF | EDD | | Write On (DW) | EQuIS | |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: O916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (A)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: [signature]

**Analysis Requested**

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | OCPs (8081A) | PCBs (8082) | CAM 17 Metals | TPH-g, -d, -mo (8015M) | VOCs (8260) | SVOCs (8270) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-1 | 7-10-19 | 1350 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | COMP 3:1 (SB-1, 2, 3) |
| SB-2 | 7-10-19 | 1355 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | |
| SB-3 | 7-10-19 | 1359 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | |
| SB-4 | 7-10-19 | 1400 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | COMP 3:1 (SB-4, 5, 6) |
| SB-5 | 7-10-19 | 1402 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | |
| SB-6 | 7-10-19 | 1405 | 1 | S | 1 | ● | ● | ● | ● | ● | ● | |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Comments / Instructions

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7.11.19 | 0947 | PB | 7/11/19 | 947 |
| PB | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |
| | | | | | |

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 1.7 °C Initials ____

Page 1 of 1

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# Sample Receipt Checklist

| | | | |
|---|---|---|---|
| Client Name: | **Padre Associates. Inc.** | Date and Time Received | **7/11/2019 12:15** |
| Project: | **1801-0723 (A); GUSD-Brownell Middle School** | Date Logged: | **7/11/2019** |
| | | Received by: | Kena Ponce |
| WorkOrder №: | **1907495** Matrix: Soil | Logged by: | Kena Ponce |
| Carrier: | Patrick Johnson (MAI Courier) | | |

## Chain of Custody (COC) Information

| | Yes | No | NA |
|---|---|---|---|
| Chain of custody present? | ☑ | ☐ | |
| Chain of custody signed when relinquished and received? | ☑ | ☐ | |
| Chain of custody agrees with sample labels? | ☑ | ☐ | |
| Sample IDs noted by Client on COC? | ☑ | ☐ | |
| Date and Time of collection noted by Client on COC? | ☑ | ☐ | |
| Sampler's name noted on COC? | ☑ | ☐ | |
| COC agrees with Quote? | ☐ | ☐ | ☑ |

## Sample Receipt Information

| | Yes | No | NA |
|---|---|---|---|
| Custody seals intact on shipping container/cooler? | ☐ | ☐ | ☑ |
| Shipping container/cooler in good condition? | ☑ | ☐ | |
| Samples in proper containers/bottles? | ☑ | ☐ | |
| Sample containers intact? | ☑ | ☐ | |
| Sufficient sample volume for indicated test? | ☑ | ☐ | |

## Sample Preservation and Hold Time (HT) Information

| | Yes | No | NA |
|---|---|---|---|
| All samples received within holding time? | ☑ | ☐ | ☐ |
| Samples Received on Ice? (Ice Type: WET ICE ) | ☑ | ☐ | |
| Sample/Temp Blank temperature | Temp: 1.7°C | | ☐ |
| Water - VOA vials have zero headspace / no bubbles? | ☐ | ☐ | ☑ |
| Sample labels checked for correct preservation? | ☑ | ☐ | |
| pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)? | ☐ | ☐ | ☑ |

UCMR Samples:

| | Yes | No | NA |
|---|---|---|---|
| pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)? | ☐ | ☐ | ☑ |
| Free Chlorine tested and acceptable upon receipt (<0.1mg/L)? | ☐ | ☐ | ☑ |

Comments:

# McCampbell Analytical, Inc.

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# Analytical Report

**WorkOrder:** 1907495 A

**Report Created for:** Padre Associates. Inc.

350 University Ave., Suite 250
Sacramento, CA 95825

**Project Contact:** Alan Churchill
**Project P.O.:** 1801-0723
**Project:** 1801-0723 (A); GUSD-Brownell Middle School

**Project Received:** 07/11/2019

Analytical Report reviewed & approved for release on 07/19/2019 by:

Susan Thompson
Project Manager

***The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.***

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# Glossary of Terms & Qualifier Definitions

**Client:** Padre Associates. Inc.
**Project:** 1801-0723 (A); GUSD-Brownell Middle School
**WorkOrder:** 1907495 A

## Glossary Abbreviation

| | |
|---|---|
| %D | Serial Dilution Percent Difference |
| 95% Interval | 95% Confident Interval |
| DF | Dilution Factor |
| DI WET | (DISTLC) Waste Extraction Test using DI water |
| DISS | Dissolved (direct analysis of 0.45 µm filtered and acidified water sample) |
| DLT | Dilution Test (Serial Dilution) |
| DUP | Duplicate |
| EDL | Estimated Detection Limit |
| ERS | External reference sample. Second source calibration verification. |
| ITEF | International Toxicity Equivalence Factor |
| LCS | Laboratory Control Sample |
| MB | Method Blank |
| MB % Rec | % Recovery of Surrogate in Method Blank, if applicable |
| MDL | Method Detection Limit |
| ML | Minimum Level of Quantitation |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| N/A | Not Applicable |
| ND | Not detected at or above the indicated MDL or RL |
| NR | Data Not Reported due to matrix interference or insufficient sample amount. |
| PDS | Post Digestion Spike |
| PDSD | Post Digestion Spike Duplicate |
| PF | Prep Factor |
| RD | Relative Difference |
| RL | Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.) |
| RPD | Relative Percent Deviation |
| RRT | Relative Retention Time |
| SPK Val | Spike Value |
| SPKRef Val | Spike Reference Value |
| SPLP | Synthetic Precipitation Leachate Procedure |
| ST | Sorbent Tube |
| TCLP | Toxicity Characteristic Leachate Procedure |
| TEQ | Toxicity Equivalents |
| TZA | TimeZone Net Adjustment for sample collected outside of MAI's UTC. |
| WET (STLC) | Waste Extraction Test (Soluble Threshold Limit Concentration) |

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# Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Received:** | 7/11/19 12:15 | **Extraction Method:** | CA Title 22 |
| **Date Prepared:** | 7/16/19 | **Analytical Method:** | SW6020 |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Unit:** | mg/L |

## Metals (STLC)

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-1,2,3 | 1907495-001A | Soil | 07/10/2019 13:59 | ICP-MS2 037SMPL.D | 181732 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | **0.17** | 0.10 | 1 | 07/19/2019 01:30 |

Analyst(s): ND

| Client ID | Lab ID | Matrix | Date Collected | Instrument | Batch ID |
|---|---|---|---|---|---|
| SB-4,5,6 | 1907495-002A | Soil | 07/10/2019 14:05 | ICP-MS2 038SMPL.D | 181732 |

| Analytes | Result | RL | DF | Date Analyzed |
|---|---|---|---|---|
| Chromium | **0.12** | 0.10 | 1 | 07/19/2019 01:36 |

Analyst(s): ND

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# Quality Control Report

| | | | |
|---|---|---|---|
| **Client:** | Padre Associates. Inc. | **WorkOrder:** | 1907495 |
| **Date Prepared:** | 7/16/19 | **BatchID:** | 181732 |
| **Date Analyzed:** | 7/18/19 | **Extraction Method:** | CA Title 22 |
| **Instrument:** | ICP-MS2 | **Analytical Method:** | SW6020 |
| **Matrix:** | Soil | **Unit:** | mg/L |
| **Project:** | 1801-0723 (A); GUSD-Brownell Middle School | **Sample ID:** | MB/LCS/LCSD-181732 |

## QC Summary Report for Metals (STLC)

| Analyte | MB Result | MDL | RL | | | |
|---|---|---|---|---|---|---|
| Chromium | ND | 0.10 | 0.10 | - | - | - |

| Analyte | LCS Result | LCSD Result | SPK Val | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Chromium | 8.9 | 9.1 | 10 | 89 | 91 | 75-125 | 2.21 | 20 |

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# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 1907495** **A** **ClientCode: PAIS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☒ Detection Summary ☒ Dry-Weight

**Report to:**
Alan Churchill
Padre Associates. Inc.
350 University Ave., Suite 250
Sacramento, CA 95825
(916) 333-5920 FAX: (916) 333-5921

Email: achurchill@padreinc.com; aklein@padreinc
cc/3rd Party:
PO: 1801-0723
Project: 1801-0723 (A); GUSD-Brownell Middle School

**Bill to:**
Accounts Payable
Padre Associates. Inc.
1861 Knoll Drive
Ventura, CA 93003
ap@padreinc.com; aklein@padreinc.co

**Requested TAT:** **2 days;**

***Date Received:*** **07/11/2019**
***Date Logged:*** **07/11/2019**
***Date Add-On:*** **07/16/2019**

| Lab ID | Client ID | Matrix | Collection Date | Hold | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Requested Tests (See legend below) | | | | | | | | | | | |
| 1907495-001 | SB-1,2,3 | Soil | 7/10/2019 13:59 | ☐ | A | | | | | | | | | | | |
| 1907495-002 | SB-4,5,6 | Soil | 7/10/2019 14:05 | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | CRMS_STLC_S | 2 | | 3 | | 4 | |
| 5 | | 6 | | 7 | | 8 | |
| 9 | | 10 | | 11 | | 12 | |

**Project Manager: Rosa Venegas**

**Prepared by: Kena Ponce**

**Add-On Prepared By: Agustina Venegas**

**Comments:** STLC Cr added 7/16/19 48HR RUSH

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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http://www.mccampbell.com / E-mail: main@mccampbell.com

# WORK ORDER SUMMARY

**Client Name:** PADRE ASSOCIATES. INC.
**Client Contact:** Alan Churchill
**Contact's Email** achurchill@padreinc.com; aklein@padreinc.com

**Project:** 1801-0723 (A); GUSD-Brownell Middle School
**Comments:** STLC Cr added 7/16/19 48HR RUSH

**Work Order:** 1907495
**QC Level:** LEVEL 2
**Date Logged:** 7/11/2019
**Date Add-On:** 7/16/2019

| Lab ID | Client ID | Matrix | Test Name | Containers /Composites | Bottle & Preservative | Collection Date & Time | TAT | Sediment Content | Hold | SubOut |
|---|---|---|---|---|---|---|---|---|---|---|
| 1907495-001A | SB-1,2,3 | Soil | SW6020 (Chromium) (STLC) | 3 / (3:1) | Stainless Steel tube 2"x6" | 7/10/2019 13:59 | 2 days* | | ☐ | |
| 1907495-002A | SB-4,5,6 | Soil | SW6020 (Chromium) (STLC) | 3 / (3:1) | Stainless Steel tube 2"x6" | 7/10/2019 14:05 | 2 days* | | ☐ | |

**NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

**- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

RUSH

MAI Work Order # 1907495

# McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

## CHAIN OF CUSTODY RECORD

| Turn Around Time: 1 Day Rush | | 2 Day Rush | | 3 Day Rush | ● | STD | | Quote # | |
|---|---|---|---|---|---|---|---|---|---|
| J-Flag / MDL | | ESL | | Cleanup Approved | | | | Bottle Order # | |
| Delivery Format: | PDF | ● | GeoTracker EDF | | EDD | | Write On (DW) | | EQuIS |

Report To: Alan Klein Bill To:
Company: Padre Associates Inc.
Email: aklein@padreinc.com
Alt Email: achurchill@padreinc.com Tele: 0916-333-5920, ext. 240
Project Name: GUSD - Brownell Middle School Project #:1801-0723 (A)
Project Location: Gilroy, CA PO # 1801-0723
Sampler Signature: [signature]

### Analysis Requested

| SAMPLE ID Location / Field Point | Sampling Date | Sampling Time | #Containers | Matrix | Preservative | | STLC CR 7/16 48HR RUSH | OCPs (8081A) | PCBs (8082) | CAM 17 Metals | TPH-g, -d, -mo (8015M) | VOCs (8260) | SVOCs (8270) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB-1 | 7-10-19 | 1350 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | COMP 3:1 (SB-1, 2, 3) |
| SB-2 | 7-10-19 | 1355 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | |
| SB-3 | 7-10-19 | 1359 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | |
| SB-4 | 7-10-19 | 1400 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | COMP 3:1 (SB-4, 5, 6) |
| SB-5 | 7-10-19 | 1402 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | |
| SB-6 | 7-10-19 | 1405 | 1 | S | 1 | | X | ● | ● | ● | ● | ● | ● | |

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

| Relinquished By / Company Name | Date | Time | Received By / Company Name | Date | Time |
|---|---|---|---|---|---|
| [signature] / PADRE | 7.11.19 | 0947 | PB | 7/11/19 | 947 |
| PB | 7/11/19 | 1215 | [signature] | 7/11/19 | 1215 |

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=$H_2SO_4$ 4=$HNO_3$ 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 1.7 °C Initials

*added 7/16/18 48 HR TAT.

Page 1 of 1

# APPENDIX D
# WASTE DISPOSAL DOCUMENTATION

# SOLID WASTE FACILITY PERMIT

**Facility Number:**

**35-AA-0001**

| 1. Name and Street Address of Facility: | 2. Name and Mailing Address of Operator: | 3. Name and Mailing Address of Owner: |
|---|---|---|
| John Smith Road Landfill<br>2650 John Smith Road<br>Hollister, CA 95023 | San Benito County Integrated Waste Mgmt<br>3220 Southside Road<br>Hollister, CA 95023 | San Benito County Integrated Waste Mgmt<br>3220 Southside Road<br>Hollister, CA 95023 |

**4. Specifications:**

**a. Permitted Operations:**

- ☒ Solid Waste Disposal Site
- ☐ Transfer/Processing Facility
- ☐ Composting Facility
- ☐ Transformation Facility
- ☐ Other:

**b. Permitted Hours of Operation:** Public: 8:00 a.m. to 4:00 p.m., Monday thru Friday
9:00 a.m. to 3:00 p.m., Saturday and Sunday

Commercial: Sunrise to Sunset

**c. Permitted Maximum Tonnage:** 1,000 Tons Per Day Disposal
Diverted/Beneficial Reuse: see Condition 17.d

**d. Permitted Traffic Volume:** 600 Vehicles Per Day

**e. Key Design Parameters:**

| | Total | Disposal | Transfer/Processing | Composting | Other |
|---|---|---|---|---|---|
| Permitted Area (in acres) | 90.36 | 58 | | | |
| Design Capacity (yd$^3$) | | 9,354,000 | | | |
| Max. Elevation (Ft. MSL) | | 920 | | | |
| Max. Depth (Ft. MSL) | | 665 | | | |
| Estimated Closure Year | | 2025 at 850 TPD/2032 at 500TPD | | | |

Upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The attached permit findings and conditions are integral parts of this permit and supersede the conditions of any previously issued solid waste facility permit.

**5. Approval:**

Susan Markie, Chief
Permitting & Assistance Branch
Waste Permitting, Compliance & Mitigation Division
California Department of Resources Recycling & Recovery
(CalRecycle)

**6. Enforcement Agency Name and Address:**

California Department of Resources Recycling & Recovery
1001 I Street
P.O. Box 4025
Sacramento, CA 95812-4025

**7. Date Received by CalRecycle:** March 18, 2013

**8. CalRecycle Concurrence Date:** March 22, 2013

**9. Permit Issued Date:** March 22, 2013

**10. Permit Review Due Date:** March 22, 2018

**11. Owner/Operator Transfer Date:**

| SOLID WASTE FACILITY PERMIT | Facility Number: 35-AA-0001 |
|---|---|

**12. Legal Description of Facility:**

The legal description of this facility is contained in Appendix B of the Joint Technical Document, dated May 2012 (Revised October 2012 and December 2012).

**13. Findings:**

**a.** This permit is consistent with the San Benito County Integrated Waste Management Plan, which was approved by CalRecycle (formerly the CIWMB) in March 1996. The location of the facility is identified in the Countywide Siting Element, pursuant to the Public Resources Code (PRC), Section 50001(a).

**b.** This permit is consistent with the standards adopted by CalRecycle, pursuant to PRC 44010.

**c.** The design and operation of the facility is consistent with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the enforcement agency, pursuant to PRC 44009.

**d.** The City of Hollister Fire Department has determined that the facility is in conformance with applicable fire standards, pursuant to PRC 44151.

**e.** A Mitigated Negative Declaration was filed with the State Clearinghouse (SCH #2012061081) on June 25, 2012 and adopted by the San Benito County Board of Supervisors on September 6, 2012. A Notice of Determination was filed with the State Clearinghouse on September 7, 2012. The Mitigated Negative Declaration describes and supports the design and operation which will be authorized by the issuance of this permit.

**14. Prohibitions:**

The permittee is prohibited from accepting the following wastes:

Hazardous, radioactive, medical (as defined in Title 22, Division 4, Sections 117600-118360 of the Health and Safety Code), liquid, designated, or other wastes requiring special treatment or handling, except as identified in the Joint Technical Document and approved amendments thereto and as approved by the Enforcement Agency.

**15. The following documents describe and/or restrict the operation of this facility:**

| | Date | | Date |
|---|---|---|---|
| Joint Technical Document Revisions | 5/12<br>10/12 & 12/12 | Mitigated Negative Declaration (SCH # 1991083121) | 11/2/01 |
| Waste Discharge Requirements #R3-2010-0021 | 5/13/10 | Mitigated Negative Declaration (SCH # 2012061081) | 9/6/12 |
| Monterey Bay Air Pollution Control District Discharge of Groundwater Extraction wells (Permit No. 14070) | 1/28/09 | Notice of Determination | 9/7/12 |
| Monterey Bay Air Pollution Control District Permit to Operate (Permit No. 14563) | 3/30/10 | Preliminary Closure/Postclosure Maintenance Plan | 12/12 |
| | | Financial Assurances Documentation | 3/7/13 |

# SOLID WASTE FACILITY PERMIT

**Facility Number:**

**35-AA-0001**

**16. Self Monitoring:**

The owner/operator shall submit the results of all self -monitoring programs to the Enforcement Agency within 30 days of the end of the reporting period. Information required on an annual basis shall be submitted with the December monthly monitoring report or as otherwise stated.

| Program | Reporting Frequency |
|---|---|
| **a.** The types and quantities (in tons) of waste, including source separated or commingled recyclables entering the facility per day. | Monthly – See EA condition 17.d. |
| **b.** The total number and types of vehicles using the facility per day. | Monthly |
| **c.** Results of the hazardous waste load checking program, including the quantities and types of hazardous wastes, medical wastes or otherwise prohibited wastes found in the waste stream and the disposition of these materials. | Monthly |
| **d.** Notification to the enforcement agency via telephone or electronic mail of any special occurrences, such as fires, explosions, earthquakes, significant injuries, accidents or property damage, and all measures taken to address the incident. | Within 24 hours of the Event |
| **e.** Copies of all written complaints regarding this facility and the operator's actions taken to resolve these complaints. | Monthly |
| **f.** Results of the landfill gas monitoring program, pursuant to Title 27, California Code of Regulations, Article 6, Sections 20917 – 20939. | Quarterly |
| **g.** Wet weather preparedness report/winter operations plan. | Annual – due by October 1 |
| **h.** Fill sequencing plan for the forthcoming year. | Annual – due by January 30 |
| **i.** Remaining site capacity. | Annual – due by January 30 |
| **j.** Report of receipt of any Notice of Violation from any other regulatory agency. | Within 24 hours of receipt |
| **k.** Record the time that the first load of waste is received each day. | Upon Request |

| # SOLID WASTE FACILITY PERMIT | Facility Number: **35-AA-0001** |
|---|---|

**17. Enforcement Agency (EA) Conditions:**

a. The operator shall comply with all State Minimum Standards for solid waste handling and disposal as specified in Title 14 and Title 27, California Code of Regulations.

b. The operator shall maintain a log of special/unusual occurrences. This log shall include, but is not limited to, fires, explosions, the discharge and disposition of hazardous or unpermitted wastes, and significant injuries, accidents or property damage. Each log entry shall be accompanied by a summary of any actions taken by the operator to mitigate the occurrence. The log shall be available to site personnel and the EA at all times.

c. Additional information concerning the design and operation of the facility shall be furnished upon request and within the time frame specified by the EA.

d. The vehicle count will be limited to and shall not exceed 600 vehicles per day (for both disposal and recyclable materials). The permitted daily maximum disposal tonnage for this facility is 1,000 tons per day, and shall not receive more than this amount for disposal without a revision of this permit. The 1,000 tons per day limit pertains to all waste destined for disposal and does not pertain to materials that are recycled or put to beneficial use either at the facility or exported for the purpose of resource recovery.

e. Salvaging and receipt of beneficial reuse materials shall be conducted in a planned and controlled manner and shall not interfere with other aspects of site operations, including the expeditious entry and egress of vehicles at the site. Salvaged and beneficial reuse materials generated on-site or imported shall be placed for storage in specified, clearly identifiable areas segregated from the working face, and arranged so as to minimize the risk of fire, health and safety hazards, vector harborage, or other hazard or nuisance.

f. This permit is subject to review by the EA and may be temporarily suspended or revoked at any time by the EA for sufficient cause, in accordance with Division 30 of the Public Resource Code, Part 4, Chapter 4, Article 2, Sections 44305 et seq.

g. The EA reserves the right to suspend or modify waste receiving and handling operations due to an emergency, a potential health hazard, or the creation of a public nuisance.

h. Any change that would cause the design or operation of the facility not to conform to the terms and conditions of this permit is prohibited. Such a change may be considered a significant change, requiring a permit revision. In no case shall the operator implement any change without first submitting a written notice of the proposed change, in the form of an RFI amendment, to the EA at least 180 days in advance of the change.

i. A copy of this permit and the Joint Technical Document shall be maintained at the facility and readily available to site personnel and the EA upon request.

j. Waste shall only be accepted at the facility during daylight hours, meaning that portion of the day between sunrise and sunset. Ancillary hours for personnel, maintenance, and cover operations are limited to the hours as described in the Joint Technical Document and RFI amendments approved by the EA.

k. Any owner or operator of this facility who plans to encumber, sell, transfer, or convey the ownership or operations of this facility shall notify the EA and CalRecycle at least forty-five days prior to the anticipated date of transfer.

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

| | | | |
|---|---|---|---|
| **NON-HAZARDOUS WASTE MANIFEST** | 1. Generator's US EPA ID No. | Manifest Document No. 39019-1 | 2. Page 1 of 1 |

3. Generator's Name and Mailing Address

Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone (669) 205-4000 David Laboranti

| | | |
|---|---|---|
| 5. Transporter 1 Company Name: PARC Environmental | 6. US EPA ID Number: CAR000363707 | A. State Transporter's ID: CAR000363707 |
| | | B. Transporter 1 Phone: (559) 233-7156 |
| 7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID |
| | | D. Transporter 2 Phone |
| 9. Designated Facility Name and Site Address: John Smith Road Landfill, 2650 John Smith Road, Hollister, CA 95023 | 10. US EPA ID Number | E. State Facility's ID |
| | | F. Facility's Phone: (831) 637-4515 |

| 11. WASTE DESCRIPTION | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above

Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DANIEL BRIGHT · Agent to the District | Daniel Bright | | | |

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | PH | 7 | 24 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| Cecilia Dominguez | [signature] | 7 | 24 | 19 |

NON-HAZARDOUS WASTE

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: CECILIA

Deposit: CECILIA

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/24/2019 TIME IN: 13:46:10
DATE OUT: 07/24/2019 TIME OUT: 13:47:02

INBOUND TICKET Number: 01-00688063

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 79380 | LB |
| MANUAL TARE WT. | 27200 | LB |
| NET WEIGHT | 52180 | LB |

| Qty | Description |
|---|---|
| 26.090 | Clean Dirt |

Tare 37,200
x ticket will Be adjusted

Document not a Weighmaster's Certifica teThis is to certify that this 1 oad does not contain any hazardous mat erials,medical waste or liquids of any type.X______________ (Driver Signature )Phone: 831-637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY

| | | | |
|---|---|---|---|
| **NON-HAZARDOUS WASTE MANIFEST** | 1. Generator's US EPA ID No. | Manifest Document No. **39019-2** | 2. Page 1 of 1 |
| 3. Generator's Name and Mailing Address<br>Gilroy Unified School District<br>7810 Arroyo Circle, Gilroy, CA 95020 | | | |
| 4. Generator's Phone (669) 205-4000 David Laboranti | | | |
| 5. Transporter 1 Company Name<br>PARC Environmental | 6. US EPA ID Number<br>CAR000363707 | A. State Transporter's ID CAR000363707<br>B. Transporter 1 Phone (559) 233-7156 | |
| 7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID<br>D. Transporter 2 Phone | |
| 9. Designated Facility Name and Site Address<br>John Smith Road Landfill<br>2650 John Smith Road<br>Hollister, CA 95023 | 10. US EPA ID Number | E. State Facility's ID<br>F. Facility's Phone (831) 637-4515 | |

| 11. WASTE DESCRIPTION | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

G. Additional Descriptions for Materials Listed Above

Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DANIEL BRIGHT - Agent to the District | Daniel Bright | 7 | 24 | 19 |

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | P.H.G. | 7 | 24 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| Cecilia Dominguez | [signature] | 7 | 24 | 19 |

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: CECILIA

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/24/2019 TIME IN: 09:46:11
DATE OUT: 07/24/2019 TIME OUT: 09:46:11

INBOUND TICKET Number: 01-00687968

| | | |
|---|---|---|
| MANUAL GROSS WT. | 67200 | LB |
| SCALE 2 TARE WT. | 37200 | LB |
| NET WEIGHT | 30000 | LB |

| Qty | Description |
|---|---|
| 15.000 | Clean Dirt |

X______________________________

Document not a Weighmaster's Certifica
teThis is to certify that this loa
d does not contain any hazardous mater
ials,medical waste or liquids of any t
ype.X______________________________
(Driver Signature)

(831)637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No. 39019-3

2. Page 1 of 1

3. Generator's Name and Mailing Address

Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone (669) 205-4000 David Laboranti

5. Transporter 1 Company Name: PARC Environmental

6. US EPA ID Number: CAR000363707

A. State Transporter's ID: CAR000363707

B. Transporter 1 Phone: (559) 233-7156

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address

John Smith Road Landfill
2650 John Smith Road
Hollister, CA 95023

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone: (831) 637-4515

| 11. WASTE DESCRIPTION | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above

Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

**16. GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DAN BRIGHT "Agent to the District" | Daniel Bright | 7 | 25 | 19 |

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | PAHG. | 7 | 25 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| Reno | | 7 | 25 | 19 |

NON-HAZARDOUS WASTE

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: MARGARITO

Deposit: MARGARITO

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/25/2019 TIME IN: 08:30:32
DATE OUT: 07/25/2019 TIME OUT: 09:22:14

INBOUND TICKET Number: 01-00688148

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 77060 | LB |
| SCALE 2 TARE WT. | 37240 | LB |
| NET WEIGHT | 39820 | LB |

Qty Description
i 910 Clean Dirt

X____________________

Document not a Weighmaster's Certifica
teThis is to certify that this loa
d does not contain any hazardous mater
ials,medical waste or liquids of any t
ype.X____________________
(Driver Signature)
(831)637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

| NON-HAZARDOUS WASTE MANIFEST | 1. Generator's US EPA ID No. | Manifest Document No. 39019-4 | 2. Page 1 of 1 |
|---|---|---|---|

3. Generator's Name and Mailing Address
Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone (669) 205-4000 David Laboranti

| 5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID CAR000363707 |
|---|---|---|
| PARC Environmental | CAR000363707 | B. Transporter 1 Phone (559) 233-7156 |
| 7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID |
| | | D. Transporter 2 Phone |
| 9. Designated Facility Name and Site Address | 10. US EPA ID Number | E. State Facility's ID |
| John Smith Road Landfill<br>2650 John Smith Road<br>Hollister, CA 95023 | | F. Facility's Phone (831) 637-4515 |

| 11. WASTE DESCRIPTION | Containers No. | Containers Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above
Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DAN BRIGHT "Agent to the District" | [signature] | 7 | 25 | 19 |

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | PAG. | 7 | 25 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| RITO | [signature] | 7 | 25 | 19 |

NON-HAZARDOUS WASTE

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: MARGARITO

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/25/2019 TIME IN: 12:27:14
DATE OUT: 07/25/2019 TIME OUT: 12:27:14

INBOUND TICKET Number: 01-00688257

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 78900 | LB |
| MANUAL TARE WT. | 37220 | LB |
| NET WEIGHT | 41680 | LB |

| Qty | Description |
|---|---|
| 20.840 | Clean Dirt |

X________________________________

Document not a Weighmaster's Certifica
teThis is to certify that this l
oad does not contain any hazardous mat
erials,medical waste or liquids of any
type.X________________________
(Driver Signature
)Phone: 831-637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

| | | | |
|---|---|---|---|
| **NON-HAZARDOUS WASTE MANIFEST** | 1. Generator's US EPA ID No. | Manifest Document No. 39019-5 | 2. Page 1 of 1 |

3. Generator's Name and Mailing Address

Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone ( (669) 205-4000 David Laboranti

| | | |
|---|---|---|
| 5. Transporter 1 Company Name: PARC Environmental | 6. US EPA ID Number: CAR000363707 | A. State Transporter's ID: CAR000363707 |
| | | B. Transporter 1 Phone: (559) 233-7156 |
| 7. Transporter 2 Company Name: | 8. US EPA ID Number: | C. State Transporter's ID: |
| | | D. Transporter 2 Phone: |
| 9. Designated Facility Name and Site Address: John Smith Road Landfill, 2650 John Smith Road, Hollister, CA 95023 | 10. US EPA ID Number: | E. State Facility's ID: |
| | | F. Facility's Phone: (831) 637-4515 |

| 11. WASTE DESCRIPTION | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 5 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

G. Additional Descriptions for Materials Listed Above

Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DAN BRIGHT "Agent to the District" | [signature] | 7 | 25 | 19 |

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| THOMAS SEANEY | [signature] | 7 | 25 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| RITO | [signature] | 7 | 25 | 19 |

GENERATOR / TRANSPORTER / FACILITY

NON-HAZARDOUS WASTE

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: MARGARITO

Deposit: MARGARITO

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/25/2019 TIME IN: 09:20:20
DATE OUT: 07/25/2019 TIME OUT: 09:40:04

INBOUND TICKET Number: 01-00688173

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 37520 | LB |
| SCALE 2 TARE WT. | 29080 | LB |
| NET WEIGHT | 8440 | LB |

| Qty | Description |
|---|---|
| 4.220 | Clean Dirt |

X______________________

Document not a Weighmaster's Certifica
teThis is to certify that this loa
d does not contain any hazardous mater
ials,medical waste or liquids of any t
ype.X______________________
(Driver Signature)
(831)637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 39019-6

2. Page 1 of 1

3. Generator's Name and Mailing Address

Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone ( (669) 205-4000 David Laboranti

5. Transporter 1 Company Name: PARC Environmental

6. US EPA ID Number: CAR000363707

7. Transporter 2 Company Name

8. US EPA ID Number

A. State Transporter's ID: CAR000363707

B. Transporter 1 Phone: (559) 233-7156

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address

John Smith Road Landfill
2650 John Smith Road
Hollister, CA 95023

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone: (831) 637-4515

| 11. WASTE DESCRIPTION | Containers No. | Containers Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above

Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

NON-HAZARDOUS WASTE

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DAN BRIGHT "Agent to the District" | [signature] | 7 | 26 | 19 |

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | P.H.O. | 7 | 26 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| RTTO | [signature] | 7 | 26 | 19 |

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: MARGARITO

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/26/2019 TIME IN: 09:19:42
DATE OUT: 07/26/2019 TIME OUT: 09:19:42

INBOUND TICKET Number: 01-00688393

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 78900 | LB |
| MANUAL TARE WT. | 37220 | LB |
| NET WEIGHT | 41680 | LB |

| Qty | Description |
|---|---|
| 20.840 | Clean Dirt |

X______________________________

Document not a Weighmaster's Certifica
teThis is to certify that this l
oad does not contain any hazardous mat
erials,medical waste or liquids of any
type.X______________________
(Driver Signature
)Phone: 831-637-4515

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS

WASTE MANIFEST

| | | | |
|---|---|---|---|
| 1. Generator's US EPA ID No. | | Manifest Document No. 39019-7 | 2. Page 1 of 1 |

3. Generator's Name and Mailing Address
Gilroy Unified School District
7810 Arroyo Circle, Gilroy, CA 95020

4. Generator's Phone ( (669) 205-4000 David Laboranti

| | | |
|---|---|---|
| 5. Transporter 1 Company Name: PARC Environmental | 6. US EPA ID Number: CAR000363707 | A. State Transporter's ID: CAR000363707 |
| | | B. Transporter 1 Phone: (559) 233-7156 |
| 7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID |
| | | D. Transporter 2 Phone |
| 9. Designated Facility Name and Site Address: John Smith Road Landfill, 2650 John Smith Road, Hollister, CA 95023 | 10. US EPA ID Number | E. State Facility's ID |
| | | F. Facility's Phone: (831) 637-4515 |

| 11. WASTE DESCRIPTION | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. Non Hazardous, Non Regulate Soil with Trace Metal | 1 | CM | 15 | Y |
| b. | | | | |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above
Profile# JSL-19-015

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Caution: Wear proper OSHA approved Personal Protective Equipment (PPE) when handling the materials on this manifest.

Waste Pickup Address: 7800 Carmel Street Gilroy, CA 95020

**16. GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| DANIEL BRIGHT "Agent to the District" | [signature] | 7 | 26 | 19 |

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| PABLO HINOJOSA | P.H.O. | 7 | 26 | 19 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| | | | | |

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

| Printed/Typed Name | Signature | Date Month | Day | Year |
|---|---|---|---|---|
| RITO | [signature] | 7 | 26 | 19 |

NON-HAZARDOUS WASTE

JOHN SMITH ROAD LANDFILL
JOHN SMITH ROAD LANDFILL
PO Box 1480
Hollister, CA 95024

Weighed: MARGARITO

BILL TO: 387
PARC-PROF.ASBESTOS REMOVAL COR
PO Box 10077
Fresno CA 93745-0077
HAULER: CASH CUSTOMER

Vehicle ID: COMM
Reference: JSL-19-015
PO #:: GILROY UNIFIED SCHOOL

DRIVER:: 7810 ARROYO CIRCLE

MANIFEST:: GILROY, CA. 95020

Origin: GILROY

DATE IN: 07/26/2019 TIME IN: 12:55:32
DATE OUT: 07/26/2019 TIME OUT: 12:55:32

INBOUND TICKET Number: 01-00688504

| | | |
|---|---|---|
| SCALE 1 GROSS WT. | 79180 | LB |
| MANUAL TARE WT | 37220 | LB |
| NET WEIGHT | 41960 | LB |

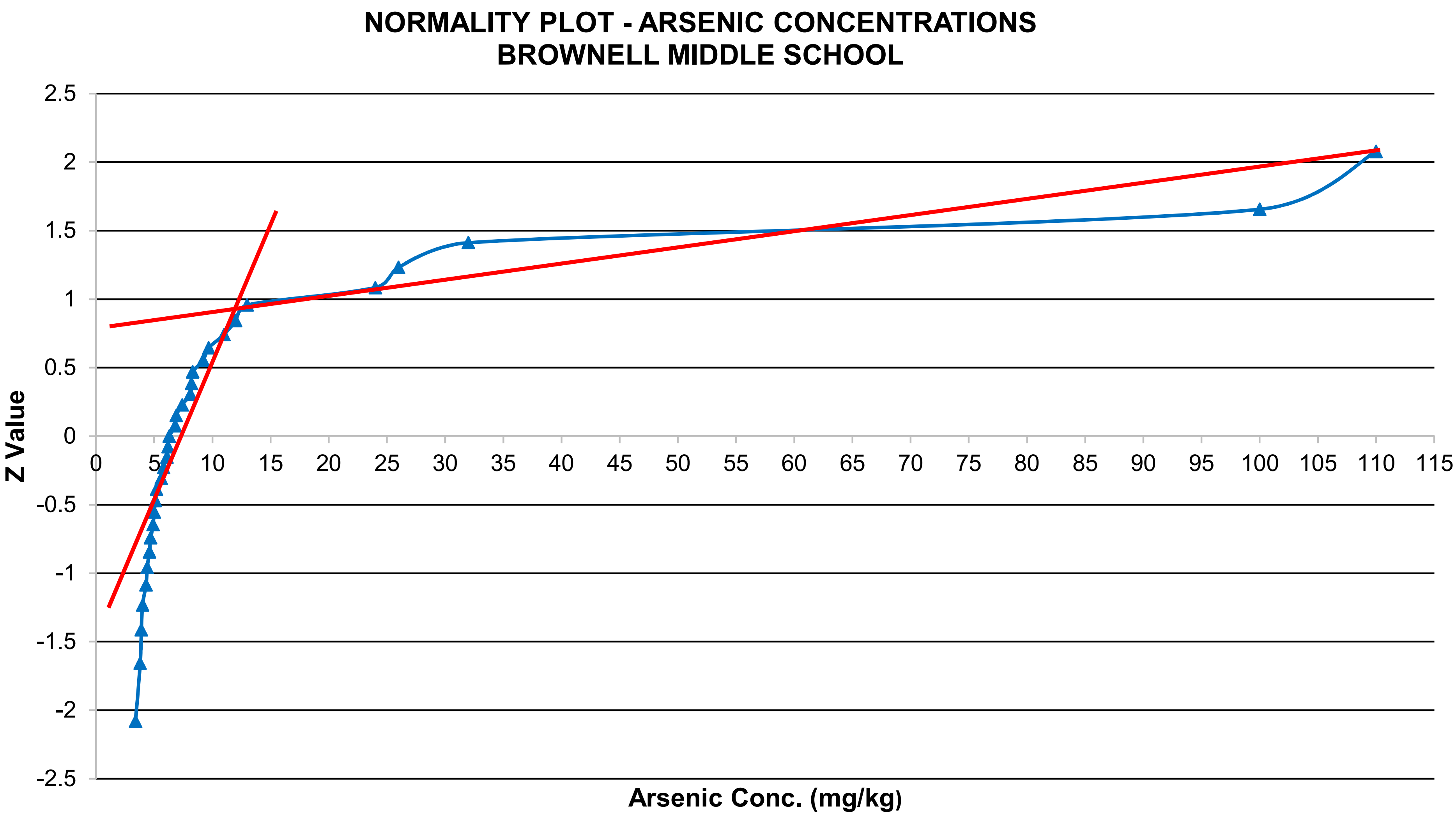
| Qty | Description |
|---|---|
| 20.980 | Clean Dirt |

X

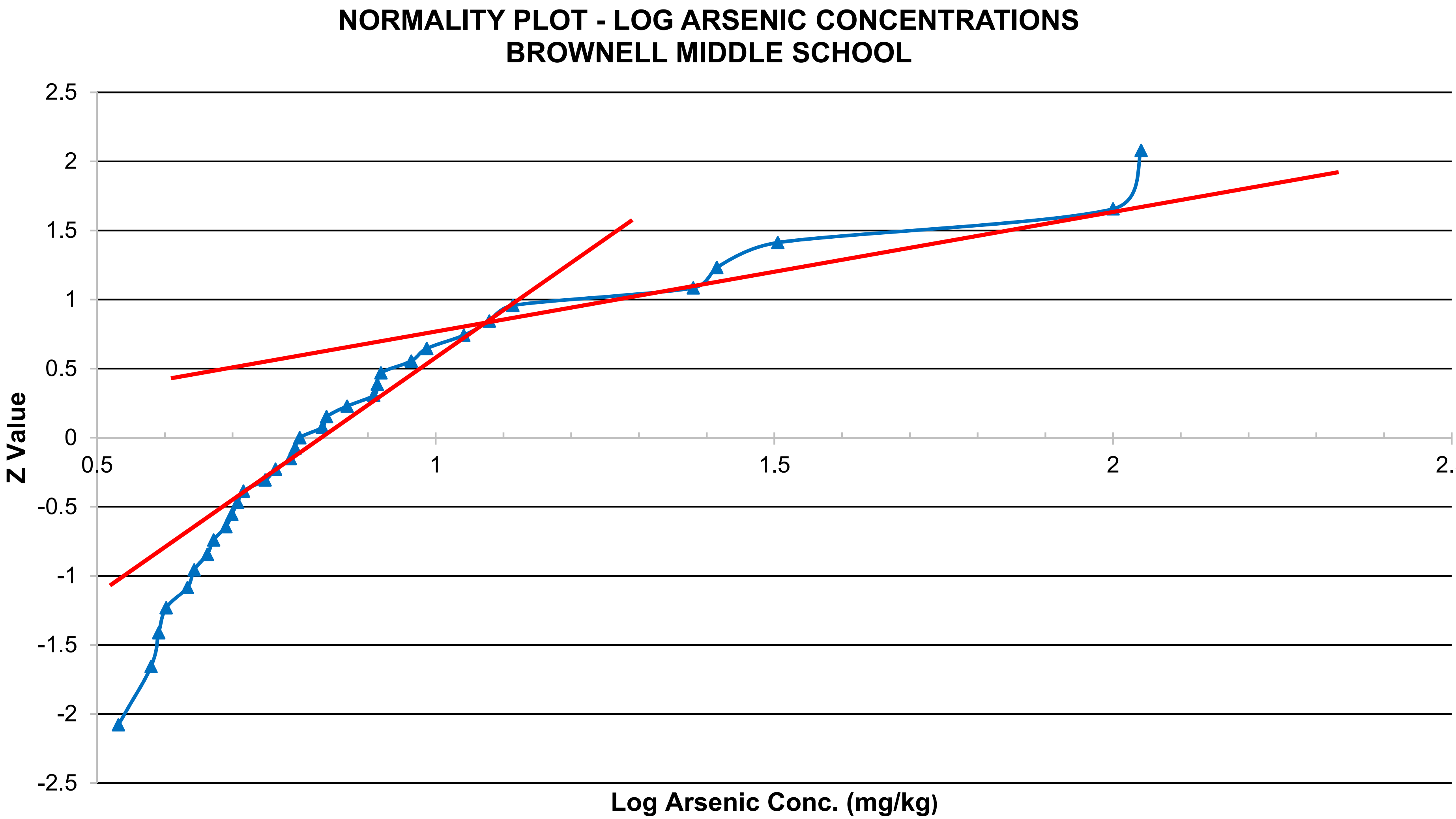
Document not a Weighmaster's Certifica
teThis is to certify that this l
oad does not contain any hazardous mat
erials,medical waste or liquids of any
type.X

(Driver Signature
)Phone: 831-637-4515

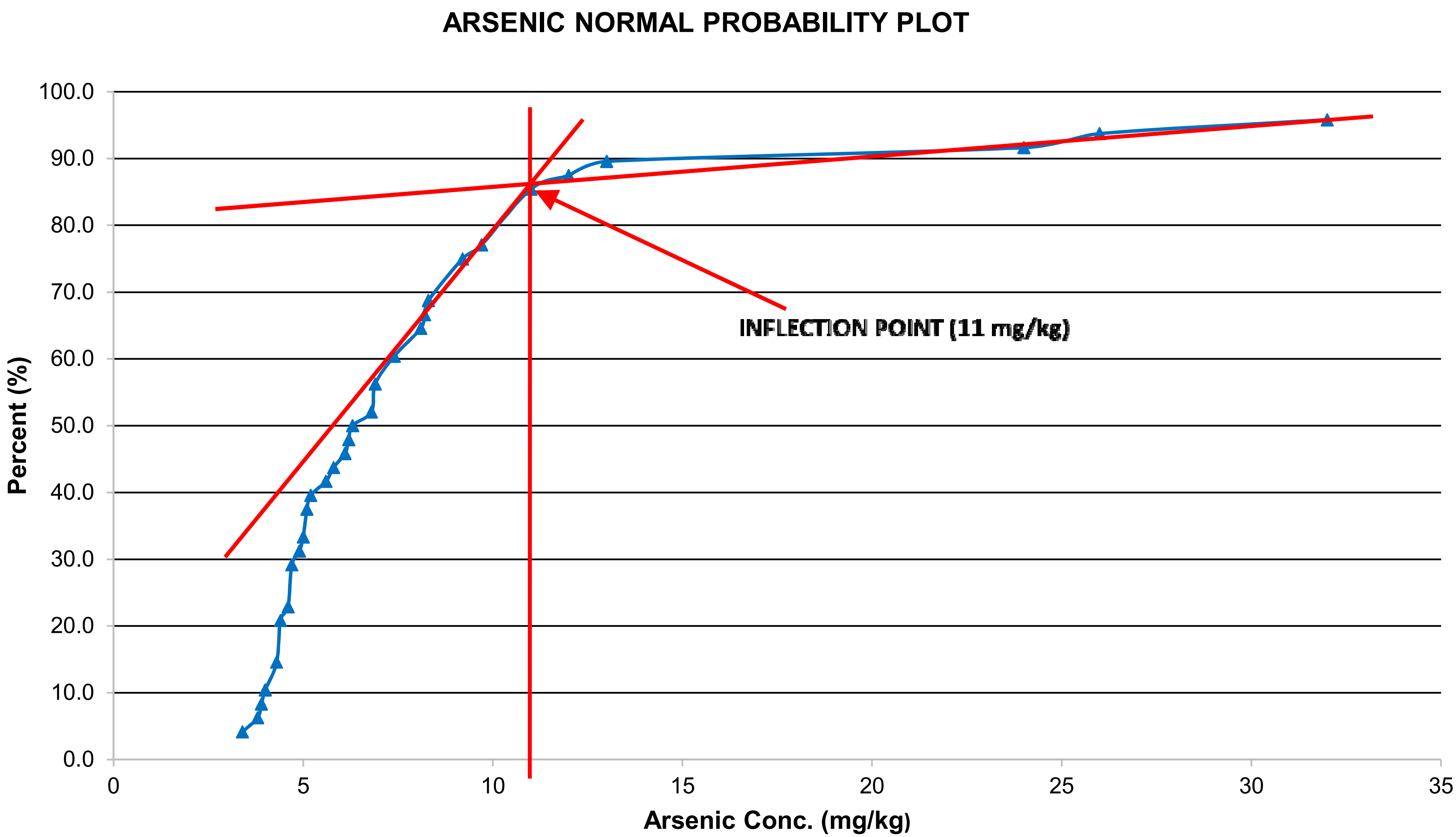
# APPENDIX E
# ARSENIC BACKGROUND DATA EVALUATION



NORMALITY PLOT - ARSENIC CONCENTRATIONS
BROWNELL MIDDLE SCHOOL
Z Value
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
Arsenic Conc. (mg/kg)



NORMALITY PLOT - LOG ARSENIC CONCENTRATIONS
BROWNELL MIDDLE SCHOOL
Z Value
Log Arsenic Conc. (mg/kg)
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
0.5
1
1.5
2
2.5



ARSENIC NORMAL PROBABILITY PLOT
Percent (%)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0
5
10
15
20
25
30
35
Arsenic Conc. (mg/kg)
INFLECTION POINT (11 mg/kg)

# APPENDIX E

# HEALTH AND SAFETY PLAN

# APPENDIX E
# HEALTH & SAFETY PLAN

| | | | |
|---|---|---|---|
| Project Title: | Removal Action Workplan for Brownell Middle School Modernization Project. | | |
| Project Address: | 7800 Carmel Street, Gilroy, Santa Clara County, California. | | |
| Project Supervisor: | Jerome K. Summerlin, C.E.G, C.Hg. | Cell Phone: | (805) 218-0109 |
| Project Manager: | Alan J. Klein, R.E.P.A, C.P.E.S.C. | Cell Phone: | (916) 947-4831 |
| Site Safety Officer: | Alan Churchill, P.G. | Cell Phone: | (916) 952-5421 |
| Office Phone: | (916) 333-5920 (Sacramento Office) | | |

## INTRODUCTION

The purpose of this Site Health and Safety Plan (HSP) is to establish requirements for protecting the health and safety of site workers for the above-referenced project. The HSP contains safety information, instructions, and procedures. The HSP will be modified and/or amended when circumstances or conditions develop that are beyond the scope of this plan.

This HSP was prepared to comply with the California Occupational Safety and Health Administration (Cal/OSHA) Hazardous Waste Operations and Emergency Response Standard – Title 8, California code of Regulations (CCR) Section 5192. Each contractor is solely responsible for the health and safety of their own employees.

The planned soil excavation and off-site disposal and confirmation soil sampling are planned to be performed in three phases starting in March 2020 and ending in February 2021.

## PROJECT DESCRIPTION

The Gilroy Unified School District (District) plans to modernization the existing Brownell Middle School which will be completed in three phases. The first phase of the school modernization project consists of constructing new school buildings in the north playfield area of the school site. The student population and school staff will then move into the new buildings and the selected older school buildings will be demolished and removed. When completed the modernization project will consist of approximately 37 classrooms designed for approximately 1,000 students.

Based on chemicals of concern (COC) identified in surficial soil at the Project Site above regulatory screening levels, the District is implementing soil cleanup activities under the oversight of California Department of Toxic Substances Control (DTSC). The COC are chlordane, dieldrin, lead, and polychlorinated biphenyls (PCBs).

## BACKGROUND

Padre completed a Preliminary Environmental Assessment (PEA) dated July 2019. The purpose of the PEA was to establish whether a release or potential release of hazardous materials substances, which pose a threat to human health via ingestion, dermal contact, and inhalation exposure pathways exist at the Project Site. The PEA report identified OCPs, arsenic, lead, and PCBs in soil above RSLs or ambient background concentrations, and recommended further action to eliminate, reduce, and/or mitigate identified COC at the Project Site.

Based on the construction schedule and location for planned modernization activities, the arsenic impacted soil located in the northeast portion of the Project Site was addressed as part of a soil management plan (SMP).

The SMP consisted of the excavation, temporary storage (soil bins), waste profiling and off-site disposal of approximately 95 cubic-yards (cy) of arsenic-impacted soil an appropriate landfill facility. At the completion of the SMP, confirmation soil sample results indicated that the concentrations of arsenic remaining in soil at the Project Site were no longer considered a COC.

Based on established remedial cleanup goals (CGs), approximately 360 cubic yards of impacted soil will be excavated, waste characterized, transported, and disposed of at an appropriate disposal facility.

## SITE SAFETY OFFICER

The designated site safety officer (SSO) for Padre Associates, Inc., and is responsible for the health and safety for Padre Personnel and site visitors.

The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the Site H&SP and verify compliance with applicable safety and health requirements. The SSO must verify that all on-site personnel are qualified, trained and prepared to implement the H&SP. Before the start of each day's work the SSO will hold a safety meeting. The day's schedule of work and safe work practices will be discussed in the safety meetings.

### Removal Contractor SSO

The removal contractor must appoint an SSO for the project who will be responsible for the health and safety for all contractor personnel and subcontractors. The removal contractor will be responsible for compliance with all applicable federal, state, and local laws and guidelines.

The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the Site H&SP and verify compliance with applicable safety and health requirements. The SSO must verify that all on-site personnel are qualified, trained and prepared to implement the H&SP. Before the start of each day's work the SSO will hold a safety meeting. The day's schedule of work and safe work practices will be discussed in the safety meetings.

The removal contractor SSO has the authority to suspend work in the area of the Project Site where the provisions of the H&SP and/or SMP are not being implemented. The removal contractor SSO will report to the contractor's supervisor and to Padre's SSO.

The removal contactor is responsible for providing portable toilets and wash facilities at the Project Site. Individual workers are responsible for providing their own source of potable water. The SSO will be responsible for having a backup supply of bottled water onsite.

The organization chart for the removal action is presented on **Plate E-1**.

## HSP ORGANIZATION

The following personnel are designated to carry out the stated job functions pertaining to the site activities. All site personnel have read this safety plan and are familiar with its provisions.

| | Name | Signature |
|---|---|---|
| Project Manager: | | ______________________ |
| Site Safety Officer: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |
| Field Personnel: | | ______________________ |

Work was accomplished in accordance with the Site Safety Plan, with the following exceptions:

______________________________________________

______________________________________________

______________________________________________

Site Safety Officer: ______________________

Date: ______________

(RETURN ORIGINAL COPY TO JOB FILE WITH SIGNATURES)

## EMERGENCY RESPONSE (DIAL 9-1-1)

| | |
|---|---|
| Nearest phone located: | Within Padre Associates, Inc. vehicle or with Padre staff. |
| Closest Emergency Facility: | St. Louise Hospital |
| Address: | 9400 N. Name Uno, Gilroy, California 95020 |
| Phone: | (408) 848-2000 |
| Ambulance response time: | Approximately 10 to 15 minutes |

Fire and Police will also be contacted by dialing 911. Ambulance service is to be used in emergencies if the injured person cannot safely be transported by a Padre Associates, Inc., vehicle. When in doubt as to the severity of the situation, call 911.

**DRIVING DIRECTIONS** - (Approximately 3.0 miles)

1. From the Project Site turn proceed north on Carmel St. towards CA-152/1st St.;
2. Turn **RIGHT** onto CA-152 / 1ST Street Murray Avenue and go ~0.4 miles;
3. Turn **LEFT** to stay on CA-152 / Monterey St. and go ~0.4 mi.;
4. Turn **RIGHT** onto CA-152 E / Leavesley Rd. and go ~0.6 mi.;
5. Turn **LEFT** onto San Ysidro Ave. and go ~0.7 mi.;
6. Turn **LEFT** onto Las Animas Avenue and the name changes to No Name Uno.

Arrive at St. Louise Hospital, follow signs to Emergency Room. A hospital location map is attached at the end of the HSP.

**SITE DESCRIPTION**

| | |
|---|---|
| Location: | 7800 Carmel Street, Gilroy, California. |
| Potential Hazards: | Soil containing arsenic. |
| Area of Interest: | Surface and shallow subsurface soil at the Project Site. |
| Surrounding Land Use: | Residential, commercial, and city park. |
| Topography: | Relatively flat. |
| Weather Conditions: | Sunny and warm (anticipated). |

**PROJECT OBJECTIVE**

The objectives of the SMP is to minimize exposure of humans to chemicals of concern (COCs) in soil through the inhalation, dermal absorption, and ingestion exposure pathways. The selected response action combines excavation with offsite disposal for arsenic-impacted soil. The planned SMP activities are summarized below:

- Excavate approximately 360 cy of soil containing chlordane, dieldrin, lead, and PCBs (Aroclor 1260) above risk screening levels;
- Temporarily store excavated soil onsite and collect composite soil samples for waste characterization and disposal purposes;
- Collect confirmation soil samples from the excavation area and compare confirmation results to the established cleanup goal (CG). If needed, excavate an additional volume(s) of soil until the CG is met; and
- Load and transport impacted soil (~594 tons) to the appropriate disposal facility.

**CONTAMINANT CONTROL**

The following best management practices (BMPs) will be implemented to prevent the off-site migration of COCs:

- Dust control – Spraying water during earth moving activities, and perimeter fencing with wind/dust screens);
- Air monitoring – at least two downwind (fence line) monitoring locations;

- Stockpile management – excavated soil stockpiles will be covered with plastic sheeting during non-work hours;
- Decontamination of excavation equipment, transportation vehicles and personnel prior to leaving the site; and
- Site security (fencing, barriers, postings, etc.).

## AGENCY REPRESENTATIVES

| | |
|---|---|
| Name: | Letitia Shen Project Manager |
| Agency: | California Dept. of Toxic Substances Control |
| Program: | School Property Evaluation and Cleanup Division |
| Phone Number: | (916) 255-3744 |

## SITE SETUP

A safe perimeter will be established at the Project Site. The work area will be restricted to required personnel only. No unauthorized personnel will be allowed within the established safe perimeter, or will be allowed to enter the Project Site. Control boundaries will be marked with caution tape if necessary to maintain the established safe perimeter. The onsite command post will be established at the Padre Associates, Inc. vehicle onsite.

## HAZARD EVALUATION

**Chemicals Onsite.** The following substance(s) are known or suspected to be onsite. The primary hazards of each COC are identified along with their site high concentrations in Table E-1:

**Table E-1: Chemicals of Concern (COCs)**

| Substance Involved | Primary Hazard | Concentration |
|---|---|---|
| Chlordane | Ingestion, inhalation and dermal contact | Highest Concentration Reported: **75 mg/kg** |
| Dieldrin | Ingestion, inhalation and dermal contact | Highest Concentration Reported: **0.051 mg/kg** |
| Lead | Ingestion, inhalation and dermal contact | Highest Concentration Reported: **190 mg/kg** |
| PCB | Ingestion, inhalation and dermal contact | Highest Concentration Reported: **3.1 mg/kg** |

The nature and sources and/or uses of the identified COC is discussed below:

CHLORDANE: Chlordane is a man-made chemical that was used as a pesticide in the United States from 1948 to 1988. From 1983 to 1988, chlordane's only approved use was to control termites in homes. The pesticide was typically applied to the soil around the foundations of buildings with wood components.

DIELDRIN: Dieldrin and Aldrin are the common names of two structurally similar compounds that were once used as insecticides with aldrin readily changing into dieldrin once it enters the environment. They are chemicals that are made in the laboratory and do not occur naturally in the environment. From the 1950s until 1970, aldrin and dieldrin were used extensively as insecticides on crops such as corn and cotton, however the USDA cancelled uses of aldrin and dieldrin in 1970. In 1972, however, EPA approved aldrin and dieldrin for killing termites. Use of aldrin and dieldrin to control termites continued until 1987. In 1987, the manufacturer voluntarily canceled the registration for use in controlling termites. The pesticide was typically applied to the soil around and near building structures.

LEAD: Lead is a heavy, low melting, bluish-gray metal that occurs naturally in the Earth's crust; however, it is rarely found naturally as a metal. It is usually found combined with two or more other elements to form lead compounds. Metallic lead is resistant to corrosion (i.e., not easily attacked by air or water). When exposed to air or water, thin films of lead compounds are formed that protect the metal from further attack. Lead is easily molded and shaped and can be combined with other metals to form alloys. Lead and lead alloys are commonly found in pipes, storage batteries, weights, shot and ammunition, cable covers, and sheets used to shield us from radiation. The largest use for lead is in storage batteries in cars and other vehicles. Lead compounds are used as a pigment in paints, dyes, and ceramic glazes and in caulk. The amount of lead used in these products has been reduced in recent years to minimize lead's harmful effect on people and animals. Tetraethyl lead and tetramethyl lead were once used in the United States as gasoline additives to increase octane rating. However, their use was phased out in the United States in the 1980s, and lead was banned for use in gasoline for motor vehicles beginning January 1, 1996. Lead used in ammunition, which is the largest non-battery end-use, has remained fairly constant in recent years. However, even the use of lead in bullets and shot as well as in fishing sinkers is being reduced because of its harm to the environment.

PCBs: PCBs are man-made mixtures of up to 209 individual chlorinated compounds (known as congeners). PCBs are synthetic organic compounds. There are no known natural sources of PCBs. PCBs can exist as a vapor in air though they have no known smell or taste. Many commercial PCBs mixtures are known in the U.S. by the trade name Aroclor. PCBs - have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence that they build up in the environment and can cause harmful health effects. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices with capacitors, and old hydraulic oils. In recent years, the U.S. EPA has identified that caulking containing PCBs was used in many buildings, including school buildings, in the 1950s through the 1970s. The main school buildings at the Project Site were built in the 1950s and 1960s.

## HEALTH EFFECTS OF CONTAMINANTS

The health effects of identified COCs are discussed below:

CHLORDANE: Technical grade chlordane is toxic to humans by ingestion of contaminated food, skin absorption, and inhalation. Occupational exposure by dermal and inhalation routes may be significant. Chlordane is easily absorbed through the skin. Technical grade chlordane is a stimulant to the central nervous system but its exact mode of action is unknown. The general symptoms are convulsions and tremors followed by depression. Cycles of excitement and depression may be repeated several times. Other symptoms are liver damage, anorexia and weight loss. The U.S. EPA has determined that chlordane is a probable human carcinogen (B2 classification).

DIELDRIN: The U.S. EPA has classified dieldrin as a probable human carcinogen. Like chlordane s, dieldrin persists in the environment and accumulates in fatty tissues of organisms, including humans. The target organs of dieldrin include the central and peripheral nervous systems as well as the liver. Some workers exposed to moderate levels of dieldrin in the air for a long time had headaches, dizziness, irritability, vomiting, and uncontrolled muscle movements. Animals exposed to high amounts of dieldrin also had nervous system effects. Long-term oral exposure of animals to dieldrin was associated with increased liver weight, liver damage and liver tumors (http://www.epa.gov/iris/subst/0225.htm). Exposure to dieldrin alters the dopamine system and increases neurotoxicity in an animal model of Parkinson’s disease (http://www.fasebj.org/cgi/content/full/20/10/1695).

LEAD: The effects of lead are the same whether it enters the body through breathing or ingestion. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults to lead at work has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people. Lead exposure may also cause anemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children and ultimately cause death. Children are more sensitive to the health effects of lead than adults. A child who swallows large amounts of lead may develop anemia, kidney damage, colic (severe "stomach ache"), muscle weakness, and brain damage. In some cases, the amount of lead in the child's body can be lowered by giving the child certain drugs that help eliminate lead from the body. If a child swallows smaller amounts of lead, such as dust containing lead from paint, much less severe but still important effects on blood, development, and behavior may occur. In this case, recovery is likely once the child is removed from the source of lead exposure. At still lower levels of exposure, lead can affect a child's mental and physical growth. There is no conclusive proof that lead causes cancer (is carcinogenic) in humans. The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens based on limited evidence from studies in humans and sufficient evidence from animal studies, and the EPA has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans. IARC determined that organic lead compounds are not classifiable as to their carcinogenicity in humans based on inadequate evidence from studies in humans and in animals.

PCBs: The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. PCB exposures in the general population are not likely to result in skin and liver effects. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs. Animals that ate food containing large amounts of PCBs for short periods of time had mild liver damage and some died. Animals that ate smaller amounts of PCBs in food over several weeks or months developed various kinds of health effects, including anemia; acne-like skin conditions; and liver, stomach, and thyroid gland injuries. Other effects of PCBs in animals include changes in the immune system, behavioral alterations, and impaired reproduction. PCBs are not known to cause birth defects.

**PHYSICAL HAZARDS ONSITE**

The physical hazards and potential for employee exposure to the hazards (i.e., low, moderate, and high) anticipated during the field investigation are discussed below.

Heavy Equipment. The hazards involved with using heavy equipment (i.e., excavators; backhoes, loaders and trucks) include hazards of pinch points; impact from moving parts; fatigue; and improper operation. The potential hazard to heavy equipment is high for this project.

The following safe practices are to be followed during work around heavy equipment:

- While working onsite, wear reflective/visible safety vests, maintain visual contact with the operator at all times and remain alert.
- Never walk directly behind or to the side of heavy equipment without the operators knowledge;
- All heavy equipment must be fitted with audible back-up alarms as mandated by OSHA;
- Blades, buckets, and other hydraulic systems will be fully lowered and parking brakes engaged whenever equipment is not in use; and
- All non-essential personnel will be kept out of the work areas.

Slips, Trips and Falls. Site activities can pose a variety of slip, trip and fall hazards. Examples that contribute to slips, trips and falls include uneven ground surfaces and slick or wet surfaces, unstable earth slopes. The Project Site is a relatively level, however removal action activities will consist of a series of shallow excavated trenches. Therefore, the potential for employee exposure to slips, trips and falls is considered moderate to high during work activities. Safety cones, delineators, and caution tape will be used to mark the boundaries of the excavations.

Overhead and Underground Utilities. Typical site activities such as movement of equipment or intrusive activities such as excavations can present the risk of contact with overhead or underground utilities. Underground Services Alert will be contacted to mark all underground facilities in the vicinity of intrusive activities. There are numerous underground utilities (water, electric, natural gas, etc.) that are provided to the Project Site from main lines located in adjacent city streets. All utilities (gas, cable, water, etc.) were disconnected and capped at the street prior to demolition of the structures.

Heat Stress. High temperatures, direct sun, use of PPE, and labor-intensive activities may contribute to heat stress. Heat stress can involve a high risk of illness of death. The Project Site is located in the Santa Clara Valley and high temperatures are expected during the summer months. Therefore, exposure to heat stress at this site is considered high.

Symptoms of heat stress or heat exhaustion include:

- Headaches, dizziness, lightheadedness or fainting;
- Weakness and moist;
- Mood changes such as irritability or confusion;
- Upset stomach or vomiting.

Preventing heat stress while working outdoors includes:

- Know the signs/symptoms of heat stress, and monitor yourself and coworkers;
- Drink lots of water; about 1 cup every 15 minutes;
- Take regular breaks away from the sun;
- Wear lightweight, light colored, loose-fitting clothes;
- Avoid alcohol, caffeinated drinks, or heavy meals.

Treatment for heat related illness includes:

- Move the worker to a cool shaded area;
- Loosen or remove heavy clothing;
- Provide cool drinking water;
- Fan and mist the person with water:
- Call 911.

Fire and Explosion. Gas or sewer lines can contain hazardous levels of explosive or toxic gases, which may pose a fire risk. The risk of fire on site may also stem from the presence of vegetation, heat and fuel sources from construction equipment and site vehicles, or from the presence of combustible gases or vapors in contaminated soil and/or wells. The potential exposure to fire and explosion hazards is considered low, due to the nature and location of the work.

Traffic Hazards. Work activities along roadways, parking areas, and entrance and exit areas create exposure to traffic hazards. The Project Site consists of a large vacant that is fenced off to public traffic. Therefore, the potential exposure to traffic hazards is considered low.

**Biological Hazards Onsite.** During field activities at the Project Site, a wide variety of insects, including bees, ticks and spiders may be encountered. Stings from bees may cause serious allergic reactions in certain individuals. Ticks are parasites that feed on the blood of an animal/human host and can carry several severe diseases, causing fever and pain for several days and even brain damage. Poisonous snakes or spiders may also be encountered. Skin contact with certain plants (i.e., poison oak and poison ivy) may cause severe reactions. However, due to the lack of vegetation at the work area, the potential exposure to biological hazards is considered low.

## ORGANIZATION OF FIELD ACTIVITIES

The field activities will be divided into three work zones 1) exclusion zone; 2) decontamination zone; and 3) support zone/staging area. Only essential and qualified personnel will be allowed to enter the exclusion and decontamination zones. All site visitors will report to the Command Post Supervisor at the designated area located in the support zone.

Based on the modernization schedule, the RA is planned to be performed in three phases. The designated work zones for the different phases of the RA are illustrated on **Plates E-2** through **E-4**.

## GENERAL SAFETY RULES

1. There will be no eating, drinking, or smoking within the safe perimeter set up.
2. Fire extinguishers will be onsite on or near the contractor's vehicle(s).
3. A first aid kit is located at the onsite command post.

## PERSONAL PROTECTIVE EQUIPMENT

On the basis of the evaluation of potential hazards, the level of protection deemed appropriate for this site is Level D. Dust monitoring will be conducted to ensure site worker safety, and increased dust control measures will be implemented when monitoring levels indicate levels within 50% of the permissible exposure level for an 8-hour work day. Level D typically includes the following:

- hard hat;
- steel toe and shank boots;
- safety glasses or goggles;
- appropriate safety gloves (latex, rubber, etc.); and
- Long sleeve shirt and pants.

## DECONTAMINATION PROCEDURES

**Personnel Decontamination**. In recognition of the increased risk to workers of physical injury and exposure to chemical contaminants, an exclusion zone will be set up at the Project Site. All personnel entering the exclusion zone will wear appropriate PPE for the particular task. Upon leaving the designated exclusion zone, all personnel must undergo appropriate decontamination. The nature and extent of decontamination will be decided by the site health and safety officer and will depend on the level of PPE used and the extent of contamination. Contamination avoidance procedures shall be practiced at all times.

**Level D - Decontamination**. For Level D PPE work, the following personnel decontamination procedures must be observed by workers prior to rest breaks and upon leaving the exclusion zone:

1. Remove gross contamination from tools, monitoring equipment, boots, etc., prior to leaving the work site, using water, paper towels, Handi-Wipes®, etc.

2. Either completely decontaminate solid equipment at the work site using detergent and water (if possible), or wrap equipment in a plastic bag for transport until complete decontamination is possible.
3. Always follow established personnel decontamination procedures and remove contaminated gloves, paper towels, etc. by placing them in a plastic bag and arranging for proper disposal.
4. Wash hands and face (field wash) thoroughly with soap and water before lunch or coffee breaks, and as soon as possible after finishing work for the day.

## DISPOSAL OF WASTES DURING FIELD ACTIVITIES

Generated waste solids (gloves, bottles, wrappers, etc.) will be placed in plastic trash bag and removed from the Project Site at the end of each day.

Excavated soil will be temporarily stored on plastic sheeting and covered with plastic sheeting at the end of each work day.

## ENVIRONMENTAL MONITORING

### Meteorological Monitoring

Onsite meteorological instrumentation will be utilized to measure wind velocity and direction. The meteorological instrument will be checked and recorded by the Site Safety Manager at least once and hour, and/or when a noticeable change in wind speed and direction is observed.

### Site Dust Control and Air Monitoring

During earth moving operations dust levels will be monitored at the following locations:

- One upwind location;
- One exclusion zone location; and
- Two downwind (fence line) locations.

Dust levels will be monitored using particulate meters (Thermo Scientific PDR 1500 or equivalent). The particulate meters will be operated in data logging mode and used to measure and record real-time airborne dust concentrations. The locations of the meters will be determined each day by the Site Safety Manager, and will be based on the daily prevailing wind direction.

The particulate meters will be checked every 15 to 20 minutes during earth moving operations. In consultation with DTSC this frequency may be change based on site conditions and newly available data. Increased dust control measures would consist of an increased volume and duration of water spraying during excavation and loading activities at the specific location of the activity. Each time the meters are checked, the difference between the average upwind dust concentration, and the average downwind (fence line) dust concentrations, will be compared to the ambient air quality standard of 0.05 milligrams per cubic meter (mg/m$^3$) (24-hour average for particles up 10 microns (PM10)). If this standard is exceeded, increased dust control measures will be implemented and the DTSC Project Manager notified.

Site Worker. Dust control measures and monitoring activities will be implemented at the Project Site. Measured total dust levels will be compared to site action levels. Site action levels are based on the Cal-OSHA permissible exposure levels (PELs) for each COC identified in soil at the Project Site. The PEL for total dust is 10 mg/m$^3$. Therefore, assuming that total dust is present at 10 mg/m$^3$ in air and contains the maximum concentration of each COC identified at the Project Site, then site worker exposure levels can be calculated as follows:

$$\text{Exposure Level (mg/m}^3) = \frac{\text{soil concentration (mg/kg) x total dust PEL (mg/m}^3)}{\text{1,000,000 (mg/kg)}}$$

The dust exposure levels for each COC are as follows:

Chlordane: $0.00075 \text{ mg/m}^3 = \dfrac{75 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Dieldrin: $0.00000051 \text{ mg/m}^3 = \dfrac{0.051 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Lead: $0.0019 \text{ mg/m}^3 = \dfrac{190 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

PCBs: $0.000031 \text{ mg/m}^3 = \dfrac{3.1 \text{ mg/kg x } 10 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Comparing the calculated dust exposure levels for each COC to their respective PEL shows that the selected air monitoring action level for the exclusion zone is protective of site worker health. Air monitoring action levels for site workers are presented in Table E-2.

**Table E-2: Air Monitoring Action Levels for Site Workers**

| Chemical of Concern | Calculated Dust Exposure Level[(a)] | CAL/OSHA PEL | Exclusion Zone Action Level (50% of PEL) | Fence Line Action Level [(b)] |
|---|---|---|---|---|
| Chlordane | 0.00075 mg/m$^3$ | 0.5 mg/m$^3$ | --- | --- |
| Dieldrin | 0.00000051 mg/m$^3$ | 0.25 mg/m$^3$ | --- | --- |
| Lead | 0.0019 mg/m$^3$ | 0.05 mg/m$^3$ | --- | --- |
| PCB | 0.000031 mg/m$^3$ | 0.5 mg/m$^3$ | --- | --- |
| Total Dust | --- | 10 mg/m$^3$ | 5 mg/m$^3$ | 0.05 mg/m$^3$ |

Notes: PEL - permissible exposure limit (8-hour, time-weighted average (TWA)).
(a) – Calculated using 10 mg/m$^3$ total dust.
(b) – California ambient air quality standard (24 hour average for PM10).

Based on these conservative calculations and the use of engineering controls, the need for respirators is not anticipated. However, N100 respirators shall be made available onsite should their use be required.

## TRAINING AND MEDICAL SURVEILLANCE

All personnel will have 40-hour Hazardous Waste Operations (HAZWOPER) training; and 8-hour annual refresher training as required under 29 CFR 1910.120/8 CCR 5192.

All contractors are responsible for having their own Injury Illness and Prevention Program (IIPP) in accordance with Cal/OSHA regulations in CCR Title 8. The IIPP's shall include a discussion of safety measures to be implemented, including all those in this HSP, to prevent illness and injury to their employees.

All personnel entering the exclusion zone are required to participate in the Medical Surveillance Program in accordance with 29 CFR 1910.120(F)/8 CCR 5192. All field personnel must have completed either a baseline or annual medical monitoring examination with 12 months of the assignment to the Project Site. Only medically qualified personnel, as determined by the examining physician, will be permitted to conduct field activities.

## REMOVAL CONTRACTOR REQUIREMENTS

### Licenses, Certificates and Registrations

The removal contractor shall have the following licenses, certifications, and registrations:

- California General Engineering A License;
- Hazardous Substances Removal and Remedial Actions Certification; and
- Registered Hazardous Waste Hauler (Trucking Contractor).

### Training Requirements

Contractors will be required to provide equipment operators and helpers who have completed the following:

- Initial 40-hour Hazardous Waste Operations (HAZWOPER) training;
- 8-hour annual refresher training as required under 29 CFR 1910.120/8 CCR 5192;
- Respiratory Fit Testing and Training;
- First Aid / Cardiopulmonary Resuscitation Training (minimum one person onsite during removal activities).
- DOT required hazardous materials hauler training (Trucking Contractor).

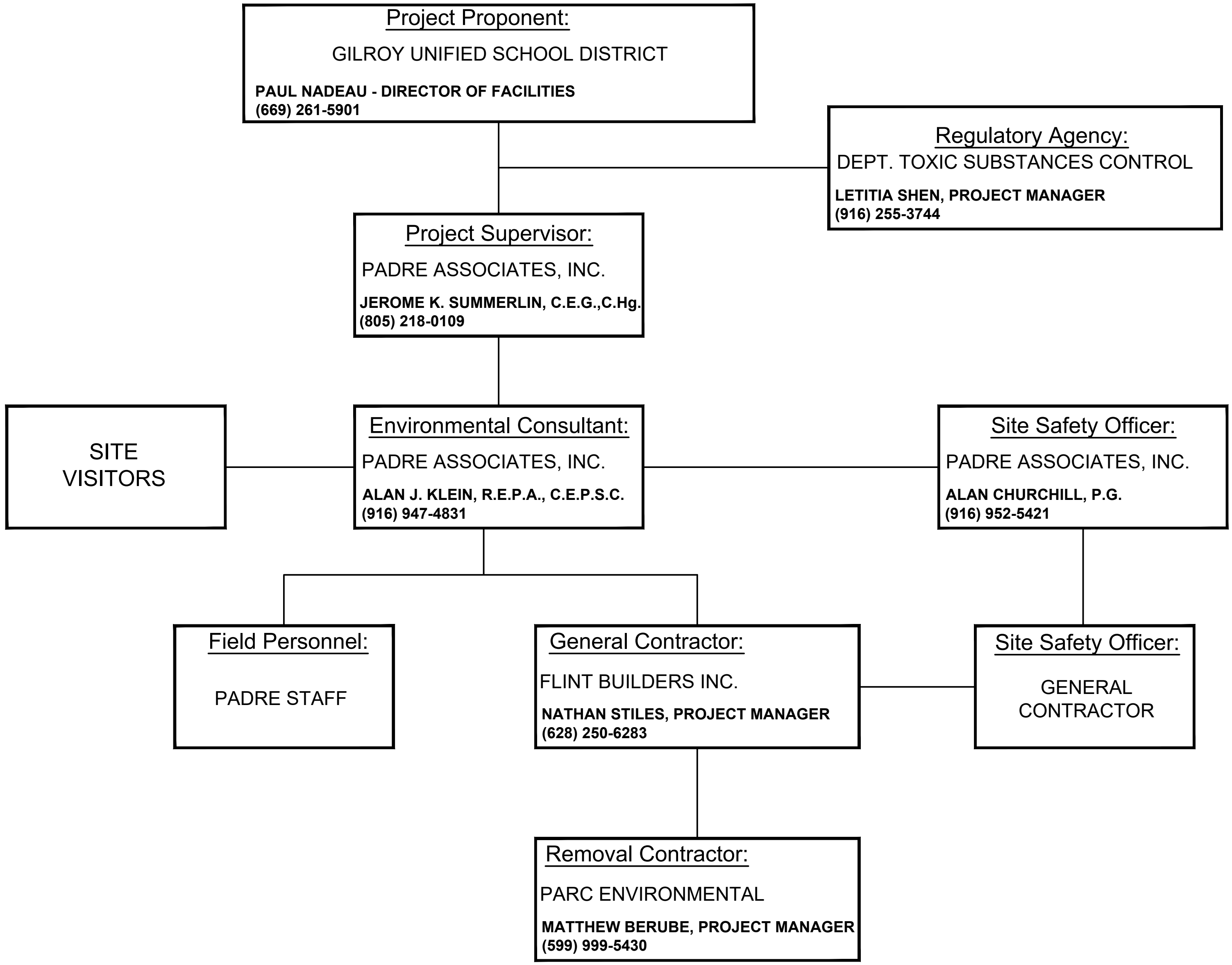
All contractors are responsible for having their own Injury Illness and Prevention Program (IIPP) in accordance with Cal/OSHA regulations in CCR Title 8. The IIPP's shall include a discussion of safety measures to be implemented, including all those in this HSP, to prevent illness and injury to their employees.

**Project Schedule**

Field activities for site workers will require 2-3 days for soil excavation, bin loading, and confirmation soil sampling. Waste acceptance will require 1-2 weeks, and soil bin off-hauling will require 1 day to complete. Therefore, there will be a total of 3-4 field days associated with the handling of contaminated soil.

# PLATES

# REMOVAL ACTION WORKPLAN

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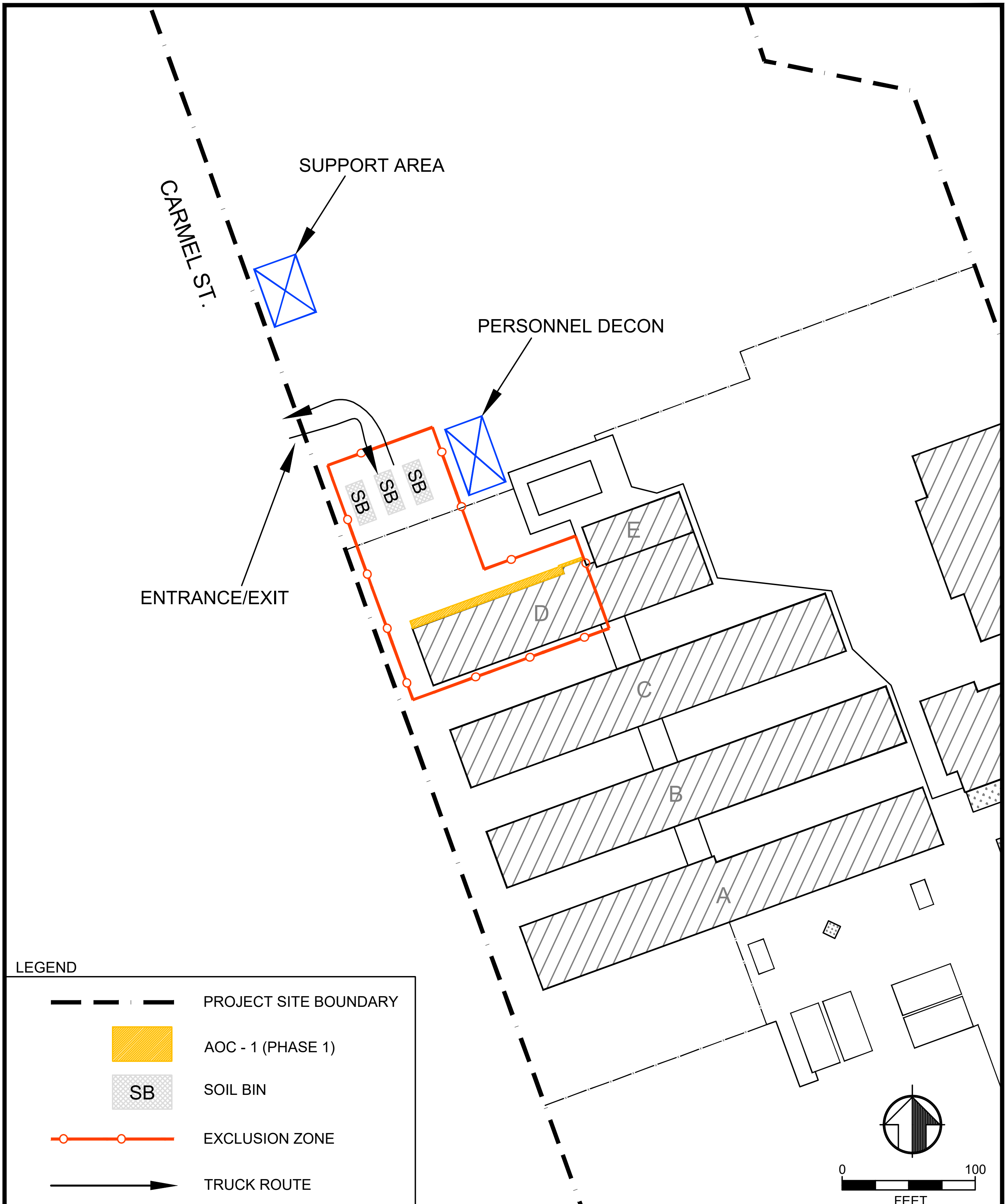
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

BROWNELL MIDDLE SCHOOL
GILROY UNIFIED SCHOOL DISTRICT
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 1/31/20 | AC | AJK |

PLATE E-1

**ORGANIZATION CHART**




LEGEND

| | |
|---|---|
| | PROJECT SITE BOUNDARY |
| | AOC - 1 (PHASE 1) |
| SB | SOIL BIN |
| | EXCLUSION ZONE |
| | TRUCK ROUTE |

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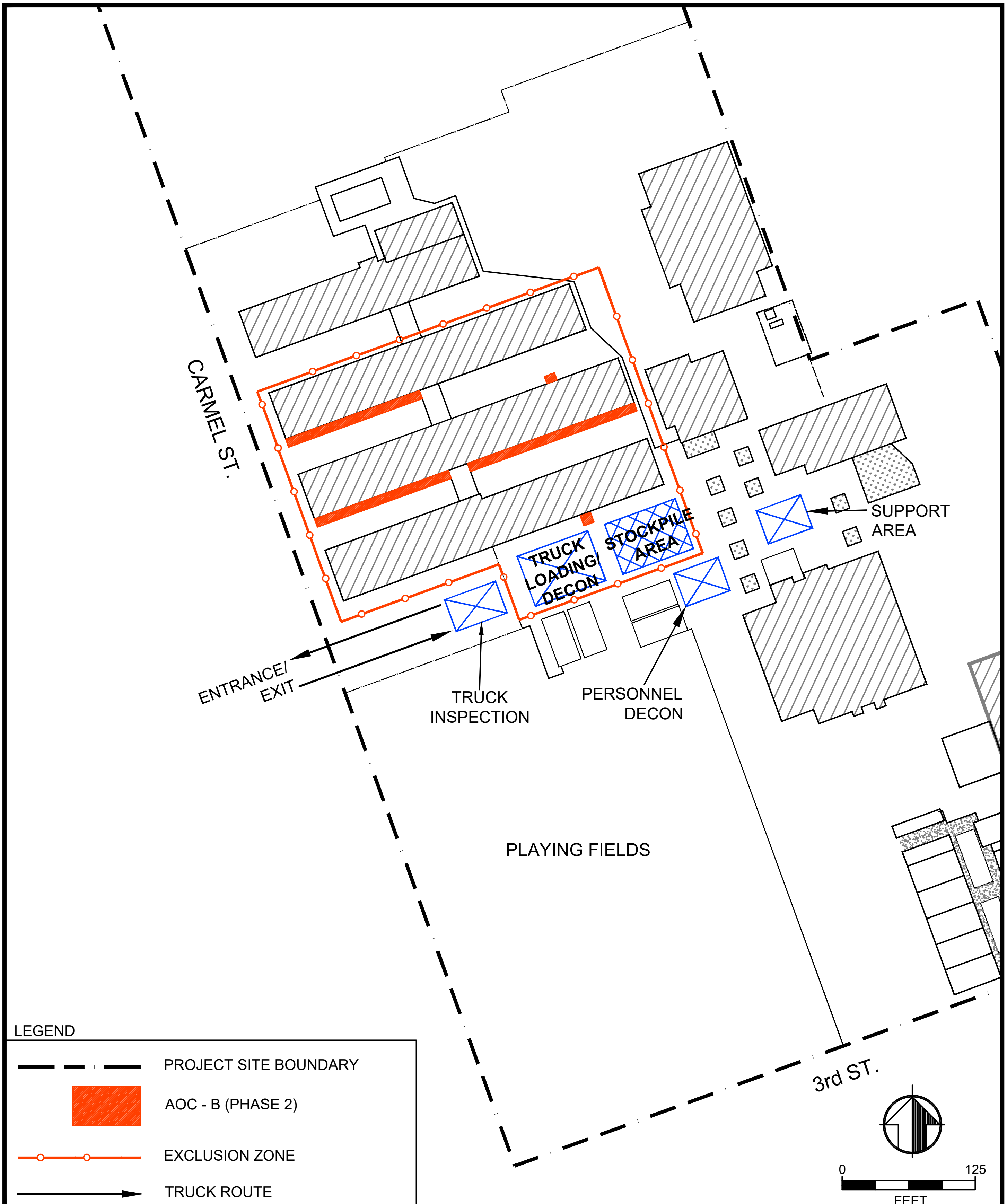
|---|---|---|---|
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE E-2

**WORK ZONES**
**(AOC - 1)**

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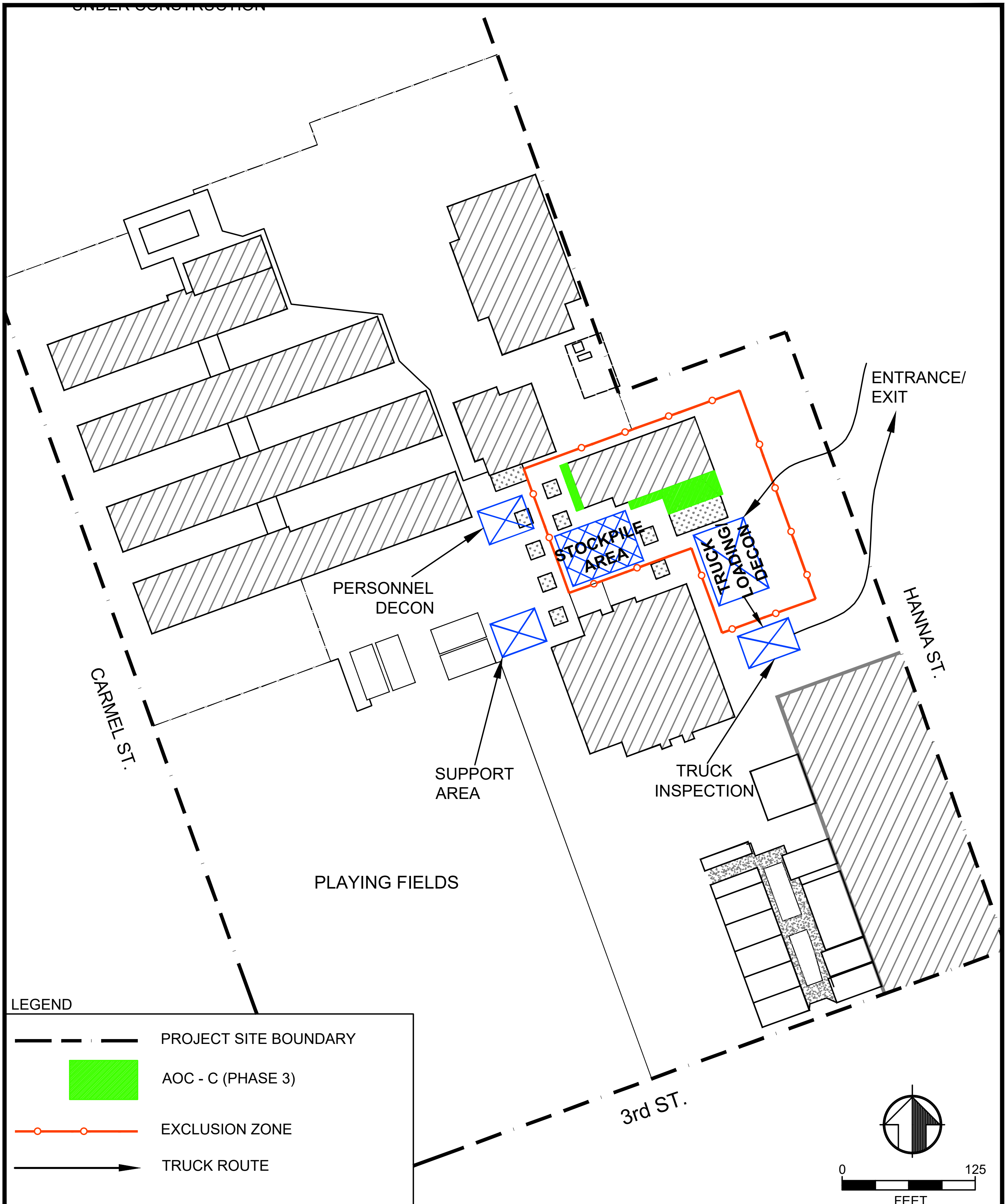
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE E-3

**WORK ZONES**
**(AOC - 2)**

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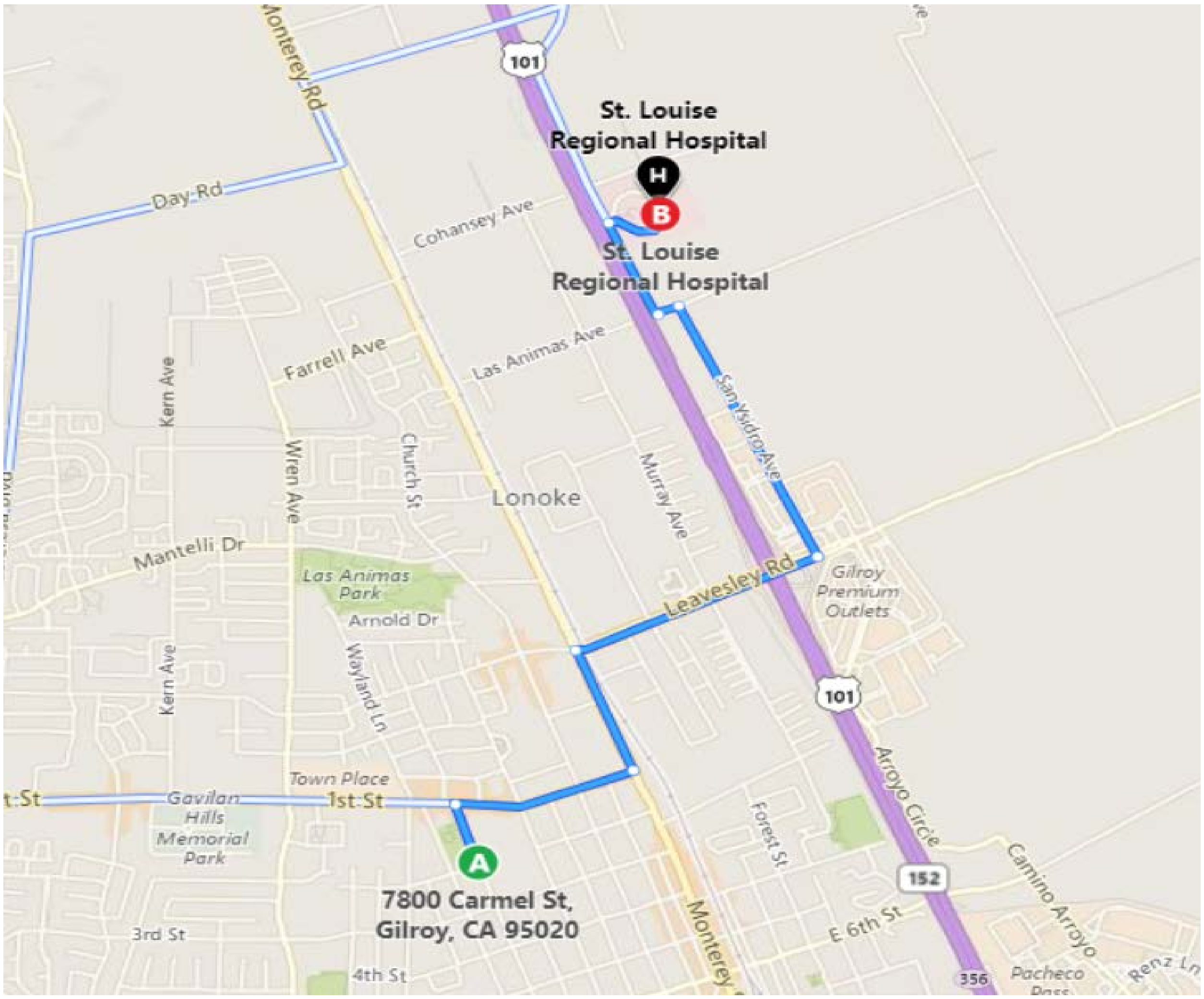
| 1801-0725 | 10/4/19 | AC | AJK |

PLATE E-4

**WORK ZONES**
**(AOC - 3)**


St. Louise
Regional Hospital
H
B
St. Louise
Regional Hospital
A
7800 Carmel St,
Gilroy, CA 95020
101
152
356
Monterey Rd
Day Rd
Cohansey Ave
Farrell Ave
Las Animas Ave
Kern Ave
Wren Ave
Church St
Lonoke
Murray Ave
San Ysidro Ave
Mantelli Dr
Las Animas Park
Arnold Dr
Leavesley Rd
Gilroy Premium Outlets
Wayland Ln
Town Place
Gavilan Hills Memorial Park
1st St
Forest St
Arroyo Circle
Camino Arroyo
3rd St
4th St
E 6th St
Pacheco Pass
Renz Ln

# PUBLIC HEALTH STATEMENT
# CHLORDANE
**CAS#: 12789-03-6**

**Division of Toxicology** **May 1994**

This Public Health Statement is the summary chapter from the Toxicological Profile for Chlordane. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™ is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

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This Statement was prepared to give you information about chlordane and to emphasize the human health effects that may result from exposure to it. The Environmental Protection Agency (EPA) has identified 1,350 hazardous waste sites as the most serious in the nation. These sites comprise the "National Priorities List" (NPL): Those sites which are targeted for long-term federal cleanup activities. Chlordane has been found in at least 176 of the sites on the NPL. However, the number of NPL sites evaluated for chlordane is not known. As EPA evaluates more sites, the number of sites at which chlordane is found may increase. This information is important because exposure to chlordane may cause harmful health effects and because these sites are potential or actual sources of human exposure to chlordane.

When a substance is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. This release does not always lead to exposure. You can be exposed to a substance only when you come in contact with it. You can be exposed by breathing, eating, drinking, or through skin contact with substances containing chlordane.

If you are exposed to a substance such as chlordane, many factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your individual characteristics such as age, gender, nutritional status, family traits, life-style, and state of health.

## 1.1 WHAT IS CHLORDANE?

Chlordane is a man-made chemical that was used as a pesticide in the United States from 1948 to 1988. It is sometimes referred to by the trade names Octachlor® and Velsicol 1068®. It is a thick liquid whose color ranges from colorless to amber, depending on its purity. It may have no smell or a mild, irritating smell. We do not know what it tastes like. Chlordane is not a single chemical, but is a mixture of many related chemicals, of which about 10 are major components. Some of the major components are trans-chlordane, cis-chlordane, beta-chlordene, heptachlor, and trans-nonachlor. Chlordane does not dissolve in water. Therefore, before it can be used as a spray, it must be placed in water with emulsifiers (soap-like substances), which results in a milky-looking mixture.

From 1983 until 1988, chlordane's only approved use was to control termites in homes. The pesticide was applied underground around the foundation of homes. When chlordane is used in the soil around a house, it kills termites that come into contact with it.

Before 1978, chlordane was also used as a pesticide on agricultural crops, lawns, and gardens and as a fumigating agent. Because of concerns over cancer risk, evidence of human exposure and build up in body fat, persistence in the environment, and danger to wildlife, the EPA canceled the use of chlordane on food crops and phased out other above-ground uses over the next 5 years. In 1988, when the EPA canceled chlordane's use for controlling termites, all approved use of chlordane in the United States stopped. Manufacture for export continues.

### 1.2 WHAT HAPPENS TO CHLORDANE WHEN IT ENTERS THE ENVIRONMENT?

When used as a pesticide on crops, on lawns and gardens, and to control termites in houses, chlordane enters the environment. Although it is no longer used in the United States, it may be used in other countries. In soil, it attaches strongly to particles in the upper layers of soil and is unlikely to enter into groundwater. It is not known whether chlordane breaks down in most soils. If breakdown occurs, it is very slow. Chlordane is known to remain in some soils for over 20 years. Persistence is greater in heavy, clayey or organic soil than in sandy soil. Most chlordane is lost from soil by evaporation. Evaporation is more rapid from light, sandy soils than from heavy soils. Half of the chlordane applied to the soil surface may evaporate in 2 to 3 days. Evaporation is much slower after chlordane penetrates into the soil. In water, some chlordane attaches strongly to sediment and particles in the water column and some is lost by evaporation. It is not known whether much breakdown of chlordane occurs in water or in sediment. Chlordane breaks down in the atmosphere by reacting with light and with some chemicals in the atmosphere. However, it is sufficiently long lived that it may travel long distances and be deposited on land or in water far from its source. Chlordane or the chemicals that chlordane changes into accumulate in fish, birds, and mammals. Chlordane stays in the environment for many years and is still found in food, air, water, and soil. Chlordane is still commonly found in some form in the fat of fish, birds, mammals, and almost all humans.

### 1.3 HOW MIGHT I BE EXPOSED TO CHLORDANE?

Everyone in the United States has been exposed to low levels of chlordane. A more relevant question is whether or not you may have been exposed to high levels of chlordane. Before its ban in 1988, you might have been exposed to high levels of chlordane if you worked in the manufacture, formulation, or application of chlordane. Therefore, farmers and lawn-care workers may have been exposed to chlordane before 1978, and pest control workers may have been exposed to chlordane before 1988 by skin contact and breathing dust and vapor. A national survey conducted from 1980 to 1983 estimated that 3,732 workers were potentially exposed to chlordane in the United States. This number of potentially exposed workers should have decreased after chlordane's use was banned in the United States. However, the ban on chlordane did not eliminate it from your environment, and some of your opportunities for exposure to chlordane continue.

Today, people receive the highest exposure to chlordane from living in homes that were treated with chlordane for termites. Chlordane may be found in the air in these homes for many years after treatment. Houses in the deep south and southwest were most commonly treated. However, chlordane use extended from the lower New England States south and west to California. Houses built since 1988 have not been treated with chlordane for termite control. You can determine if your home was treated with chlordane by examining your records or contacting your termite treatment service.

Over 50 million persons have lived in chlordane-treated homes. Indoor air in the living spaces of treated homes have been found to contain average levels of between 0.00003 and 0.002 milligram (mg) of chlordane in a cubic meter of air ($mg/m^3$). However, levels as high as 0.06 $mg/m^3$ have been measured in the living areas of these homes. Even higher levels are found in basements and crawl spaces.

The most common source of chlordane exposure is from ingesting chlordane- contaminated food. Chlordane remains in the food supply because much of the farmland was treated with chlordane in the 1960s and 1970s, and it remains in some soil for over 20 years. However, since chlordane has been banned, the levels in soils would be expected to decrease with the passage of time. Chlordane may also be found in fish and shellfish caught in chlordane-contaminated waters. If you are in doubt about whether a lake or river is contaminated, call your local Game and Fish or Health departments. Chlordane is almost never detected in drinking water. A survey conducted by the Food and Drug Administration (FDA) determined daily intake of chlordane from food to be 0.0013 microgram per kilogram of body weight (µg/kg) for infants and 0.0005-0.0015 µg/kg for teenagers and adults (a microgram is one thousandth of a milligram). The average adult would, therefore, consume about 0.11 µg of chlordane.

You may come into contact with chlordane while digging in soil around the foundation of homes where it was applied to protect the homes against termites. Soil may also be contaminated with chlordane around certain NPL hazardous waste sites. Chlordane has been found at 176 of 1,350 hazardous waste sites on the NPL in the United States. The highest level of chlordane found in soil near an NPL site was 344 ppm. People may be exposed to chlordane at these sites by breathing low levels of chlordane volatilizing from the soil or from touching the soil. Levels of chlordane found in groundwater near NPL sites containing chlordane ranged from 0.02 to 830 parts of chlordane per billion parts of water (ppb).

Finally, some chlordane may be left over from pre-ban days. Old containers of material thought to contain chlordane should be disposed of carefully and contact with the skin and breathing vapors should be avoided.

## 1.4 HOW CAN CHLORDANE ENTER AND LEAVE MY BODY?

Chlordane can enter the body through the skin if skin contact occurs with contaminated soils, through the lungs if breathed in with contaminated air, and through the digestive tract if swallowed. Uptake through the skin and digestive tract increases if chlordane is in an oily mixture, which might occur at hazardous waste sites. The importance of each of these ways for chlordane to enter the body depends on the kind of exposure. For example, people living in houses that have been treated with chlordane will be exposed mostly by breathing the vapor in the air. Workers who sprayed chlordane as a pesticide were exposed mostly by breathing the compound in the air and by contact with the skin. Other people may be exposed to small quantities by eating food or drinking water that contains chlordane. People at or near waste sites may be exposed by touching chlordane in the soil, by breathing chlordane that evaporates into the air, by drinking water that contains chlordane or by eating contaminated fish or crops. The amount of chlordane that enters the body depends on the amount in air, food, or water, and the length of time a person is exposed to it. Most chlordane that enters the body leaves in a few days, mostly in the feces, and a much smaller amount leaves in the urine. Chlordane and its breakdown products may be stored in body fat, where they cause no bad effects, unless released from body fat in large amounts. It may take months or years before the chlordane and the breakdown products that are stored in fat are able to leave the body.

## 1.5 HOW CAN CHLORDANE AFFECT MY HEALTH?

Most health effects in humans that may be linked to chlordane exposure are on the nervous system, the digestive system, and the liver. These effects were seen mostly in people who swallowed chlordane mixtures. Large amounts of chlordane taken by mouth can cause convulsions and death. Convulsions occurred in a man who had long-term skin contact with soil containing large amounts of chlordane. Swallowing small amounts or breathing air containing high concentrations of chlordane vapors can cause a variety of nervous system effects, including headaches, irritation, confusion, weakness, and vision problems, as well as upset stomach, vomiting, stomach cramps, diarrhea, and jaundice.

No harmful effects on health have been confirmed in studies of workers who made chlordane. One study found minor changes in liver function in workers in Japan who used chlordane as a pesticide. There are indications that chlordane may cause anemia and other changes in the blood cells, but the evidence is not very strong.

Animals given high levels of chlordane by mouth for short periods of time died or had convulsions. Long-term exposure of animals to chlordane in their food caused harmful effects in the liver. It is not known whether chlordane will cause cancer in humans after long-term exposure. Studies of workers who made or used chlordane do not link exposure with cancer, but the information is not sufficient to know for sure. Mice fed low levels of chlordane in their food for most of their lifetimes developed liver cancer. The International Agency for Research on Cancer (IARC) has determined that chlordane is not classifiable as to its carcinogenicity to humans. It is not known whether chlordane will cause reproductive or birth defects in humans. Studies of workers who made or used chlordane do not link exposure to the chemical with birth defects, but there are not enough studies in humans to know for sure. There is some evidence that animals exposed before birth or while nursing develop behavioral effects while growing up.

## 1.6 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO CHLORDANE?

Chlordane and its breakdown products (metabolites) can be measured in human blood, urine, feces, and breast milk. Tests have shown that most Americans have low levels of chlordane metabolites in their body fat. The breakdown products can stay in body fat for very long periods, so finding them in body fat or breast milk does not tell how much or how long ago exposure to chlordane occurred. Not all of the breakdown products are specific for chlordane. Finding chlordane and/or breakdown products in your body also cannot predict what health effects will occur, if any. Levels in blood and fat can be tested, although the tests are not routinely available.

## 1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The EPA guidelines for drinking water suggest that no more than 60 ppb chlordane should be present in drinking water that children consume for no longer than 10 days. Drinking water should contain no more than 0.5 ppb for children or 2 ppb for adults if they drink the water for longer periods.

EPA stopped all use of chlordane on food crops, effective March 1978. Until 1988, EPA permitted chlordane use for termite control or dipping the roots or tops of nonfood plants. On April 14, 1988, however, EPA stopped all sales and commercial use of chlordane.

The Food and Drug Administration has established that the levels of chlordane and its breakdown products in most fruits and vegetables should not be greater than 300 ppb and in animal fat and fish should not be greater than 100 ppb.

Federal regulations limit the amount of chlordane that factories can release into waste water. The EPA requires industry to report releases or spills of 1 pound or more. A temporary guideline of the National Research Council indicated that 0.005 $mg/m^3$ should be the maximum amount allowed in the air of military housing.

The Occupational Safety and Health Administration (OSHA) regulates chlordane levels in the workplace. The maximum allowable level in workplace air is 0.5 $mg/m^3$ for a person who is exposed for 8 hours per workday and 40 hours per workweek. The National Institute for Occupational Health and Safety (NIOSH) also recommends an exposure limit of 5 $mg/m^3$ for a person exposed to chlordane in the workplace for 8 hours per workday and 40 hours per workweek.

## 1.8 WHERE CAN I GET MORE INFORMATION?

**If you have any more questions or concerns, please contact your community or state health or environmental quality department or:**

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

**Information line and technical assistance:**

Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

**To order toxicological profiles, contact:**

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

**Reference**


Agency for Toxic Substances and Disease Registry (ATSDR). 1994 Toxicological profile for chlordane. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

This Public Health Statement is the summary chapter from the Toxicological Profile for Aldrin and Dieldrin. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™ is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

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This public health statement tells you about aldrin and dieldrin and the effects of exposure to these chemicals.

The Environmental Protection Agency (EPA) identifies the most serious hazardous waste sites in the nation. These sites make up the National Priorities List (NPL) and are the sites targeted for long-term federal cleanup activities. Aldrin has been found in at least 207 of the 1,613 current or former NPL sites, and dieldrin has been found in at least 287 of the 1,613 current or former NPL sites. However, the total number of NPL sites evaluated for these substances is not known. As more sites are evaluated, the sites at which aldrin and dieldrin are found may increase. This information is important because exposure to these substances may harm you and because these sites may be sources of exposure.

When a substance is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. This release does not always lead to exposure. You are exposed to a substance only when you come in contact with it. You may be exposed by breathing, eating, or drinking the substance, or by skin contact.

If you are exposed to aldrin or dieldrin, many factors determine whether you'll be harmed. These factors include the dose (how much), the duration (how long), and how you come in contact with them. You must also consider the other chemicals you're exposed to and your age, sex, diet, family traits, lifestyle, and state of health.

## 1.1 WHAT ARE ALDRIN AND DIELDRIN?

Aldrin and dieldrin are the common names of two structurally similar compounds that were once used as insecticides. They are chemicals that are made in the laboratory and do not occur naturally in the environment. The scientific name for aldrin is 1,2,3,4,10,10-hexachloro-1,4,4α,5,8,8α-hexahydro-1,4-endo,exo-5,8-dimethanonaphthalene. The abbreviation for the scientific name of aldrin is HHDN. Technical-grade aldrin contains not less than 85.5% aldrin. The trade names used for aldrin include Aldrec, Aldrex, Drinox, Octalene, Seedrin, and Compound 118. The scientific name for dieldrin is 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4α,5,6,7,8,8α-octahydro-1,4-endo,exo-5,8-dimethanonaphthalene. The abbreviation for the scientific name for dieldrin is HEOD. Technical-grade dieldrin contains not less than 85% dieldrin. The trade names used for dieldrin include Alvit, Dieldrix, Octalox, Quintox, and Red Shield.

Pure aldrin and dieldrin are white powders, while technical-grade aldrin and dieldrin are tan powders. Aldrin and dieldrin slowly evaporate in the air. Aldrin evaporates more readily than dieldrin. Both aldrin and dieldrin have mild chemical odors. You might find aldrin and dieldrin in the soil, in water, or in homes where these compounds were used to kill termites. You might also find aldrin and dieldrin in plants and animals near hazardous waste sites.

Aldrin and dieldrin are no longer produced or used. From the 1950s until 1970, aldrin and dieldrin were used extensively as insecticides on crops such as corn and cotton. The U.S. Department of Agriculture canceled all uses of aldrin and dieldrin in 1970. In 1972, however, EPA approved aldrin and dieldrin for killing termites. Use of aldrin and dieldrin to control termites continued until 1987. In 1987, the manufacturer voluntarily canceled the registration for use in controlling termites.

In this profile, the two chemicals are discussed together because aldrin readily changes into dieldrin once it enters either the environment or your body.

### 1.2 WHAT HAPPENS TO ALDRIN AND DIELDRIN WHEN THEY ENTER THE ENVIRONMENT?

Aldrin and dieldrin can enter the environment from accidental spills or leaks from storage containers at waste sites. In the past, aldrin and dieldrin entered the environment when farmers used these compounds to kill pests on crops and when exterminators used them to kill termites. Aldrin and dieldrin are still present in the environment from these past uses. Sunlight and bacteria in the environment can change aldrin to dieldrin. Therefore, you can find dieldrin in places where aldrin was originally released. Dieldrin in soil or water breaks down (degrades) very slowly. Dieldrin sticks to soil and may stay there unchanged for many years. Water does not easily wash dieldrin off soil. Dieldrin does not dissolve in water very well and is therefore not found in water at high concentrations. Most dieldrin in the environment attaches to soil and to sediments at the bottoms of lakes, ponds, and streams. Dieldrin can travel large distances by attaching to dust particles, which can then be transported great distances by the wind. Dieldrin can evaporate slowly from surface water or soil. In the air, dieldrin changes to photodieldrin within a few days. Plants can take up dieldrin from the soil and store it in their leaves and roots. Fish or animals that eat dieldrin-contaminated materials store a large amount of the dieldrin in their fat. Animals or fish that eat other animals have levels of dieldrin in their fat many times higher than animals or fish that eat plants.

### 1.3 HOW MIGHT I BE EXPOSED TO ALDRIN AND DIELDRIN?

For most people, exposure to aldrin and dieldrin occurs when they eat foods contaminated with either chemical. Contaminated foods might include fish or shellfish from contaminated lakes or streams, root crops, dairy products, and meats. Exposure to aldrin and dieldrin also occurs when you drink water, breathe air, or come into contact with contaminated soil at hazardous waste sites. Skin contact and breathing of aldrin and dieldrin by workers who used these chemicals to kill insects were at one time common. However, aldrin and dieldrin are no longer produced and no longer used. People with the greatest potential for exposure include those who live in homes that were once treated for termites using aldrin or dieldrin. Studies indicate that people can be exposed to aldrin and dieldrin years after they were applied in a home.

Exposure to aldrin is generally limited because aldrin is changed quickly to dieldrin in the environment. Dieldrin remains in the environment for a long time and is usually detected in soil, sediment, and animal fat. Levels of both aldrin and dieldrin have decreased over the years since they are no longer produced or used. The levels of aldrin and dieldrin in air and water are typically very low

**1.4 HOW CAN ALDRIN/DIELDRIN ENTER AND LEAVE MY BODY?**

Aldrin can enter your bloodstream through your lungs when you breathe air, through your stomach after eating food or drinking water containing it, or through your skin. Exposure to aldrin or dieldrin around hazardous waste sites can mainly occur by breathing contaminated air or touching contaminated soil. Exposure near hazardous waste sites can also occur by eating contaminated food or drinking contaminated water. Exposure of the general population most likely occurs through eating food contaminated with aldrin or dieldrin. Exposure of some infants occurs by drinking mother's milk containing aldrin or dieldrin. Studies in animals show that both aldrin and dieldrin enter the body quickly after exposure. Once aldrin is inside your body, it quickly changes to dieldrin. Dieldrin then stays in your fat for a long time. Dieldrin can change to other products. Most dieldrin and its breakdown products leave your body in the feces. Some breakdown products can also leave in the urine. It can take many weeks or years for all of the compound to leave your body.

**1.5 HOW CAN ALDRIN/DIELDRIN AFFECT MY HEALTH?**

Aldrin and dieldrin affect your health in similar ways. Symptoms of aldrin and dieldrin poisoning have been seen in people who were exposed to very large amounts of these pesticides during their manufacture. Symptoms of poisoning have also been seen in people who intentionally or accidentally ate or drank large amounts of aldrin or dieldrin. Most of these people experienced convulsions or other nervous system effects, and some had kidney damage. Some people who intentionally ate or drank large amounts of aldrin or dieldrin died. Health effects in people exposed to smaller amounts of aldrin or dieldrin occur because levels of the chemicals build up in the body over time. Exposure to moderate levels of aldrin or dieldrin for a long time causes headaches, dizziness, irritability, vomiting, or uncontrollable muscle movements. Some sensitive people seem to develop a condition in which aldrin or dieldrin causes the body to destroy its own blood cells. We do not know whether aldrin or dieldrin affects the ability of people to fight diseases. We also do not know whether aldrin or dieldrin affects the ability of men to father children, or causes birth defects or cancer in people. The International Agency for Research on Cancer has determined that aldrin and dieldrin are not classifiable as to their carcinogenicity to humans. Based on studies in animals, the EPA has determined that aldrin and dieldrin are probable human carcinogens.

To protect the public from the harmful effects of toxic chemicals and to find ways to treat people who have been harmed, scientists use many tests. One way to see if a chemical will hurt people is to learn how the chemical is absorbed, used, and released by the body; for some chemicals, animal testing may be necessary. Animal testing may also be used to identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method to get information needed to make wise decisions to protect public health. Scientists have the responsibility to treat research animals with care and compassion. Laws today protect the welfare of research animals, and scientists must comply with strict animal care guidelines.

Results from animal studies show that high levels of aldrin and dieldrin cause effects on the nervous system and on the kidneys similar to those seen in people. Results from animal studies also show additional effects of aldrin and dieldrin after exposure to lower levels for longer periods. We do not know whether these effects also occur in people. These other health effects of aldrin and dieldrin in animals include changes in the liver and reduced ability to fight infections. In addition, animals born to mothers who have eaten large amounts of aldrin or dieldrin do not live very long. This results, in part, from the newly born animals being poisoned by aldrin or dieldrin in the mother's milk. Studies in animals give conflicting information about whether aldrin and dieldrin cause birth defects. Studies in animals also give conflicting information about whether aldrin and dieldrin make it more difficult for male animals to reproduce. Some studies show that aldrin and dieldrin may damage sperm. Aldrin and dieldrin have been shown to cause liver cancer in mice, but not in other species of animals.

## 1.6 HOW CAN ALDRIN/DIELDRIN AFFECT CHILDREN?

This section discusses potential health effects from exposures during the period from conception to maturity at 18 years of age in humans. Potential effects on children resulting from exposures of the parents are also considered.

Children can be exposed to aldrin or dieldrin in the same ways as adults, mainly by eating food contaminated with aldrin or dieldrin, or by exposure in homes treated for termites using aldrin or dieldrin. Children can also be exposed by coming into contact with aldrin- or dieldrin-contaminated water, air, or soil near hazardous waste sites. There are no known unique exposure pathways for children. We do not know if children's intake of aldrin or dieldrin per kilogram of body weight is different than that of adults.

Adults and children who swallowed (either by accident or on purpose) amounts of aldrin or dieldrin that were much greater than those found in the environment suffered convulsions, and some died. We do not know whether children differ from adults in their susceptibility to health effects from aldrin or dieldrin exposure.

We do not know whether aldrin or dieldrin affect the ability of people to have children or whether they cause birth defects in children. Some studies in animals show that females given aldrin or dieldrin by mouth have smaller numbers of babies. Some other studies show that large amounts of aldrin damage the testes, but it is unknown whether such large amounts affect the ability of animals to reproduce. Pregnant animals given aldrin or dieldrin by mouth had some babies with low birth weights and some with skeletal variations. Because these effects occurred in animals, they might also occur in humans. Aldrin and dieldrin can cross the placenta. Dieldrin has been found in human breast milk.

## 1.7 HOW CAN FAMILIES REDUCE THE RISK OF EXPOSURE TO ALDRIN OR DIELDRIN?

If your doctor finds that you have been exposed to significant amounts of aldrin or dieldrin, ask whether your children might also be exposed. Your doctor might need to ask your state health department to investigate.

Since aldrin and dieldrin are no longer produced or used, exposure to these compounds will occur from past usage. Families with the greatest risk of exposure to aldrin and dieldrin are those living in homes that were once treated with either chemical for termite protection. Aldrin and dieldrin were usually applied to the basement level of homes to protect the foundation from termites. Studies indicate that detectable levels of both chemicals can exist in a home for up to 10 years after the first application. Before buying a home, families should investigate what, if any, pesticides have been used within the home.

## 1.8 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO ALDRIN/DIELDRIN?

Aldrin is quickly changed to dieldrin in the body, and dieldrin can be measured in your blood, urine, and body tissues if you have been exposed to a large amount. Tests to measure aldrin or dieldrin in such bodily tissues or fluids are not usually available at a doctor's office because special equipment is needed. However, a sample taken in the doctor's office can be properly packed and shipped to a special laboratory, if necessary. Because aldrin changes to dieldrin fairly quickly in the body, these methods are useful for finding aldrin only within a few days after you are exposed to aldrin. Since dieldrin can stay in the body for months, measurements of dieldrin can be made for much longer after you are exposed to either aldrin or dieldrin. The test results cannot be used to predict if you will have any adverse health effects. Exposure to other chemicals at the same time as exposure to aldrin and/or dieldrin could cause some confusion in understanding test results for aldrin and/or dieldrin.

## 1.9 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The federal government develops regulations and recommendations to protect public health. Regulations can be enforced by law. Federal agencies that develop regulations for toxic substances include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Food and Drug Administration (FDA).

Recommendations provide valuable guidelines to protect public health but cannot be enforced by law. Federal organizations that develop recommendations for toxic substances include the Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute for Occupational Safety and Health (NIOSH).

Regulations and recommendations can be expressed in not-to-exceed levels in air, water, soil, or food that are usually based on levels that affect animals; then they are adjusted to help protect people. Sometimes these not-to-exceed levels differ among federal organizations because of different exposure times (an 8-hour workday or a 24-hour day), the use of different animal studies, or other factors.

Recommendations and regulations are also periodically updated as more information becomes available. For the most current information, check with the federal agency or organization that provides it. Some regulations and recommendations for aldrin and dieldrin include the following:
The federal government has developed regulatory standards and guidelines to protect people from the harmful health effects of aldrin and dieldrin. In 1974, EPA banned all uses of aldrin or dieldrin except as a termite killer. In 1981, EPA required labeling changes to warn against applying these chemicals near water supplies, heating ducts, or crawl spaces. They also warned against applying them too frequently.

EPA advises lifetime drinking water exposure concentration limits (DWELs, see Table 8-1) for aldrin and dieldrin of 0.001 and 0.002 mg/L, respectively, for protection against adverse noncancer health effects, that assume all of the exposure to the contaminant is from drinking water. Regarding cancer risk, EPA advises a lower drinking water exposure concentration limit of 0.0002 mg/L for aldrin and dieldrin that would, in theory, limit the lifetime risk for developing cancer from exposure to each compound to 1 in 10,000.

The FDA regulates the residues of aldrin and dieldrin in raw foods. The allowable range for residues is from 0 to 0.1 ppm depending on the type of food product. This limits the intake of aldrin and dieldrin in food to levels considered to be safe.

EPA has named aldrin and dieldrin as hazardous solid waste materials. If quantities greater than 1 pound enter the environment, the National Response Center of the federal government must be told immediately.

OSHA recommended a maximum average amount of aldrin and dieldrin in the air in the workplace to protect workers. This amount is 250 micrograms in a cubic meter of air (μg/m³) for an 8-hour workday over a 40-hour workweek. NIOSH recommended the same limit (250 μg/m³) for both compounds for up to a 10-hour workday over a 40-hour workweek.

## 1.10 WHERE CAN I GET MORE INFORMATION?

**If you have any more questions or concerns, please contact your community or state health or environmental quality department or:**

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

**Information line and technical assistance:**

Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

**To order toxicological profiles, contact:**
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

# PUBLIC HEALTH STATEMENT
# ALDRIN AND DIELDRIN
**CAS#: Aldrin 309-00-2 Dieldrin 60-57-1**



**Reference**

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. Toxicological profile for aldrin and dieldrin. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

This Public Health Statement is the summary chapter from the Toxicological Profile for Lead. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™, is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-800-232-4636.

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This public health statement tells you about lead and the effects of exposure to it.

The Environmental Protection Agency (EPA) identifies the most serious hazardous waste sites in the nation. These sites are then placed on the National Priorities List (NPL) and are targeted for long-term federal clean-up activities. Lead has been found in at least 1,272 of the 1,684 current or former NPL sites. Although the total number of NPL sites evaluated for this substance is not known, the possibility exists that the number of sites at which lead is found may increase in the future as more sites are evaluated. This information is important because these sites may be sources of exposure and exposure to this substance may harm you.

When a substance is released either from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. Such a release does not always lead to exposure. You can be exposed to a substance only when you come in contact with it. You may be exposed by breathing, eating, or drinking the substance, or by skin contact.

If you are exposed to lead, many factors will determine whether you will be harmed. These factors include the dose (how much), the duration (how long), and how you come in contact with it. You must also consider any other chemicals you are exposed to and your age, sex, diet, family traits, lifestyle, and state of health.

## 1.1 WHAT IS LEAD?

Lead is a heavy, low melting, bluish-gray metal that occurs naturally in the Earth's crust. However, it is rarely found naturally as a metal. It is usually found combined with two or more other elements to form lead compounds.

Metallic lead is resistant to corrosion (i.e., not easily attacked by air or water). When exposed to air or water, thin films of lead compounds are formed that protect the metal from further attack. Lead is easily molded and shaped. Lead can be combined with other metals to form alloys. Lead and lead alloys are commonly found in pipes, storage batteries, weights, shot and ammunition, cable covers, and sheets used to shield us from radiation. The largest use for lead is in storage batteries in cars and other vehicles.

Lead compounds are used as a pigment in paints, dyes, and ceramic glazes and in caulk. The amount of lead used in these products has been reduced in recent years to minimize lead's harmful effect on people and animals. Tetraethyl lead and tetramethyl lead were once used in the United States as gasoline additives to increase octane rating. However, their use was phased out in the United States in the 1980s, and lead was banned for use in gasoline for motor vehicles beginning January 1, 1996. Tetraethyl lead may still be used in gasoline for off-road vehicles and airplanes. It is also still used in a number of developing countries. Lead used in ammunition, which is the largest non-battery end-use, has remained fairly constant in recent years. However, even the use of lead in bullets and shot as well as in fishing sinkers is being reduced because of its harm to the environment.

Most lead used by industry comes from mined ores ("primary") or from recycled scrap metal or batteries ("secondary"). Lead is mined in the United States, primarily in Alaska and Missouri. However, most lead today is "secondary" lead obtained from lead-acid batteries. It is reported that 97% of these batteries are recycled.

## 1.2 WHAT HAPPENS TO LEAD WHEN IT ENTERS THE ENVIRONMENT?

Lead occurs naturally in the environment. However, most of the high levels found throughout the environment come from human activities. Environmental levels of lead have increased more than 1,000-fold over the past three centuries as a result of human activity. The greatest increase occurred between the years 1950 and 2000, and reflected increasing worldwide use of leaded gasoline. Lead can enter the environment through releases from mining lead and other metals, and from factories that make or use lead, lead alloys, or lead compounds. Lead is released into the air during burning coal, oil, or waste. Before the use of leaded gasoline was banned, most of the lead released into the U.S. environment came from vehicle exhaust. In 1979, cars released 94.6 million kilograms (208.1 million pounds) of lead into the air in the United States. In 1989, when the use of lead was limited but not banned, cars released only 2.2 million kg (4.8 million pounds) to the air. Since EPA banned the use of leaded gasoline for highway transportation in 1996, the amount of lead released into the air has decreased further. Before the 1950s, lead was used in pesticides applied to fruit orchards. Once lead gets into the atmosphere, it may travel long distances if the lead particles are very small. Lead is removed from the air by rain and by particles falling to land or into surface water.

Sources of lead in dust and soil include lead that falls to the ground from the air, and weathering and chipping of lead-based paint from buildings, bridges, and other structures. Landfills may contain waste from lead ore mining, ammunition manufacturing, or other industrial activities such as battery production. Disposal of lead-containing products contribute to lead in municipal landfills. Past uses of lead such as its use in gasoline are a major contributor to lead in soil, and higher levels of lead in soil are found near roadways. Most of the lead in inner city soils comes from old houses with paint containing lead and previous automotive exhaust emitted when gasoline contained lead.

Once lead falls onto soil, it sticks strongly to soil particles and remains in the upper layer of soil. That is why past uses of lead such as lead in gasoline, house paint, and pesticides are so important in the amount of lead found in soil.

Small amounts of lead may enter rivers, lakes, and streams when soil particles are moved by rainwater.

Small amounts of lead from lead pipe or solder may be released into water when the water is acidic or "soft". Lead may remain stuck to soil particles or sediment in water for many years. Movement of lead from soil particles into groundwater is unlikely unless the rain falling on the soil is acidic or "soft". Movement of lead from soil will also depend on the type of lead compound and on the physical and chemical characteristics of the soil.

Sources of lead in surface water or sediment include deposits of lead-containing dust from the atmosphere, waste water from industries that handle lead (primarily iron and steel industries and lead producers), urban runoff, and mining piles.

Some lead compounds are changed into other forms of lead by sunlight, air, and water. However, elemental lead cannot be broken down.

The levels of lead may build up in plants and animals from areas where air, water, or soil are contaminated with lead. If animals eat contaminated plants or animals, most of the lead that they eat will pass through their bodies.

## 1.3 HOW MIGHT I BE EXPOSED TO LEAD?

Lead is commonly found in soil especially near roadways, older houses, old orchards, mining areas, industrial sites, near power plants, incinerators, landfills, and hazardous waste sites. People living near hazardous waste sites may be exposed to lead and chemicals that contain lead by breathing air, drinking water, eating foods, or swallowing dust or dirt that contain lead. People may be exposed to lead by eating food or drinking water that contains lead. Drinking water in houses containing lead pipes may contain lead, especially if the water is acidic or "soft". If one is not certain whether an older building contains lead pipes, it is best to let the water run a while before drinking it so that any lead formed in the pipes can be flushed out. People living in areas where there are old houses that have been painted with lead paint may be exposed to higher levels of lead in dust and soil. Similarly, people who live near busy highways or on old orchard land where lead arsenate pesticides were used in the past may be exposed to higher levels of lead. People may also be exposed to lead when they work in jobs where lead is used or have hobbies in which lead is used, such as making stained glass.

Foods may contain small amounts of lead. However, since lead solder is no longer used in cans, very little lead is found in food. Leafy fresh vegetables grown in lead-containing soils may have lead-containing dust on them. Lead may also enter foods if they are put into improperly glazed pottery or ceramic dishes and from leaded-crystal glassware. Illegal whiskey made using stills that contain lead-soldered parts (such as truck radiators) may also contain lead. Cigarette smoke may also contain small amounts of lead. The amount of lead found in canned foods decreased 87% from 1980 to 1988 in the United States, which indicates that the chance of exposure to lead in canned food from lead-soldered containers has been greatly reduced. Lead-soldered cans are still used in some other nations. In the most recent studies, lead was not detectable in most foods and the average dietary intake of lead was about 1 microgram (a microgram is a millionth of a gram) per kilogram of body weight per day. Children may be exposed to lead by hand-to-mouth contact after exposure to lead-containing soil or dust.

In general, very little lead is found in lakes, rivers, or groundwater used to supply the public with drinking water. More than 99% of all publicly supplied drinking water contains less than 0.005 parts of lead per million parts of water (ppm). However, the amount of lead taken into your body through drinking water can be higher in communities with acidic water supplies. Acidic water makes it easier for the lead found in pipes, leaded solder, and brass faucets to be dissolved and to enter the water we drink. Public water treatment systems are now required to use control measures to make water less acidic. Plumbing that contains lead may be found in public drinking water systems, and in houses, apartment buildings, and public buildings that are more than 20 years old. However, as buildings age, mineral deposits form a coating on the inside of the water pipes that insulates the water from lead in the pipe or solder, thus reducing the amount of lead that can leach into the water. Since 1988, regulations require that drinking water coolers must not contain lead in parts that come into contact with drinking water.

Breathing in, or swallowing airborne dust and dirt, is another way you can be exposed to lead. In 1984, burning leaded gasoline was the single largest source of lead emissions. Very little lead in the air comes from gasoline now because EPA has banned its use in gasoline for motor vehicles. Other sources of lead in the air include releases to the air from industries involved in iron and steel production, lead-acid-battery manufacturing, and nonferrous (brass and bronze) foundries. Lead released into air may also come from burning of solid waste that contains lead, windblown dust, volcanoes, exhaust from workroom air, burning or weathering of lead-painted surfaces, fumes and exhaust from leaded gasoline, and cigarette smoke.

Skin contact with dust and dirt containing lead occurs every day. Recent data have shown that inexpensive cosmetic jewelry pieces sold to the general public may contain high levels of lead which may be transferred to the skin through routine handling. However, not much lead can get into your body through your skin.

In the home, you or your children may be exposed to lead if you take some types of home remedy medicines that contain lead compounds. Lead compounds are in some non-Western cosmetics, such as surma and kohl. Some types of hair colorants, cosmetics, and dyes contain lead acetate. Read the labels on hair coloring products, use them with caution, and keep them away from children.

People who are exposed at work are usually exposed by breathing in air that contains lead particles. Exposure to lead occurs in many jobs. People who work in lead smelting and refining industries, brass/bronze foundries, rubber products and plastics industries, soldering, steel welding and cutting operations, battery manufacturing plants, and lead compound manufacturing industries may be exposed to lead. Construction and demolition workers and people who work at municipal waste incinerators, pottery and ceramics industries, radiator repair shops, and other industries that use lead solder may also be exposed. Painters who sand or scrape old paint may be exposed to lead in dust. Between 0.5 and 1.5 million workers are exposed to lead in the workplace. In California alone, more than 200,000 workers are exposed to lead. Families of workers may be exposed to higher levels of lead when workers bring home lead dust on their work clothes.

You may also be exposed to lead in the home if you work with stained glass as a hobby, make lead fishing weights or ammunition, or if you are involved in home renovation that involves the removal of old lead-based paint.

## 1.4 HOW CAN LEAD ENTER AND LEAVE MY BODY?

Some of the lead that enters your body comes from breathing in dust or chemicals that contain lead. Once this lead gets into your lungs, it goes quickly to other parts of the body in your blood.

Larger particles that are too large to get into your lungs can be coughed up and swallowed. You may also swallow lead by eating food and drinking liquids that contain it. Most of the lead that enters your body comes through swallowing, even though very little of the amount you swallow actually enters your blood and other parts of your body. The amount that gets into your body from your stomach partially depends on when you ate your last meal. It also depends on how old you are and how well the lead particles you ate dissolved in your stomach juices. Experiments using adult volunteers showed that, for adults who had just eaten, the amount of lead that got into the blood from the stomach was only about 6% of the total amount taken in. In adults who had not eaten for a day, about 60–80% of the lead from the stomach got into their blood. In general, if adults and children swallow the same amount of lead, a bigger proportion of the amount swallowed will enter the blood in children than in adults. Children absorb about 50% of ingested lead.

Dust and soil that contain lead may get on your skin, but only a small portion of the lead will pass through your skin and enter your blood if it is not washed off. You can, however, accidentally swallow lead that is on your hands when you eat, drink, smoke, or apply cosmetics (for example, lip balm). More lead can pass through skin that has been damaged (for example, by scrapes, scratches, and wounds). The only kinds of lead compounds that easily penetrate the skin are the additives in leaded gasoline, which is no longer sold to the general public. Therefore, the general public is not likely to encounter lead that can enter through the skin.

Shortly after lead gets into your body, it travels in the blood to the "soft tissues" and organs (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into your bones and teeth. In adults, about 94% of the total amount of lead in the body is contained in the bones and teeth. About 73% of the lead in children’s bodies is stored in their bones. Some of the lead can stay in your bones for decades; however, some lead can leave your bones and reenter your blood and organs under certain circumstances (e.g., during pregnancy and periods of breast feeding, after a bone is broken, and during advancing age).

Your body does not change lead into any other form. Once it is taken in and distributed to your organs, the lead that is not stored in your bones leaves your body in your urine or your feces. About 99% of the amount of lead taken into the body of an adult will leave in the waste within a couple of weeks, but only about 32% of the lead taken into the body of a child will leave in the waste. Under conditions of continued exposure, not all of the lead that enters the body will be eliminated, and this may result in accumulation of lead in body tissues, especially bone.

## 1.5 HOW CAN LEAD AFFECT MY HEALTH?

Scientists use many tests to protect the public from harmful effects of toxic chemicals and to find ways for treating persons who have been harmed.

One way to learn whether a chemical will harm people is to determine how the body absorbs, uses, and releases the chemical. For some chemicals, animal testing may be necessary. Animal testing may also help identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method for getting information needed to make wise decisions that protect public health. Scientists have the responsibility to treat research animals with care and compassion. Scientists must comply with strict animal care guidelines because laws today protect the welfare of research animals.

The effects of lead are the same whether it enters the body through breathing or swallowing. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults to lead at work has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people. Lead exposure may also cause anemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

We have no conclusive proof that lead causes cancer (is carcinogenic) in humans. Kidney tumors have developed in rats and mice that had been given large doses of some kind of lead compounds. The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens based on limited evidence from studies in humans and sufficient evidence from animal studies, and the EPA has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans. IARC determined that organic lead compounds are not classifiable as to their carcinogenicity in humans based on inadequate evidence from studies in humans and in animals.

## 1.6 HOW CAN LEAD AFFECT CHILDREN?

This section discusses potential health effects in humans from exposures during the period from conception to maturity at 18 years of age.

Studies carried out by the Centers for Disease Control and Prevention (CDC) show that the levels of lead in the blood of U.S. children have been getting lower and lower. This result is because lead is banned from gasoline, residential paint, and solder used for food cans and water pipes. However, about 310,000 U.S. children between the ages of 1 and 5 years are believed to have blood lead levels equal or greater than 10 µg/dL, the level targeted for elimination among young children in the Unites States by 2010.

Children are more vulnerable to lead poisoning than adults. Children are exposed to lead all through their lives. They can be exposed to lead in the womb if their mothers have lead in their bodies. Babies can swallow lead when they breast feed, or eat other foods, and drink water that contains lead. Babies and children can swallow and breathe lead in dirt, dust, or sand while they play on the floor or ground. These activities make it easier for children to be exposed to lead than adults. The dirt or dust on their hands, toys, and other items may have lead particles in it. In some cases, children swallow nonfood items such as paint chips; these may contain very large amounts of lead, particularly in and around older houses that were painted with lead-based paint. The paint in these houses often chips off and mixes with dust and dirt. Some old paint contains as much as 50% lead. Also, compared with adults, a bigger proportion of the amount of lead swallowed will enter the blood in children.

Children are more sensitive to the health effects of lead than adults. No safe blood lead level in children has been determined. Lead affects children in different ways depending on how much lead a child swallows. A child who swallows large amounts of lead may develop anemia, kidney damage, colic (severe "stomach ache"), muscle weakness, and brain damage, which ultimately can kill the child. In some cases, the amount of lead in the child's body can be lowered by giving the child certain drugs that help eliminate lead from the body. If a child swallows smaller amounts of lead, such as dust containing lead from paint, much less severe but still important effects on blood, development, and behavior may occur. In this case, recovery is likely once the child is removed from the source of lead exposure, but there is no guarantee that the child will completely avoid all long-term consequences of lead exposure. At still lower levels of exposure, lead can affect a child's mental and physical growth. Fetuses exposed to lead in the womb, because their mothers had a lot of lead in their bodies, may be born prematurely and have lower weights at birth. Exposure in the womb, in infancy, or in early childhood also may slow mental development and cause lower intelligence later in childhood. There is evidence that these effects may persist beyond childhood.

Children with high blood lead levels do not have specific symptoms. However, health workers can find out whether a child may have been exposed to harmful levels of lead by taking a blood sample. They can also find out how much lead is in a child's bones by taking a special type of x-ray of the finger, knee, or elbow. This type of test, however, is not routine.

## 1.7 HOW CAN FAMILIES REDUCE THE RISK OF EXPOSURE TO LEAD?

If your doctor finds that you have been exposed to substantial amounts of lead, ask whether your children might also have been exposed. Your doctor might need to ask your state health department to investigate.

The most important way families can lower exposures to lead is to know about the sources of lead in their homes and avoid exposure to these sources. Some homes or day-care facilities may have more lead in them than others. Families who live in or visit these places may be exposed to higher amounts of lead. These include homes built before 1978 that may have been painted with paint that contains lead (lead-based paint). If you are buying a home that was built before 1978, you may want to know if it contains lead based paint. Federal government regulations require a person selling a home to tell the real estate agent or person buying the home of any known lead-based hazards on the property. Adding lead to paint is no longer allowed. If your house was built before 1978, it may have been painted with lead-based paint. This lead may still be on walls, floors, ceilings, and window sills, or on the outside walls of the house. The paint may have been scraped off by a previous owner, but paint chips and lead-containing dust may still be in the yard soil. Decaying, peeling, or flaking paint can introduce lead into household dust and the area where this is occurring should be repainted. If your paint is decaying or your child has symptoms of lead poisoning, you may want to have your house tested for lead. In some states, homeowners can have the paint in their homes tested for lead by their local health departments. The National Lead Information Center (1-800-532-3394) has a listing of approved risk assessors (people who have met certain criteria and are qualified to assess the potential risks of a site) and of approved testing laboratories (for soil, paint, and dust).

Sanding surfaces painted with lead-based paint or using heat to peel the paint may cause exposure to high levels of lead. Many cases of lead poisoning have resulted from do-it-yourself home renovations. Therefore, any renovations should be performed by a licensed contractor who will minimize exposure to household members. It is important for the area being renovated to be isolated from the rest of the house because of lead-containing dust. The federal government requires that contractors who test for or remove lead must be certified by the EPA or an EPA-approved state program. Ask to see certifications of potential contractors. Your state health department or environmental protection division should be able to identify certified contractors for you. The National Lead Abatement Council (P.O. Box 535; Olney, MD 20932; telephone 301-924-5490) can also send you a list of certified contractors.

Families can lower the possibility of children swallowing paint chips by discouraging their children from chewing or putting these painted surfaces in their mouths and making sure that they wash their hands often, especially before eating. Lead can be found in dirt and dust. Areas where levels of lead in dirt might be especially high are near old houses, highways, or old orchards. Some children have the habit of eating dirt (the term for this activity is pica). Discourage your children from eating dirt and other hand-to-mouth activity.

Non-Western folk remedies used to treat diarrhea or other ailments may contain substantial amounts of lead. Examples of these include: Alarcon, Ghasard, Alkohl, Greta, Azarcon, Liga, Bali Goli, Pay-loo-ah, Coral, and Rueda. If you give your children these substances or if you are pregnant or nursing, you may expose your children to lead. It is wise to know the ingredients of any medicines that you or your children use.

Older homes that have plumbing containing lead may have higher amounts of lead in drinking water. Inside plumbing installed before 1930 is most likely to contain high levels of lead. Copper pipes have replaced lead pipes in most residential plumbing. You cannot see, taste, or smell lead in water, and boiling your water will not get rid of lead. If you have a water-lead problem, EPA recommends that anytime water in a particular faucet has not been used for 6 hours or longer, you should flush your cold water pipes by running water until it is cold (5 seconds–2 minutes). Because lead dissolves more easily in warm water than in cold water, you should only use cold water for drinking, cooking, and preparing baby formula. You can contact your local health department or water supplier to find out about testing your water for lead. If your water tests indicate a significant presence of lead, consult your water supplier or local health department about possible remedies.

You can bring lead home in the dust on your hands or clothes if lead is used in the place where you work. Lead dust is likely to be found in places where lead is mined or smelted, where car batteries are made or recycled, where electric cable sheathing is made, where fine crystal glass is made, or where certain types of ceramic pottery are made. Pets can also bring lead into the home in dust or dirt on their fur or feet if they spend time in places that have high levels of lead in the soil.

Swallowing of lead in house dust or soil is a very important exposure pathway for children. This problem can be reduced in many ways. Regular hand and face washing to remove lead dusts and soil, especially before meals, can lower the possibility that lead on the skin is accidentally swallowed while eating. Families can lower exposures to lead by regularly cleaning the home of dust and tracked in soil. Door mats can help lower the amount of soil that is tracked into the home; removing your shoes before entering the home will also help. Planting grass and shrubs over bare soil areas in the yard can lower contact that children and pets may have with soil and the tracking of soil into the home.

Families whose members are exposed to lead dusts at work can keep these dusts out of reach of children by showering and changing clothes before leaving work, and bagging their work clothes before they are brought into the home for cleaning. Proper ventilation and cleaning—during and after hobby activities, home or auto repair activities, and hair coloring with products that contain lead—will decrease the possibility of exposure.

Lead-containing dust may be deposited on plant surfaces and lead may be taken up in certain edible plants from the soil by the roots; therefore, home gardening may also contribute to exposure if the produce is grown in soils that have high lead concentrations. Vegetables should be well washed before eating to remove surface deposits. Certain hobbies and home or car repair activities like radiator repair can add lead to the home as well. These include soldering glass or metal, making bullets or slugs, or glazing pottery. Some types of paints and pigments that are used as facial make-up or hair coloring contain lead. Cosmetics that contain lead include surma and kohl, which are popular in certain Asian countries. Read the labels on hair coloring products, and keep hair dyes that contain lead acetate away from children. Do not allow children to touch hair that has been colored with lead-containing dyes or any surfaces that have come into contact with these dyes because lead compounds can rub off onto their hands and be transferred to their mouths.

It is important that children have proper nutrition and eat a balanced diet of foods that supply adequate amounts of vitamins and minerals, especially calcium and iron. Good nutrition lowers the amount of swallowed lead that passes to the bloodstream and also may lower some of the toxic effects of lead.

## 1.8 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO LEAD?

The amount of total lead in the blood can be measured to determine if exposure to lead has occurred. This test shows if you have been recently exposed to lead. Lead can be measured in teeth or bones by x-ray techniques, but these methods are not widely available. These tests show long-term exposures to lead. The primary screening method is measurement of blood lead. Exposure to lead also can be evaluated by measuring erythrocyte protoporphyrin (EP) in blood samples. EP is a part of red blood cells known to increase when the amount of lead in the blood is high. However, the EP level is not sensitive enough to identify children with elevated blood lead levels below about 25 micrograms per deciliter (µg/dL). These tests usually require special analytical equipment that is not available in a doctor's office. However, your doctor can draw blood samples and send them to appropriate laboratories for analysis.

## 1.9 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The federal government develops regulations and recommendations to protect public health. Regulations *can* be enforced by law. The EPA, the Occupational Safety and Health Administration (OSHA), and the Food and Drug Administration (FDA) are some federal agencies that develop regulations for toxic substances. Recommendations provide valuable guidelines to protect public health, but *cannot* be enforced by law. The Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute for Occupational Safety and Health (NIOSH) are two federal organizations that develop recommendations for toxic substances.

Regulations and recommendations can be expressed as "not-to-exceed" levels, that is, levels of a toxic substance in air, water, soil, or food that do not exceed a critical value that is usually based on levels that affect animals; they are then adjusted to levels that will help protect humans. Sometimes these not-to-exceed levels differ among federal organizations because they used different exposure times (an 8-hour workday or a 24-hour day), different animal studies, or other factors.

Recommendations and regulations are also updated periodically as more information becomes available. For the most current information, check with the federal agency or organization that provides it. Some regulations and recommendations for lead include the following:

CDC recommends that states develop a plan to find children who may be exposed to lead and have their blood tested for lead. CDC recommends that the states test children:

- at ages 1 and 2 years;
- at ages 3–6 years if they have never been tested for lead;
- if they receive services from public assistance programs for the poor such as Medicaid or the Supplemental Food Program for Women, Infants, and Children;
- if they live in a building or frequently visit a house built before 1950;
- if they visit a home (house or apartment) built before 1978 that has been recently remodeled; and/or
- if they have a brother, sister, or playmate who has had lead poisoning.

CDC considers children to have an elevated level of lead if the amount of lead in the blood is at least 10 μg/dL. Many states or local programs provide intervention to individual children with blood lead levels equal to or greater than 10 μg/dL. Medical evaluation and environmental investigation and remediation should be done for all children with blood lead levels equal to or greater than 20 μg/dL. Medical treatment (i.e., chelation therapy) may be necessary in children if the lead concentration in blood is higher than 45 μg/dL.

EPA requires that the concentration of lead in air that the public breathes be no higher than 1.5 micrograms per cubic meter (μg/m$^3$) averaged over 3 months. EPA regulations no longer allow lead in gasoline. The Clean Air Act Amendments (CAAA) of 1990 banned the sale of leaded gasoline as of December 31, 1995.

Under the Lead Copper Rule (LCR), EPA requires testing of public water systems, and if more than 10% of the samples at residences contain lead levels over 0.015 milligrams per liter (mg/L), actions must be taken to lower these levels. Testing for lead in drinking water in schools is not required unless a school is regulated under a public water system. The 1988 Lead Contamination Control Act (LCCA) was created to help reduce lead in drinking water at schools and daycare centers. The LCCA created lead monitoring and reporting requirements for schools, as well as the replacement of fixtures that contain high levels of lead. However, the provisions in the LCCA are not enforceable by the federal government and individual states have the option to voluntarily comply with these provisions or create their own.

To help protect small children, the Consumer Product Safety Commission (CPSC) requires that the concentration of lead in most paints available through normal consumer channels be not more than 0.06%. The Federal Hazardous Substance Act (FHSA) bans children's products containing hazardous amounts of lead.

The Department of Housing and Urban Development (HUD) develops recommendations and regulations to prevent exposure to lead. HUD requires that federally funded housing and renovations, Public and Indian housing be tested for lead-based paint hazards and that such hazards be fixed by covering the paint or removing it. When determining whether lead-based paint applied to interior or exterior painted surfaces of dwellings should be removed, the standard used by EPA and HUD is that paint with a lead concentration equal to or greater than 1.0 milligram per square centimeter ($mg/cm^2$) of surface area should be removed or otherwise treated. HUD is carrying out demonstration projects to determine the best ways of covering or removing lead-based paint in housing.

EPA has developed standards for lead-paint hazards, lead in dust, and lead in soil. To educate parents, homeowners, and tenants about lead hazards, lead poisoning prevention in the home, and the lead abatement process, EPA has published several general information pamphlets. Copies of these pamphlets can be obtained from the National Lead Information Center or from various Internet sites, including http://www.epa.gov/opptintr/lead.

OSHA regulations limit the concentration of lead in workroom air to 50 $\mu g/m^3$ for an 8-hour workday. If a worker has a blood lead level of 50 µg/dL or higher, then OSHA requires that the worker be removed from the workroom where lead exposure is occurring.

FDA includes lead on its list of poisonous and deleterious substances. FDA considers foods packaged in cans containing lead solders to be unsafe. Tin-coated lead foil has been used as a covering applied over the cork and neck areas of wine bottles for decorative purposes and to prevent insect infestations. Because it can be reasonably expected that lead could become a component of the wine, the use of such foil is also a violation of the Federal Food, Drug, and Cosmetic Act. FDA has reviewed several direct human food ingredients (i.e., food dyes) and has determined them to be "generally recognized as safe" when used in accordance with current good manufacturing practices. Some of these ingredients contain allowable lead concentrations that range from 0.1 to 10 ppm.

## 1.10 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department, or contact ATSDR at the address and phone number below.

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses that result from exposure to hazardous substances.

Toxicological profiles are also available on-line at www.atsdr.cdc.gov and on CD-ROM. You may request a copy of the ATSDR ToxProfiles™ CD-ROM by calling the toll-free information and technical assistance number at 1-800-CDCINFO (1-800-232-4636), by e-mail at cdcinfo@cdc.gov, or by writing to:

Agency for Toxic Substances and Disease Registry
Division of Toxicology and Environmental
Medicine
1600 Clifton Road NE
Mailstop F-32
Atlanta, GA 30333
Fax: 1-770-488-4178

Organizations for-profit may request copies of final Toxicological Profiles from the following:

National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Phone: 1-800-553-6847 or 1-703-605-6000
Web site: http://www.ntis.gov/

This Public Health Statement is the summary chapter from the Toxicological Profile for Polychlorinated Biphenyls (PCBs). It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™, is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

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This public health statement tells you about polychlorinated biphenyls (PCBs) and the effects of exposure.

The Environmental Protection Agency (EPA) identifies the most serious hazardous waste sites in the nation. These sites make up the National Priorities List (NPL) and are the sites targeted for long-term federal cleanup activities. PCBs have been found in at least 500 of the 1,598 current or former NPL sites. However, the total number of NPL sites evaluated for PCBs is not known. As more sites are evaluated, the sites at which PCBs are found may increase. This information is important because exposure to PCBs may harm you and because these sites may be sources of exposure.

When a substance is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. This release does not always lead to exposure. You are exposed to a substance only when you come in contact with it. You may be exposed by breathing, eating, or drinking the substance, or by skin contact. If you are exposed to PCBs, many factors determine whether you'll be harmed. These factors include the dose (how much), the duration (how long), and how you come in contact with them. You must also consider the other chemicals you're exposed to and your age, sex, diet, family traits, lifestyle, and state of health.

## 1.1 WHAT ARE POLYCHLORINATED BIPHENYLS (PCBs)?

PCBs are a group of synthetic organic chemicals that can cause a number of different harmful effects. There are no known natural sources of PCBs in the environment. PCBs are either oily liquids or solids and are colorless to light yellow. Some PCBs are volatile and may exist as a vapor in air. They have no known smell or taste. PCBs enter the environment as mixtures containing a variety of individual chlorinated biphenyl components, known as congeners, as well as impurities. Because the health effects of environmental mixtures of PCBs are difficult to evaluate, most of the information in this toxicological profile is about seven types of PCB mixtures that were commercially produced. These seven kinds of PCB mixtures include 35% of all the PCBs commercially produced and 98% of PCBs sold in the United States since 1970. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor. For example, the name Aroclor 1254 means that the mixture contains approximately 54% chlorine by weight, as indicated by the second two digits in the name. Because they don't burn easily and are good insulating materials, PCBs were used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of

PCBs stopped in the United States in August 1977 because there was evidence that PCBs build up in the environment and may cause harmful effects. Consumer products that may contain PCBs include old fluorescent lighting fixtures, electrical devices or appliances containing PCB capacitors made before PCB use was stopped, old microscope oil, and old hydraulic oil.

## 1.2 WHAT HAPPENS TO POLYCHLORINATED BIPHENYLS (PCBs) WHEN THEY ENTER THE ENVIRONMENT?

Before 1977, PCBs entered the air, water, and soil during their manufacture and use in the United States. Wastes that contained PCBs were generated at that time, and these wastes were often placed in landfills. PCBs also entered the environment from accidental spills and leaks during the transport of the chemicals, or from leaks or fires in transformers, capacitors, or other products containing PCBs. Today, PCBs can still be released into the environment from poorly maintained hazardous waste sites that contain PCBs; illegal or improper dumping of PCB wastes, such as old transformer fluids; leaks or releases from electrical transformers containing PCBs; and disposal of PCB-containing consumer products into municipal or other landfills not designed to handle hazardous waste. PCBs may be released into the environment by the burning of some wastes in municipal and industrial incinerators.

Once in the environment, PCBs do not readily break down and therefore may remain for very long periods of time. They can easily cycle between air, water, and soil. For example, PCBs can enter the air by evaporation from both soil and water. In air, PCBs can be carried long distances and have been found in snow and sea water in areas far away from where they were released into the environment, such as in the arctic. As a consequence, PCBs are found all over the world. In general, the lighter the type of PCBs, the further they may be transported from the source of contamination. PCBs are present as solid particles or as a vapor in the atmosphere. They will eventually return to land and water by settling as dust or in rain and snow. In water, PCBs may be transported by currents, attach to bottom sediment or particles in the water, and evaporate into air. Heavy kinds of PCBs are more likely to settle into sediments while lighter PCBs are more likely to evaporate to air. Sediments that contain PCBs can also release the PCBs into the surrounding water. PCBs stick strongly to soil and will not usually be carried deep into the soil with rainwater. They do not readily break down in soil and may stay in the soil for months or years; generally, the more chlorine atoms that the PCBs contain, the more slowly they break down. Evaporation appears to be an important way by which the lighter PCBs leave soil. As a gas, PCBs can accumulate in the leaves and above-ground parts of plants and food crops.

PCBs are taken up into the bodies of small organisms and fish in water. They are also taken up by other animals that eat these aquatic animals as food. PCBs especially accumulate in fish and marine mammals (such as seals and whales) reaching levels that may be many thousands of times higher than in water. PCB levels are highest in animals high up in the food chain.

## 1.3 HOW MIGHT I BE EXPOSED TO POLYCHLORINATED BIPHENYLS (PCBs)?

Although PCBs are no longer made in the United States, people can still be exposed to them. Many older transformers and capacitors may still contain PCBs, and this equipment can be used for 30 years or more. Old fluorescent lighting fixtures and old electrical devices and appliances, such as television sets and refrigerators, therefore may contain PCBs if they were made before PCB use was stopped. When these electric devices get hot during operation, small amounts of PCBs may get into the air and raise the level of PCBs in indoor air. Because devices that contain PCBs can leak with age, they could also be a source of skin exposure to PCBs.

Small amounts of PCBs can be found in almost all outdoor and indoor air, soil, sediments, surface water, and animals. However, PCB levels have generally decreased since PCB production stopped in 1977. People are exposed to PCBs primarily from contaminated food and breathing contaminated air. The major dietary sources of PCBs are fish (especially sportfish that were caught in contaminated lakes or rivers), meat, and dairy products. Between 1978 and 1991, the estimated daily intake of PCBs in adults from dietary sources declined from about 1.9 nanograms (a nanogram is a billionth part of a gram) to less than 0.7 nanograms. PCB levels in sportfish are still high enough so that eating PCB-contaminated fish may be an important source of exposure for some people. Recent studies on fish indicate maximum concentrations of PCBs are a few parts of PCBs in a million parts (ppm) of fish, with higher levels found in bottom-feeders such as carp. Meat and dairy products are other important sources of PCBs in food, with PCB levels in meat and dairy products usually ranging from less than 1 part in a billion parts (ppb) of food to a few ppb. Concentrations of PCBs in subsurface soil at a Superfund site have been as high as 750 ppm. People who live near hazardous waste sites may be exposed to PCBs by consuming PCB-contaminated sportfish and game animals, by breathing PCBs in air, or by drinking PCB-contaminated well water. Adults and children may come into contact with PCBs when swimming in contaminated water and by accidentally swallowing water during swimming. However, both of these exposures are far less serious than exposures from ingesting PCB-contaminated food (particularly sportfish and wildlife) or from breathing PCB-contaminated air.

Workplace exposure to PCBs can occur during repair and maintenance of PCB transformers; accidents, fires, or spills involving PCB transformers and older computers and instruments; and disposal of PCB materials. In addition to older electrical instruments and fluorescent lights that contain PCB-filled capacitors, caulking materials, elastic sealants, and heat insulation have also been known to contain PCBs. Contact with PCBs at hazardous waste sites can happen when workers breathe air and touch soil containing PCBs. Exposure in the contaminated workplace occurs mostly by breathing air containing PCBs and by touching substances that contain PCBs.



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### 1.4 HOW CAN POLYCHLORINATED BIPHENYLS (PCBs) ENTER AND LEAVE MY BODY?

If you breathe air that contains PCBs, they can enter your body through your lungs and pass into the bloodstream. We do not know how fast or how much of the PCBs that are breathed will pass into the blood. A common way for PCBs to enter your body is by eating meat or fish products or other foods that contain PCBs. Exposure from drinking water is less than from food. It is also possible that PCBs can enter your body by breathing indoor air or by skin contact in buildings that have the kinds of old electrical devices that contain and can leak PCBs. For people living near waste sites or processing or storage facilities, and for people who work with or around PCBs, the most likely ways that PCBs will enter their bodies are from skin contact with contaminated soil and from breathing PCB vapors. Once PCBs are in your body, some may be changed by your body into other related chemicals called metabolites. Some metabolites of PCBs may have the potential to be as harmful as some unchanged PCBs. Some of the metabolites may leave your body in the feces in a few days, but others may remain in your body fat for months. Unchanged PCBs may also remain in your body and be stored for years mainly in the fat and liver, but smaller amounts can be found in other organs as well. PCBs collect in milk fat and can enter the bodies of infants through breast-feeding.

### 1.5 HOW CAN POLYCHLORINATED BIPHENYLS (PCBs) AFFECT MY HEALTH?

Many studies have looked at how PCBs can affect human health. Some of these studies investigated people exposed in the workplace, and others have examined members of the general population. Skin conditions, such as acne and rashes, may occur in people exposed to high levels of PCBs. These effects on the skin are well documented, but are not likely to result from exposures in the general population. Most of the human studies have many shortcomings, which make it difficult for scientists to establish a clear association between PCB exposure levels and health effects. Some studies in workers suggest that exposure to PCBs may also cause irritation of the nose and lungs, gastrointestinal discomfort, changes in the blood and liver, and depression and fatigue. Workplace concentrations of PCBs, such as those in areas where PCB transformers are repaired and maintained, are higher than levels in other places, such as air in buildings that have electrical devices containing PCBs or in outdoor air, including air at hazardous waste sites. Most of the studies of health effects of PCBs in the general population examined children of mothers who were exposed to PCBs. The possible health effects of PCBs in children are discussed in Section 1.6.

To protect the public from the harmful effects of toxic chemicals and to find ways to treat people who have been harmed, scientists use many tests.

One way to see if a chemical will hurt people is to learn how the chemical is absorbed, used, and released by the body; for some chemicals, animal testing may be necessary. Animal testing may also be used to identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method to get information needed to make wise decisions to protect public health. Scientists have the responsibility to treat research animals with care and compassion. Laws today protect the welfare of research animals, and scientists must comply with strict animal care guidelines.

Rats that ate food containing large amounts of PCBs for short periods of time had mild liver damage, and some died. Rats, mice, or monkeys that ate smaller amounts of PCBs in food over several weeks or months developed various kinds of health effects, including anemia, acne-like skin conditions, and liver, stomach, and thyroid gland injuries. Other effects caused by PCBs in animals include reductions in the immune system function, behavioral alterations, and impaired reproduction. Some PCBs can mimic or block the action of hormones from the thyroid and other endocrine glands. Because hormones influence the normal functioning of many organs, some of the effects of PCBs may result from endocrine changes. PCBs are not known to cause birth defects. Only a small amount of information exists on health effects in animals exposed to PCBs by skin contact or breathing. This information indicates that liver, kidney, and skin damage occurred in rabbits following repeated skin exposures, and that a single exposure to a large amount of PCBs on the skin caused death in rabbits and mice. Breathing PCBs over several months also caused liver and kidney damage in rats and other animals, but the levels necessary to produce these effects were very high.

Studies of workers provide evidence that PCBs were associated with certain types of cancer in humans, such as cancer of the liver and biliary tract. Rats that ate commercial PCB mixtures throughout their lives developed liver cancer. Based on the evidence for cancer in animals, the Department of Health and Human Services (DHHS) has stated that PCBs may reasonably be anticipated to be carcinogens. Both EPA and the International Agency for Research on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.

## 1.6 HOW CAN POLYCHLORINATED BIPHENYLS (PCBs) AFFECT CHILDREN?

This section discusses potential health effects from exposures during the period from conception to maturity at 18 years of age in humans.

Children are exposed to PCBs in the same way as are adults: by eating contaminated food, breathing indoor air in buildings that have electrical devices containing PCBs, and drinking contaminated water. Because of their smaller weight, children’s intake of PCBs per kilogram of body weight may be greater than that of adults. In addition, a child’s diet often differs from that of adults. A Food and Drug Administration (FDA) study in 1991 estimated dietary intakes of PCBs for infants (6 months) and toddlers (2 years) of less than 0.001 and 0.002 µg/kg/day. Children who live near hazardous waste sites may accidentally eat some PCBs through hand-to-mouth behavior, such as by putting dirty hands or other soil/dirt covered objects in their mouths, or eating without washing their hands. Some children also eat dirt on purpose; this behavior is called pica. Children could also be exposed by playing with old appliances or electrical devices that contain PCBs.

It is possible that children could be exposed to PCBs following transport of the chemical on clothing from the parent’s workplace to the home.

House dust in homes of workers exposed to PCBs contained higher than average levels of PCBs. PCBs have also been found on the clothing of firefighters following transformer fires. The most likely way infants will be exposed is from breast milk that contains PCBs. Fetuses in the womb are also exposed from the exposed mother.

In one study of women exposed to relatively high concentrations of PCBs in the workplace during pregnancy, their babies weighed slightly less at birth than babies born to women exposed to lower concentrations of PCBs. Studies of women who consumed high amounts of fish contaminated with PCBs and other chemicals also had babies that weighed less than babies from women who did not eat fish. Similar observations have been made in some studies of women with no known high exposure to PCBs, but not all studies have confirmed these findings. Babies born to women who ate fish contaminated with PCBs before and during pregnancy showed abnormal responses to tests of infant behavior. Some of these behaviors, such as problems with motor skills and a decrease in short-term memory, persisted for several years. However, in these studies, the women may have been exposed to other chemicals. Other studies suggest that the immune system may be affected in children born to and nursed by mothers exposed to increased levels of PCBs. There are no reports of structural birth defects in humans caused by exposure to PCBs or of health effects of PCBs in older children. It is not known whether PCB exposure can cause in skin acne and rashes in children as occurs in some adults, although it is likely that the same effects would occur at very high PCB exposure levels.

Animal studies have shown harmful effects in the behavior of very young animals when their mothers were exposed to PCBs and they were exposed in the womb or by nursing. In addition, some animal studies suggest that exposure to PCBs causes an increased incidence of prenatal death and changes in the immune system, thyroid, and reproductive organs. Studies in monkeys showed that young animals developed skin effects from nursing after their mothers were exposed to PCBs. Some studies indicate that very high doses of PCBs may cause structural birth defects in animals.

Children can be exposed to PCBs both prenatally and from breast milk. PCBs are stored in the mother's body and can be released during pregnancy, cross the placenta, and enter fetal tissues. Because PCBs dissolve readily in fat, they can accumulate in breast milk fat and be transferred to babies and young children. PCBs have been measured in umbilical cord blood and in breast milk. Some studies have estimated that an infant who is breast fed for 6 months may accumulate in this period 6–12% of the total PCBs that will accumulate during its lifetime. However, in most cases, the benefits of breast-feeding outweigh any risks from exposure to PCBs in mother's milk. You should consult your health care provider if you have any concerns about PCBs and breast feeding. Because the brain, nervous system, immune system, thyroid, and reproductive organs are still developing in the fetus and child, the effects of PCBs on these target systems may be more profound after exposure during the prenatal and neonatal periods, making fetuses and children more susceptible to PCBs than adults.



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### 1.7 HOW CAN FAMILIES REDUCE THEIR RISK OF EXPSOURE TO POLYCHLORINATED BIPHENYLS (PCBs)?

If your doctor finds that you have been exposed to significant amounts of polychlorinated biphenyls, ask whether your children might also be exposed. Your doctor might need to ask your state health department to investigate.

You and your children may be exposed to PCBs by eating fish or wildlife caught from contaminated locations. Certain states, Native American tribes, and U.S. territories have issued fish and wildlife advisories to warn people about PCB-contaminated fish and fish-eating wildlife. These advisories will tell you what types and sizes of fish and game animals are of concern. An advisory may completely ban eating fish or game or tell you to limit your meals of a certain fish or game type. For example, an advisory may tell you not to eat a certain type of fish or game more than once a month. The advisory may tell you only to eat certain parts of the fish or game and how to prepare or cook the fish or game to decrease your exposure to PCBs. The fish or wildlife advisory may have special restrictions to protect pregnant women, nursing mothers, and young children. To reduce your children's exposure to PCBs, obey these advisories. Additional information on fish and wildlife advisories for PCBs, including states that have advisories, is provided in Chapter 6 (Section 6.7) and Chapter 8 of the toxicological profile. You can consult your local and state health departments or state natural resources department on how to obtain PCB advisories, as well as other important information, such as types of fish and wildlife and the locations that the advisories apply to.

Children should be told that they should not play with old appliances, electrical equipment, or transformers, since they may contain PCBs. Children who live near hazardous waste sites should be discouraged from playing in the dirt near these sites and should not play in areas where there was a transformer fire. In addition, children should be discouraged from eating dirt, and careful handwashing practices should be followed.

As mentioned in Section 1.3 of the profile, workplace exposure to PCBs can still occur during repair and maintenance of old PCB transformers; accidents, fires, or spills involving these transformers or other PCB-containing items; and disposal of PCB materials. If you are exposed to PCBs in the workplace, it may be possible to carry them home from work. Your occupational health and safety officer at work can tell you whether the chemicals you work with may contain PCBs and are likely to be carried home on your clothes, body, or tools. If this is the case, you should shower and change clothing before leaving work, and your work clothes should be kept separate from other clothes and laundered separately.

### 1.8 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO POLYCHLORINATED BIPHENYLS (PCBs)?

Levels of PCBs in the environment were zero before PCBs were manufactured. Now, all people in industrial countries have some PCBs in their bodies. There are tests to determine whether PCBs are in the blood, body fat, and breast milk. These are not regular or routine clinical tests, such as the one for cholesterol, but could be ordered by a doctor to detect PCBs in people exposed to them in the environment and at work. If your PCB levels are higher than the background levels, this will show that you have been exposed to high levels of PCBs. However, these measurements cannot determine the exact amount or type of PCBs that you have been exposed to, or how long you have been exposed. Although these tests can indicate whether you have been exposed to PCBs to a greater extent than the general population, they do not predict whether you will develop harmful health effects. Blood tests are the easiest, safest, and probably the best method for detecting recent exposures to large amounts of PCBs. Results of such tests should be reviewed and carefully interpreted by physicians with a background in environmental and occupational medicine. Nearly everyone has been exposed to PCBs because they are found throughout the environment, and people are likely to have detectable amounts of PCBs in their blood, fat, and breast milk. Recent studies have shown that PCB levels in tissues from United States population are now declining.

## 1.9 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The federal government develops regulations and recommendations to protect public health . Regulations can be enforced by law. Federal agencies that develop regulations for toxic substances include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Food and Drug Administration (FDA). Recommendations provide valuable guidelines to protect public health but cannot be enforced by law. Federal organizations that develop recommendations for toxic substances include the Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute for Occupational Safety and Health (NIOSH).

Regulations and recommendations can be expressed in not-to-exceed levels in air, water, soil, or food that are usually based on levels that affect animals; then they are adjusted to help protect people. Sometimes these not-to-exceed levels differ among federal organizations because of different exposure times (an 8-hour workday or a 24-hour day), the use of different animal studies, or other factors. Recommendations and regulations are periodically updated as more information becomes available. For the most current information, check with the federal agency or organization that provides it. Some regulations and recommendations for PCBs include the following:
The EPA standard for PCBs in drinking water is 0.5 parts of PCBs per billion parts (ppb) of water. For the protection of human health from the possible effects of drinking the water or eating the fish or shellfish from lakes and streams that are contaminated with PCBs, the EPA regulates that the level of PCBs in these waters be no greater than 0.17 parts of PCBs per trillion parts (ppt) of water. States with fish and wildlife consumption advisories for PCBs are identified in Chapter 6 (Section 6.7) and Chapter 8 of the toxicological profile.

The FDA has set residue limits for PCBs in various foods to protect from harmful health effects. FDA required limits include 0.2 parts of PCBs per million parts (ppm) in infant and junior foods, 0.3 ppm in eggs, 1.5 ppm in milk and other dairy products (fat basis), 2 ppm in fish and shellfish (edible portions), and 3 ppm in poultry and red meat (fat basis).

OSHA regulates that workers not be exposed by inhalation over a period of 8 hours for 5 days per week to more than 1 milligram per cubic meter of air ($mg/m^3$) for 42% chlorine PCBs, or to 0.5 $mg/m^3$ for 54% chlorine PCBs.

NIOSH recommends that workers not breathe air containing 42 or 54% chlorine PCB levels higher than 1 microgram per cubic meter of air ($\mu g/m^3$) for a 10-hour workday, 40-hour workweek.

EPA requires that companies that transport, store, or dispose of PCBs follow the rules and regulations of the federal hazardous waste management program. EPA also limits the amount of PCBs put into publicly owned waste water treatment plants. To minimize exposure of people to PCBs, EPA requires that industry tell the National Response Center each time 1 pound or more of PCBs have been released to the environment.

## 1.10 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

**Information line and technical assistance:**
Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

**To order toxicological profiles, contact:**

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

**Reference**

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological profile for polychlorinated biphenyls (PCBs). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

# APPENDIX F

# NOTICE OF DETERMINATION

# APPENDIX G

# QUALITY ASSURANCE PROJECT PLAN

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# QUALITY ASSURANCE PROJECT PLAN (QAPP)

## FOR

## REMOVAL ACTION WORKPLAN
## BROWNELL MIDDLE SCHOOL MODERNIZATION PROJECT
## GILROY, SANTA CLARA COUNTY, CALIFORNIA
**(SITE CODE: 204305)**

Prepared for:

**Gilroy Unified School District**

Prepared by:

**Padre Associates, Inc.**

**January 2020**

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**QUALITY ASSURANCE PROJECT PLAN (QAPP)**

**For**

**Removal Action Workplan**
**Brownell Middle School Modernization Project**
**Gilroy, Santa Clara County, California**

## 1.0 INTRODUCTION

This document presents the quality assurance project plan (QAPP) for remedial action activities to be completed at Brownell Middle School located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site).

The QAPP addresses quality assurance (QA) and quality control (QC) policies associated with performing the remedial action at the Project Site. Together with the accompanying Remedial Action Workplan (RAW) this QAPP presents the plan for confirmation sampling, analysis, and data review during the remedial action, which will be performed under the regulatory oversight of the California Department of Toxic Substances Control (DTSC).

The purpose of this QAPP is to identify the methods to be employed to establish technical accuracy, precision, and validity of data that is generated at the Project Site.

### 1.1 Project Description

The Gilroy Unified School District (District) plans to modernization the existing Brownell Middle School which will be completed in three phases. The first phase of the school modernization project consists of constructing new school buildings in the north playfield area of the school site. The student population and school staff will then move into the new buildings and the selected older school buildings will be demolished and removed. When completed the modernization project will consist of approximately 37 classrooms designed for approximately 1,000 students.

Based on chemicals of concern (COC) identified in surficial soil at the Project Site above regulatory screening levels, the District is implementing soil cleanup activities under the oversight of DTSC. The COC are chlordane, dieldrin, lead, and polychlorinated biphenyls (PCBs).

### 1.2 Background

Padre completed a Preliminary Environmental Assessment (PEA) dated July 2019. The purpose of the PEA was to establish whether a release or potential release of hazardous materials substances, which pose a threat to human health via ingestion, dermal contact, and inhalation exposure pathways exist at the Project Site. The PEA report identified OCPs, arsenic, lead, and PCBs in soil above RSLs or ambient background concentrations, and recommended further action to eliminate, reduce, and/or mitigate identified COC at the Project Site.

Based on the construction schedule and location for planned modernization activities, the arsenic impacted soil located in the northeast portion of the Project Site was addressed as part of a soil management plan (SMP). At the completion of the SMP, confirmation soil sample results indicated that the concentrations of arsenic remaining in soil at the Project Site were no longer considered a COC.

Based on established remedial cleanup goals (CGs), approximately 360 cubic yards of impacted soil will be excavated, chemically characterized, transported, and disposed of at an appropriate disposal facility.

# 2.0 SITE ACTIVITIES

This section presents information concerning the proposed sampling activities, selected analytical parameters, data quality objectives, and the resulting project decisions. The RAW provides specifications for field activities.

## 2.1 Analytical Scope

The planned sampling effort includes the sampling and analyses of soil for the COC identified during the PEA. The RAW includes specific procedures for collecting confirmation samples from the onsite areas targeted for excavation of impacted soil. Samples will be analyzed in accordance with USEPA-approved methods presented in the RAW. The target analytes and detection limits for the analyses of soil samples are listed in Table 1. Analyzed QC samples will include field duplicates and equipment rinseate blanks.

Waste characterization and landfill approval will be obtained prior to transporting soil off the Project Site. If detected concentrations of COC do not exceed the California total threshold limit concentration (TTLC), then the soil will be disposed of as a non-hazardous waste. If detected concentrations of COC exceed the TTLC, then the soil will be classified as a hazardous waste. The soil sample is then analyzed for the soluble threshold limit concentration (STLC) by the California Waste Extraction Test (WET) or the toxicity characteristic leaching procedure (TCLP), depending on the acceptance criteria of the landfill facility. If detected concentrations of COC exceed the STLC/TCLP then the soil will be classified as a RCRA-hazardous waste. The values for waste characterization are listed in Table 1.

## 2.2 Data Use

Decisions will be made based on the data compiled from the sampling and analysis program. The data collected will be used to assess whether the soil containing COC above their respective cleanup goals have been removed from the Project Site. The data will be used to determine the need for possible additional excavation of impacted soil. Additionally, the collected data will be used for waste characterization.

# 3.0 PROJECT ORGANIZATION

This section provides a description of the organizational structure and responsibilities of the individual positions for this project. This description defines the lines of communication and identifies key personnel assigned to various activities for the project.

### 3.1 Project Proponent

The Gilroy Unified School District is the project proponent and is the party with ultimate responsibility for ensuring that the Project Site is safe for students and school staff. The District will retain a removal contractor for excavation and transportation of impacted soil to the approved landfill. The District will also retain an environmental consultant to conduct air monitoring and confirmation soil sampling. The soil samples will be analyzed by a State accredited laboratory.

### 3.2 Regulatory Agency

Mr. Letitia Shen, Project Manager with the DTSC Northern California Schools Unit, Brownfields and Environmental Restoration Program, shall act as representative for regulatory oversight for the project.

### 3.3 Removal Contractor

The removal contractor will be responsible for removing the soil identified as containing COC at concentrations above the CGs for the Project Site, as well as for disposing of the soil off-site in accordance with all applicable legal requirements, including providing documentation of the disposal activities. The removal contractor will have an on-site site manager responsible for assuring that the day-to-day work is performed in accordance with the RAW and with any other applicable contractual or legal requirements.

### 3.4 Environmental Consultant

The environmental consultant will conduct air monitoring to assess whether airborne COC or dust concentrations generated during the removal action exceed worker or community action levels. The consultant has the authority to stop the removal work if such action levels are exceeded. The consultant will also conduct confirmation soil sampling to assess whether the soil containing COC at concentrations above the CGs have been removed. The consultant will have personnel to fulfill the following roles:

- The Project Manager will be responsible for the technical planning and implementation of the RAW.
- The Field Team Leader and Site Safety Officer for the consultant will be responsible for the day-to-day coordination of the consultant's field activities to ensure that such activities conform to the specifications presented in the RAW.

### 3.5 Laboratory

A State-accredited laboratory will be retained to perform analytical testing of confirmation soil samples collected during the removal action. The laboratory manager will report to the environmental consultant's project manager on all aspects of the sample analysis. The laboratory shall conform to the QA and QC procedures outlined in its Quality Assurance Manual, which can be provided upon request.

Padre proposes to utilize McCampbell Analytical, Inc. (McCampbell) located in Pittsburg, California to provide the required chemical analyses of collected soil and water samples.

McCampbell is certified (No. 1644) by the California State Environmental Accreditation Program Branch to provide the required chemical analyses.

## 4.0 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) have been specified for each data collection activity, and the work will be conducted and documented so that the data collected are of sufficient quality for the intended use. DQOs specify the data type, quality, quantity, and uses needed to make decisions, and are the basis for designing data collection activities. The DQOs have been used in designing the data collection activities presented in the RAW. The DQOs for the project are discussed in the following sections.

### 4.1 Data Quality Objective Process

The project DQOs developed specifically for the planned sampling and analyses program have been determined based on USEPA's seven-step DQO process (USEPA 2000). The QA Manager will evaluate the data collected during the removal action against the project DQOs to determine whether the quantitative and qualitative needs of the sampling and analysis program have been met. The project definition associated with each step of the DQO process can be summarized as follows:

**State the Problem:** The problem is to remove soil from the Project Site that is impacted with COC above their respective CGs.

**Identify the Decision:** The data obtained from the sampling and testing activities will be used to evaluate whether the soil containing COC above their respective CGs has been removed from the Project Site.

**Identify Inputs to the Decision:** Inputs to the decision will include results of analytical testing of soil samples from selected locations on the Project Site. The samples will be tested for the specified analytes discussed in Section 2.0 and presented in Table 1 of the QAPP.

**Define the Study Boundaries:** The boundaries of the field sampling and analysis program will be the perimeter of the excavation area requiring removal of impacted soil.

**Develop a Decision Rule:** Decisions will be based upon laboratory result for the target constituents presented in Table 1. If no valid concentrations of target compounds are reported above the CGs, then a decision will be made that no further excavation will be required as part of the response action. If valid concentrations of target compounds are reported above the CGs, then further remediation and testing will occur.

**Specify Limits on the Decision Error:** The results of the analytical testing will be subject to data evaluation following the procedures for data validation specified in this QAPP. Data will be determined to be if the specified limits on precision, accuracy, representativeness, comparability, completeness, and sensitivity are achieved.

**Optimize the Design:** The field-sampling program has been designed to provide the type and quantity of data needed to satisfy each of the aforementioned objectives. The RAW provides the specifications for the data collection activities, including the number of samples, respective locations and sampling techniques. The quality of the data will be assessed through the procedures further described in this QAPP.

## 4.2 Precision, Accuracy, Representativeness, Comparability, and Completeness

The basis for assessing the elements of data quality is discussed in the following subsections. In the absence of laboratory-specific precision and accuracy limits, the QC limits listed in this section must be met.

### 4.2.1 Precision

Precision measures the reproducibility of repetitive measurements. It is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the sample process under similar conditions.

Analytical precision is a measurement of the variability associated with duplicate or replicate analyses of the same sample in the laboratory and is determined by analysis of laboratory quality control samples such as duplicate control samples (LCSD or DCS), matrix spike duplicates (MSD), or sample duplicates. If the recoveries of analytes in the specified control samples are comparable within established control limits, then precision is within limits.

Total precision is a measurement of the variability associated with the entire sampling and analytical process. It is determined by analysis of duplicate or replicate field samples, and measures variability introduced by other than laboratory and field operations. Field duplicate samples are analyzed to assess field and analytical precision.

Duplicate results are assessed using the relative percent difference (RPD) between duplicate measurements. If the RPD for laboratory quality control samples exceeds 30 percent, data shall be qualified as described in the applicable validation procedure. If the RPD between primary and duplicate field samples exceeds 100 percent for soil, data shall be qualified as described in the applicable validation procedure. The RPD shall be calculated as follows:

$$\% \text{ RPD} = 100\% \ \times \ \frac{\text{Abs}(X2 - X\,1)}{\text{Avg}(X2 + X\,1)}$$

Where *X2* is the larger of the two observed values, and *X1* is the smaller of the two observed values.

### 4.2.2 Accuracy

Accuracy is a statistical measurement of correctness and includes components of random error (variability due to imprecision) and systematic error. It reflects the total error associated with a measurement. A measurement is accurate when the value reported does not differ from the true value or known concentration of the spike or standard. Accuracy of laboratory analyses shall be assessed by laboratory control samples, surrogate standards, matrix spikes, and initial and continuing calibrations of instruments. Laboratory accuracy is expressed as the percent recovery (%R). If the percent recovery is determined to be outside of acceptance criteria, data shall be qualified as described in the applicable validation procedure. The calculation of percent recovery is provided below:

$$\% R = 100 \times \frac{Xs - X}{T}$$

Where Xs is the measured value of the spiked sample, X is the measured value of the unspiked sample, and T is the true value of the spike solution added. Field accuracy shall be assessed through the analysis of field equipment blanks. Analysis of blanks shall monitor errors associated with the sampling process and field contamination. The DQO for field equipment blanks is that all values are less than the reporting limit for each target constituent. If contamination is reported in a field equipment blank, the associated data shall be qualified as described in the applicable validation procedure.

#### 4.2.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent selected characteristics of the media sampled. Representativeness of data collection is addressed by careful preparation of sampling and analysis programs. This QAPP, together with the RAW, addresses representativeness by specifying sufficient and proper numbers and locations of samples; incorporating appropriate sampling methodologies; specifying proper sample collection techniques and decontamination procedures; selecting appropriate laboratory methods to prepare and analyze soil samples; and establishing proper field and laboratory QA/QC procedures.

## 5.0 QUALITY CONTROL ELEMENTS

This section presents QC requirements relevant to analysis of environmental samples that shall be followed during all project analytical activities. The purpose of the QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials.

### 5.1 Quality Control Procedures

The chemical data to be collected for this purpose shall be used to determine that the extent of contamination is properly evaluated. As such, it is critical that the chemical data be of the highest confidence and quality. Consequently, strict QA/QC procedures shall be adhered to. These procedures include:

- Adherence to strict protocols for field sampling and decontamination procedures;
- Collection and laboratory analysis of appropriate field equipment blanks to monitor for contamination of samples in the field; and
- Collection of field duplicates and laboratory analysis of matrix spike, matrix spike duplicate, and field duplicate samples to evaluate precision and accuracy.

#### 5.1.1 Equipment Decontamination

Non-dedicated equipment shall be decontaminated before and after each sample is collected. The equipment shall be washed in a non-phosphate detergent and deionized/distilled water, rinsed in deionized/distilled, and then double rinsed.

### 5.1.2 Standards

Standards will be used to calibrate or to prepare samples for analyses by laboratory and field equipment (e.g., XRF instrument). Standards shall be certified by the National Institute of Standards and Technology (NIST), USEPA, or other equivalent sources. The standards shall be current. The expiration date shall be established by the manufacturer, or based on chemical stability, the possibility of contamination, and environmental and storage conditions. Standards shall be labeled with expiration dates and shall reference primary standard sources if applicable. Expired standards shall be discarded.

### 5.1.3 Supplies

All supplies shall be inspected prior to their use in the field or laboratory. The descriptions for sample collection and analysis contained in the methods shall be used as a guideline for establishing the acceptance criteria for supplies. A current inventory and appropriate storage system for these materials shall assure their integrity prior to use. Efficiency and purity of supplies shall be monitored through the use of standards and blank samples.

### 5.1.4 Holding Time Compliance

Sample preparation and analysis shall be completed within the required method holding times. Holding time begins at the time of sample collection. If holding times are exceeded, and the analyses are performed, the associated results shall be qualified as described in the applicable validation procedure. The following definitions of extraction and analysis compliance are used to assess holding times:

- *Preparation or Extraction Completion* **–** Completion of the sample preparation process as described in the applicable method, prior to any necessary extract cleanup.
- *Analysis Completion* **–** Completion of all analytical runs, including dilutions, second column confirmations, and any required re-analyses.

### 5.1.5 Preventive Maintenance

The field team leader is responsible for documenting the maintenance of all field equipment prescribed in the manufacturer’s specifications. Scheduled maintenance shall be performed by trained personnel. The analytical laboratory is responsible for all analytical equipment calibration and maintenance as described in their laboratory QA Manual. Subcontractors are responsible for maintenance of all equipment needed to carry out subcontracted duties.

## 5.2 Quality Assurance and Quality Control (QA/QC) Samples

The purpose of this QA/QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials. Quality assurance and quality control samples shall be collected as part of the overall QA/QC program.

### 5.2.1 Duplicate Sample Collection

Duplicate field sampling is a sample collected using the same methodology as primary field sample collection. Duplicate samples are used to assist in the measurement of precision (discussed in Section 4.2.1, above), or reproducibility, of the field sampling technique. Together with analytical precision, the use of field duplicate sample collection and analyses, assists in measuring the total variability associated with the entire sampling and analytical process. Field duplicate samples shall be collected at a rate of one duplicate per ten (10) primary samples collected.

### 5.2.2 Laboratory Reagent Blanks

A laboratory reagent blank is de-ionized or distilled water that is extracted by the laboratory and analyzed as a sample. Analysis of the reagent blank indicates potential sources of contamination from laboratory procedures (e.g., contaminated reagents, improperly cleaned laboratory equipment, or persistent contamination due to presence of certain compounds in the ambient laboratory air). A reagent blank shall be analyzed at least once a day for each method utilized by the laboratory for that day.

### 5.2.3 Field Equipment Blanks

A field equipment blank is a sample that is prepared in the field by pouring de-ionized or distilled water into cleaned sampling equipment. The water is then collected and analyzed as a sample. The field equipment blank gives an indication of contamination from field procedures (e.g., improperly cleaned sampling equipment, cross-contamination). Field equipment blanks shall be collected at a minimum frequency of at least one per day. The field equipment blanks should be analyzed using the same analyses requested for the associated primary samples collected.

### 5.2.4 Matrix Spike Samples

Matrix spikes are performed by the analytical laboratory to evaluate the efficiency of the sample extraction and analysis procedures, and are necessary because matrix interference (i.e., interference from the soil matrix) may have a widely varying impact on the accuracy and precision of the extraction analysis. The matrix spike is prepared by the addition of known quantities or target compounds to a sample. The sample is extracted and analyzed. The results of the analysis are compared with the known additions and a matrix spike recovery is calculated giving an evaluation of the accuracy of the extraction and analysis procedures. Matrix spike recoveries are reviewed to check that they are within acceptable range. However, the acceptable ranges vary widely with both sample matrix and analytical method. Matrix spikes and matrix spike duplicates shall be analyzed by the laboratory at a frequency of at least one per 20, or 5 percent of the primary field samples. Typically, matrix spikes are performed in duplicate in order to evaluate the precision of the procedures as well as the accuracy. Precision objectives (represented by agreement between matrix spike and matrix spike duplicate recoveries) and accuracy objectives (represented by matrix spike recovery results) are based on statistically generated limits established annually by the analytical laboratory. It is important to note that these objectives are to be viewed as goals, not as criteria. If matrix bias is suspected, the associated data shall be qualified, and the direction of the bias indicated in the data validation report.

## 6.0 SAMPLING PROCEDURES

The defensibility of data depends on the use of well defined, accepted sampling procedures. This section describes the sampling and handling procedures that shall be followed for each sampling event.

### 6.1 Field Procedures

Field procedures have been developed to ensure the integrity of the quality of chemical data generated. These procedures are outlined in the RAW.

### 6.2 Sample Containers, Preservation and Holding Times

Soil samples will be collected into 2-inch by 6-inch stainless steel sample tubes. Once collected, each containerized sample will be capped, labeled, and placed in a sample cooler with ice for subsequent transport to the offsite analytical laboratory. Samples will be analyzed within the maximum holding times for the relevant laboratory analysis (Table 1).

### 6.3 Sample Handling and Storing

In the field, each sample container shall be marked with the sampling location number, and date and time of sample collection. All sample containers shall be wiped with paper towels and securely packed, in a cooler on ice, in preparation for delivery to the laboratory. Upon receipt of the samples, the laboratory shall immediately notify the Project Manager if conditions or problems are identified which require immediate resolution. Such conditions include container breakage, missing or improper chain-of-custody, exceeded holding times, missing or illegible sample labeling, or temperature excursions.

### 6.4 Sample Custody

For each sample that is submitted to the laboratory for analysis, an entry shall be made on a chain-of-custody form supplied by the laboratory. The information to be recorded includes the sampling date and time, sample identification number, matrix type, requested analyses and methods, preservatives, and the sampler’s name. Sampling team members shall maintain custody of the samples until they are relinquished to laboratory personnel or a professional courier service. The chain-of-custody form shall accompany the samples from the time of collection until received by the laboratory. Each party in possession of the samples shall sign the chain-of-custody form signifying receipt. The chain-of-custody form shall be placed in a plastic bag and shipped with samples inside the cooler. A copy of the original completed form shall be provided by the laboratory along with the report of results. Upon receipt, the laboratory shall inspect the condition of the sample containers and report the information on the chain-of-custody or similar form.

## 7.0 ANALYTICAL PROCEDURES

The analytical methods used for this project are primarily USEPA-approved methods. Specific analytical methods procedures are detailed in the laboratory QA Manual and standard operating procedures of the selected laboratory. Table 1 summarizes the analytical methods, reporting limits and holding times for the lead analyses for the site.

### 7.1 Internal Standards

Internal standards are measured amounts of method-specified compounds added after preparation, or extraction, of a sample. Internal standards are added to samples, controls, and blanks in accordance with method requirements to identify column injection losses, purging losses, or viscosity effects. Acceptance limits for internal standard recoveries are set forth in the applicable method. If the internal standard recovery falls outside of acceptance criteria, the instrument shall be checked for malfunction and the sample shall be reanalyzed after any problems are resolved.

### 7.2 Method Detection Limits

The method detection limit (MDL) is the minimum concentration of an analyte, or compound that can be measured and reported with 99 percent confidence that the concentration is greater than zero. MDLs are established for each method, matrix and analyte, and for each instrument used to analyze project samples. MDLs are derived using the procedures described in 40CFR 136, Appendix B (CFR, 2008). USEPA requires that MDLs be established on an annual basis. MDLs must be less than applicable report limits for each target analyte.

### 7.3 Laboratory Instrument Calibration

Analytical instruments shall be calibrated in accordance with the procedures specified in the applicable method. All analytes that are reported shall be present in the initial and continuing calibrations, and these calibrations must meet the acceptance criteria specified in the reference methods. Records of standard preparation and instrument calibration shall be maintained. Records shall unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration records shall be traceable to standard materials as described in Section 5.1.2. At the onset of analysis, instrument calibrations shall be checked using all of the analytes of interest. At a minimum, calibration criteria shall satisfy method requirements. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. Guidance provided in SW-846 (USEPA, 1996; 2007) should be considered to determine appropriate evaluation procedures.

### 7.4 Field Instrument Calibration

Proper maintenance, calibration, and operation of each field instrument will be the responsibility of field personnel assigned to the particular field activity. All instruments and equipment used during the field program will be maintained, calibrated, and operated according to the manufacturer's guidelines and recommendations.

Calibration procedures for field equipment are summarized below:

- A schedule and record of instrument calibration will be maintained throughout the duration of the study.
- All field equipment requiring regular calibration will be calibrated at least once per day;
- Relevant manuals will be kept with field personnel during the performance of field activities;
- All equipment will receive routine maintenance checks to minimize equipment breakdown in the field or laboratory; and
- Any items found to be inoperable will be taken out of use and a note stating the time and date of this action will be made in the field log.

# 8.0 DATA REPORTING

This section presents reporting requirements relevant to the data produced during all project analytical activities.

## 8.1 Field Data

Data measured by field instruments shall be recorded in field notebooks, laptops, and/or on required field forms. Units of measure for field analyses are identified on the field forms. The field data shall be reviewed by the Project Manager to evaluate completeness of the field records and appropriateness of the field methods employed. All field records shall be retained in the project files.

## 8.2 Laboratory Data

Analytical data shall contain the necessary sample results and quality control data to evaluate the DQOs defined for the project. The laboratory reports shall include the following data and summary forms:

- narrative, cross-reference, chain-of-custody, and method references;
- analytical results;
- blank results;
- laboratory control sample recoveries;
- duplicate sample results or duplicate spike recoveries; and
- sample spike recoveries.

Data validation criteria are derived from the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, 2004). The National Functional Guidelines provide specific data validation criteria that can be applied to data generated for this investigation.

The laboratory data shall be reviewed for compliance with the applicable method and the quality of the data reported. The following summarizes the areas of data validation:

- data completeness;
- holding times;

- calibrations;
- blanks;
- laboratory control samples;
- matrix spike/matrix spike duplicates;
- surrogates/internal standards (as applicable);
- field QC samples; and
- compound identification and quantification.

The application of data validation criteria is a function of project specific DQOs. The laboratory's QA/QC Manager and the consultants Project Manager shall determine if the data quality objectives for the analytical data have been met.

### 8.3 Data Validation and Qualifiers

Data validation will be performed in general accordance with the U.S. EPA National Functional Guidelines. Data validation shall be documented in a manner consistent with these functional guidelines. The results of the data validation shall be documented and reported in the removal action completion report.

The data validation procedures were designed to review each data set and identify biases inherent to the data and determine its usefulness. Data validation flags are applied to those sample results that fall outside of specified tolerance limits, and, therefore, do not meet the program's quality assurance objectives as described in Section 4.2. Data validation flags to be used for this project are defined in the National Functional Guidelines. Data validation flags shall indicate if results are considered anomalous, estimated, or rejected. Only rejected data are considered unusable for decision-making purposes; however, other qualified data may require further verification.

## 9.0 PERFORMANCE AND SYSTEMS AUDITS

This section describes responsibilities; and requirements and methods for assessing the effectiveness of the project implementation and associated QA and QC activities.

### 9.1 Field Performance

Field performance will be monitored through review of sample collection documentation, sample handling records (COC forms), field notebooks, and field measurements by the consultant/contractor will report any significant field performance issues and any corrective actions in the Removal Action Completion Report.

### 9.2 Laboratory Audits

Any selected mobile or offsite laboratory shall be licensed by the State of California as a certified testing laboratory for hazardous waste and soil analyses. Due to the small scope of the project, an independent laboratory audit is not proposed.

### 9.3 Reports to Management and Responsibilities

It is the responsibility of the Project Manager to determine if any deviations in protocols described in the QAPP will result in any adverse effect on the project conclusions. If it is determined that corrective action is necessary, procedures outline in Section 9.4 shall be followed.

### 9.4 Correction Action

Corrective actions shall be initiated if data quality indicators suggest that DQOs have not been met. Corrective actions shall begin with identifying the source of the problem. Potential problem sources include failure to adhere to method procedures, improper data reduction, equipment malfunctions, or systemic contamination. The first level of responsibility for identifying the problems and initiating corrective action lies with the analyst/field personnel. The second level of responsibility lies with any person reviewing the data. Corrective actions may include more intensive staff training, equipment repair followed by a more intensive preventive maintenance program, or removal of the source of systemic contamination. Once resolved, the corrective action procedure shall be fully documented, and if DQOs were not met, the samples in question may be recollected and/or reanalyzed utilizing a properly functioning system.

## 10.0 REFERENCES

California Department of Toxic Substances Control, *Preliminary Endangerment Assessment Guidance Manual* (January 1994, Interim Final – Final October 2015).

Code of Federal Regulations (CFR). 2008. *Definition and Procedure for the Determination of the Method Detection Limit—Revision 1.11.* Title 40, Part 136, Appendix B. March 24.

United States Environmental Protection Agency (USEPA). 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846). Office of Solid Waste. 3rd Edition, Update III. December.

United States Environmental Protection Agency (USEPA). 2001. *EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5), EPA/240/B-01/003*. March (Reissued May 2006).

USEPA. 2002. *Guidance for Quality Assurance Project Plans (EPA QA/G-5), EPA/240/R-02/009*. December.

USEPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004*. Office of Superfund Remediation and Technology Innovation (OSRTI). October.

USEPA. 2006. *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4), EPA/240/B-06/001*. February.

USEPA. 2007. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846). Office of Solid Waste. 3rd Edition, Update IV. February.

**Table G-1: Reporting Limits and Holding Times for COC**

| Analytical Method | Reporting Limit | Reporting Limit Units | Holding Times |
|---|---|---|---|
| OCPs by EPA 8081A | Chlordane - 0.025 | mg/kg | 14 days |
| TTLC | Chlordane – 2.5 | mg/kg | 14 days |
| STLC | Chlordane - 0.25 | mg/L | 14 days |
| TCLP | Chlordane - 0.03 | mg/L | 14 days |
| OCPs by EPA 8081A | Dieldrin - 0.001 | mg/kg | 14 days |
| TTLC | Dieldrin – 8.0 | mg/kg | 14 days |
| STLC | Dieldrin – 0.8 | mg/L | 14 days |
| TCLP | NE | mg/L | 14 days |
| Lead by EPA 6020 | Lead - 0.5 | mg/kg | 14 days |
| TTLC | Lead – 1,000 | mg/kg | 180 days |
| STLC | Lead – 5.0 | mg/L | 180 days |
| TCLP | Lead – 5.0 | mg/L | 180 days |
| PCBs by EPA 8082 | PCBs - 0.005 | mg/kg | 14 days |
| TTLC | PCBs – 50 | mg/kg | 14 days |
| STLC | PCBs – 5.0 | mg/L | 14 days |
| TCLP | NE | mg/L | 14 days |

Notes:

TTLC – total threshold limit concentration
STLC – soluble threshold limit concentration analyzed by WET or TCLP
WET – California waste extraction test
TCLP – toxicity characteristic leaching procedure
NE – not established

# APPENDIX H

# COMMUNITY PROFILE REPORT

# APPENDIX I

# DTSC FACT SHEET

# APPENDIX J

# TRANSPORTATION PLAN

# APPENDIX J

## TRANSPORTATION PLAN FOR OFF-SITE DISPOSAL

**Gilroy Unified School District**
**Brownell Middle School Modernization Project**
**Gilroy, Santa Clara County, California**

This transportation plan has been prepared on behalf of the Gilroy Unified School District for the excavation and offsite disposal of approximately 360 cubic yards of soil impacted with organochlorine pesticide (OCP), lead, and polychlorinated biphenyls (PCBs) located at 7800 Carmel Street in Gilroy, Santa Clara County, California (Project Site). The Project Site is identified on **Plate J-1: Site Location** and **Plate J-2: Site Map**.

This transportation plan contains the following sections:



## 1.0 Background

The Gilroy Unified School District plans to modernize the existing Brownell Middle in three phases. When completed the modernization project will consist of approximately 37 classrooms designed for approximately 1,000 students.

Padre completed a Preliminary Environmental Assessment (PEA) dated May 2019 which identified OCPs, arsenic, lead, and PCBs in soil above recommended screening levels (RSLs) or ambient background concentrations.

Based on the construction schedule and location for planned modernization activities, the arsenic impacted soil located in the northeast portion of the Project Site was addressed as part of a soil management plan (SMP) and removed as a COC.

The planned Removal Action will be implemented under the oversight of the California Department of Toxic Substances Control (DTSC). All removal, transportation and disposal activities will be performed in accordance with all applicable federal, state, and local laws, regulations, and ordinances.

## 2.0 Soil Staging and Storage

Excavated soil generated during Phase 1 of the RA will be temporarily stored in three, 20 cy bins that will be situated near the excavation. During non-excavation hours, the soil bins will be covered and locked at the end of each workday.

Excavated soil generated during Phase 2 and 3 will be staged near the central portions of the Project Site. Based on the estimated volume of soil to be excavated during each phase (105 and 210 cy, respectively), the generated stockpiles will each contain less than 250 cy of soil. During non-excavation hours, the excavated soil stockpile will be covered with plastic sheeting to prevent dust generation and/or run-off during rain events. Additional field applications may involve installation of other physical barriers that minimize the movement of materials from the Project Site by wind, water, or any other mechanism.

### 2.1 Waste Segregation

Each soil bin and stockpile will be labeled and sampled for waste characterization and classification per the requirements of the waste disposal facility. One four-point composite soil sample will be collected from each stockpile and submitted to the analytical laboratory to be chemically analyzed for OCPs, CAM 17 metals, PCBs, VOCs and TPH, and any additional analyses as required by the permitted waste disposal facility.

### 2.2 Waste Characterization

Excavated soil generated during Phase 1 of the RA will be temporarily stored in 20 cy bins pending waste characterization. Based on the estimated volume of soil to be excavated during Phase 1 (45 cy), three soil bins will be utilized. Each bin will be labeled, and one soil sample from each bin will be collected and made into a 3-point composite by the analytical for waste characterization.

Excavated soil generated during Phase 2 and 3 will be stockpiled onsite pending waste characterization. Based on the estimated volume of soil to be excavated during each phase (105 and 210 cy, respectively), the generated stockpiles will each contain less than 250 cy of soil. Each stockpile will be labeled and sampled for waste characterization by collecting one 4-point composite soil sample from each stockpile. Waste characterization samples from the bins and stockpiles will be chemically analyzed at a minimum for the following constituents, or as required by the permitted waste disposal facility:

- OCPs by U.S. EPA Method 8081A;
- CAM 17 Metals by U.S. EPA 6010/7000 series;
- PCBs by U.S. EPA Method 8082;
- Total petroleum hydrocarbons (TPH) by U.S. EPA Method 8015M; and
- Volatile organic compounds (VOCs) by U.S. EPA Method 8260.

Waste classification and landfill approval will be obtained prior to transporting soil off the Project Site. If detected concentrations of COC do not exceed the California total threshold limit concentration (TTLC), then the soil will be disposed of as a non-hazardous waste. If detected concentrations of COC exceed the TTLC, then the soil will be classified as a hazardous waste. The soil sample is then analyzed for the soluble threshold limit concentration (STLC) by the California Waste Extraction Test (WET) or the toxicity characteristic leaching procedure (TCLP), depending on the acceptance criteria of the landfill facility. If detected concentrations of COC exceed the STLC/TCLP then the soil will be classified as a RCRA-hazardous waste. The values for waste characterization are listed below:

| Compound | TTLC | STLC | TCLP |
|---|---|---|---|
| Chlordane | 2.5 mg/kg | 0.25 mg/L | 0.03 mg/L |
| Dieldrin | 8.0 mg/kg | 0.8 mg/L | -- |
| Lead | 1.0 mg/kg | 5.0 mg/L | 5.0 mg/L |
| PCBs | 50 mg/kg | 5.0 mg/L | -- |

The District will then be required to obtain a California EPA temporary identification number for the disposal of the waste. Persons who generate, transport or offer to transport, treat, store, or dispose of hazardous waste generally must have an identification (ID) number, which is used to identify the hazardous waste handler and to track the waste from its point of origin to its final disposal (referred to as “cradle to grave”). Instructions on how to obtain a temporary ID number can be found at the DTSC website: www.dtsc.ca.gov/IDManifest/index.cfm#identification(ID)Numbers.

## 3.0 Decontamination Procedures

Excavation equipment, transportation vehicles, and personnel leaving the exclusion zone will enter the decontamination zone. The decontamination zone will be used to remove soil, debris, and dust from equipment, transportation vehicles, and personnel prior to leaving the work zones. The decontamination of equipment and transportation vehicles includes dry and wet methods. Dry methods are the primary means of decontamination and consist of brushing and scraping to remove soil, debris, and dust. If dry methods are not effective, wet methods may be used such as steam cleaning and/or pressure washing. Washtubs with soap and water and rinse tubs will be provided for the cleaning of re-useable hand-held equipment.

Decontamination of personnel may include the removal and disposal of PPE (i.e. tyvek suites, rubber gloves, etc.). Disposable equipment intended for one-time use will be package for proper disposal.

Prior to leaving the Project Site all truck loads will be inspected to ensure that the exterior of each truck is clean and clear of excess soil and debris, and that each truck load is properly covered. Each truck load will maintain the necessary documents for transport and disposal of the waste. A documentation of each truckload will be recorded in the field logbook, which will be maintained for the duration of the removal action activities.

## 4.0 Estimated Number of Truckloads

Excavated soil is transported and disposed of by weight (i.e., tonnage). Cubic-yards of soil are converted to tons by multiplying the in-situ soil volume by an expansion factor of 1.1, and a conversion factor 1.5 to obtain the soil amount in tons.

Where as:

- In-situ soil volume (cy) x (expansion factor) x (conversion factor) = tons
- 360 cy x 1.10 (expansion factor) x 1.5 (conversion factor) = 594 tons.
- 594 tons ÷ 20 tons per load = 30 truckloads.

## 5.0 Requirements of Transporters

The removal contractor will be responsible for subcontracting with a qualified and licensed waste transporter. The selected waste transporter will be a California Registered Hazardous Waste Hauler and will be fully licensed and insured to transport non-hazardous and/or hazardous soil (if necessary). The transporter will provide the environmental consultant with a current copy of their California Registered Hazardous Waste Transporter certification and proof of insurance. While onsite every driver will present a current driver's license and proof of insurance (if requested) to the Project Manager and/or the DTSC representative.

## 6.0 Traffic Control Procedures

For Phase 1 and 2 of the RA, trucks will enter and exit the Project Site from Carmel Street. For Phase 3, truck will enter and exit the Project Site from Hanna Street. It appears that one to two trucks can be staged onsite, while waiting to be loaded. Additional trucks may be staged off-site at a location to be determined by the contractor. Trucks will be directed to the loading area. While onsite, all vehicles will be required to maintain slow speeds (i.e., less than 5 mph) for safety purposes and for dust control measures. After loading, the trucks will proceed to the “Decon Area” for final inspection and authorization of waste manifests.

## 7.0 Truck Loading Procedures

The following loading procedures will be followed by the removal contactor:

- The soil will be loaded into trucks in the exclusion zone;
- The loader operator will take care not to spill soil outside the trucks container compartment(s);
- Water will be applied for dust control purposes during loading operations as needed;
- All loads will be covered;
- The trucks will be inspected and decontaminated by brushing and scraping to remove soil and dust. If dry methods are not effective, wet methods may be used such as pressure washing;
- Generated soil from decontamination activities will be collected using hand tools and or mechanical equipment and returned to the stockpile staging area;
- Each truck shipment will be checked for the proper shipping documents (waste manifests, licenses, insurance and transportation plan); and
- Each truck shipment will be recorded in the field logbook.

## 8.0 Shipment Documentation

Non-Hazardous Waste. For any excavated soil that is profiled as non-hazardous waste, a proper shipping document (such as bill of lading, weigh ticket, invoice) of the hauler will be used to document and accompany each truck shipment. The removal contractor will maintain a copy of the shipping document for each truckload onsite until completion of the removal action.

Hazardous Waste Shipment. For any excavated soil that is profiled as a hazardous waste, the Uniform Hazardous Waste Manifest form will be used to document the movement of hazardous waste soils from the point of generation to the point of ultimate disposition. Prior to transporting the excavated soil off-site, an authorized representative of the District or its designated representative will sign each hazardous waste manifest. The hazardous waste hauler will sign the manifest and distribute one signed copy to the removal action contractor’s site manager. The removal action contractor’s site manager will maintain a copy of the hazardous waste manifest for each truckload on-site until completion of the removal action.

## 9.0 Disposal Facilities

Based on the PEA soil analytical results and proposed excavation activities, the excavated soil is anticipated to be disposed of as a non-hazardous waste. The following waste facilities have been identified to accept and store and/or treat non-hazardous soil generated from the removal activities:

<u>Landfill Facility (Non-Hazardous Waste)</u>

John Smith Road Landfill
2650 John Smith Road
Hollister, California 95023
(831) 637-4515

Kirby Canyon Recycling and Disposal Facility
910 Canyon Creek Golf Drive
Coyote (in San Jose), California 95037
(408) 779-2206

In the event that waste characterization identifies that the soil is required to be disposed of as a non-RCRA hazardous waste, the following waste facilities have been identified to accept and store and/or treat non-RCRA hazardous soil generated from the removal activities:

<u>Landfill Facility (Hazardous Waste)</u>

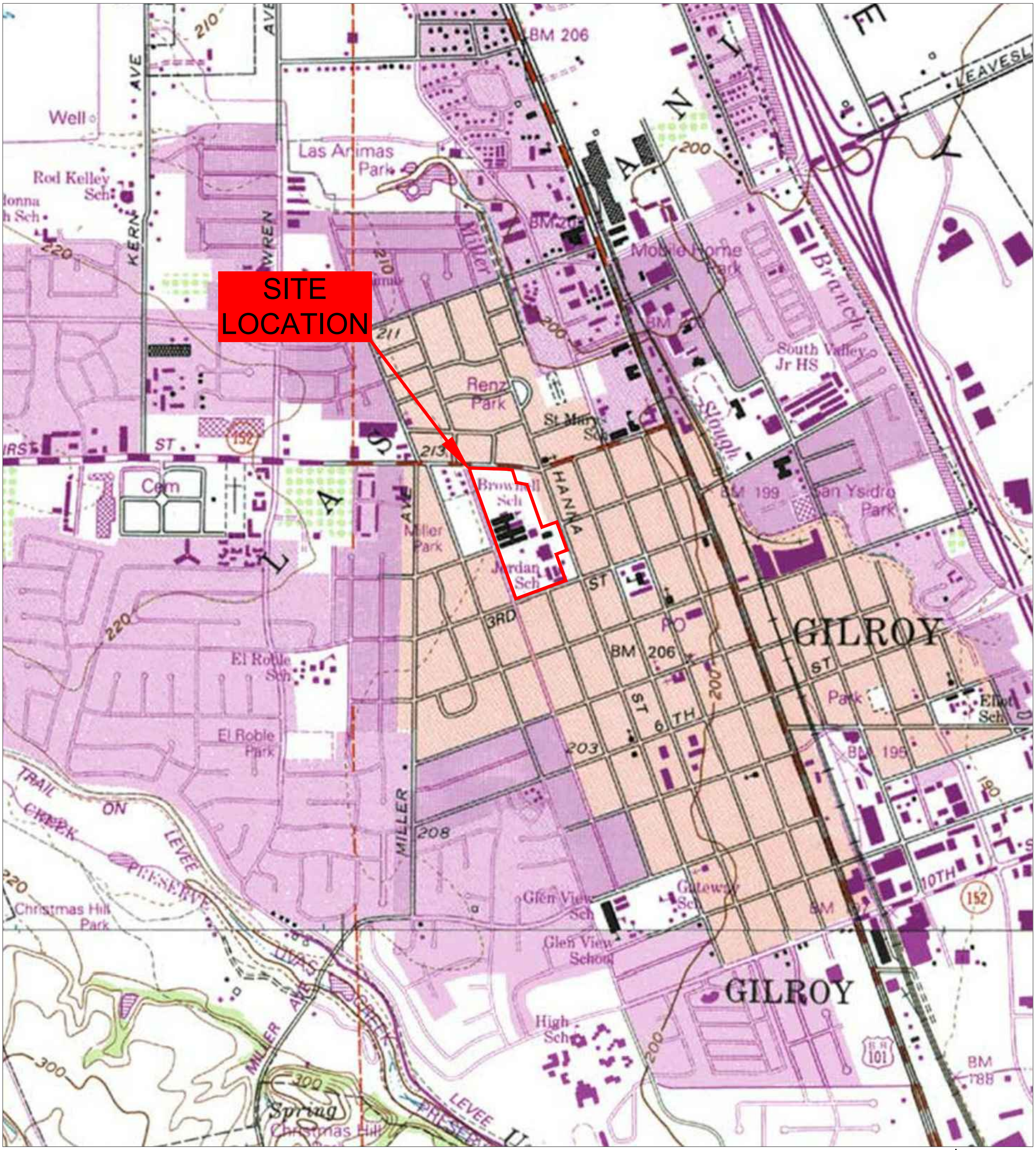
Waste Management, Kettleman Hills (Hazardous Waste Facility)
35251 Old Skyline Blvd
Kettleman City, California 93239
(866) 909-4458

## 10.0 Contingency Plan

The waste hauler is required to have a contingency plan prepared for emergency situations (vehicle breakdown, accident, waste spill, waste leak, fire, explosion, etc.) during transportation of excavated soils from the Project Site to the disposal facility. The selected transport contractor will provide to the Project Site Manager the name, contact and phone numbers of their Emergency Response Contractor (ERC).

In the event of a spill, accident, or breakdown, the transport driver will stay with the truck until law enforcement, California Highway Patrol, or other official assistance arrives. The driver will contact their dispatcher who will in turn contact the ERC. The ERC is responsible for contacting all the appropriate outside agencies based on the knowledge of existing conditions (e.g., law enforcement, Caltrans, RWQCB, State or County Health Departments, California Office of Emergency Services, etc.).

# PLATES




U.S.G.S. 7.5 MINUTE QUADRANGLE
GILROY, 1955 (photorevised 1993)

0 1500'
SCALE

**padre** associates, inc.
ENGINEERS, GEOLOGISTS &
ENVIRONMENTAL SCIENTISTS

BROWNELL MIDDLE SCHOOL
GILROY UNIFIED SCHOOL DISTRICT
7800 CARMEL STREET
GILROY, SANTA CLARA COUNTY, CALIFORNIA

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/1/19 | AC | AJK |

PLATE J-1

**SITE LOCATION**


padre associates, inc.
ENGINEERS, GEOLOGISTS &
ENVIRONMENTAL SCIENTISTS

GOOGLE EARTH IMAGERY (05/18)

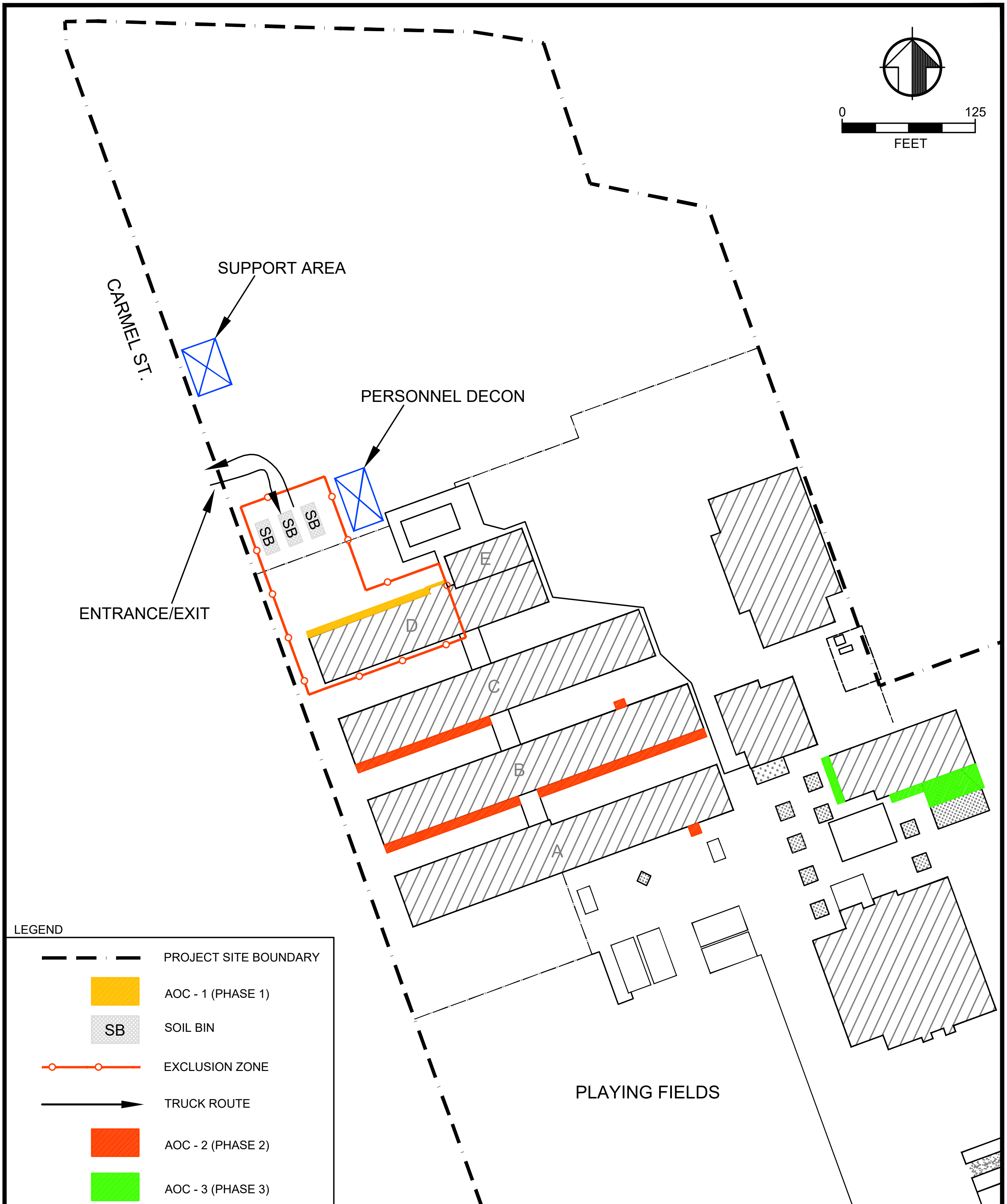
0 250
FEET

*BROWNELL MIDDLE SCHOOL*
*GILROY UNIFIED SCHOOL DISTRICT*
*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/1/19 | AC | AJK |

PLATE J-2

**SITE MAP**

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*7800 CARMEL STREET*
*GILROY, SANTA CLARA COUNTY, CALIFORNIA*

| PROJECT NO. | DATE | DR. BY | APP. BY |
|---|---|---|---|
| 1801-0725 | 10/7/19 | AC | AJK |

PLATE J-3

**WORK ZONES**

# OPTION #1

# TRANSPORTATION ROUTE

# TO

# JOHN SMITH ROAD LANDFILL

**Option #1: Route to John Smith Road Landfill**

A highway route has been identified for transportation of soil from the Project Site to the John Smith Road Landfill located in Hollister, California. The selected route is the most direct and will provide the least risk of exposure to surrounding communities. None of the roadways selected are listed with the California Highway Patrol as prohibited for hauling non-hazardous waste. The transportation route to the landfill is described below and illustrated on the associated map.

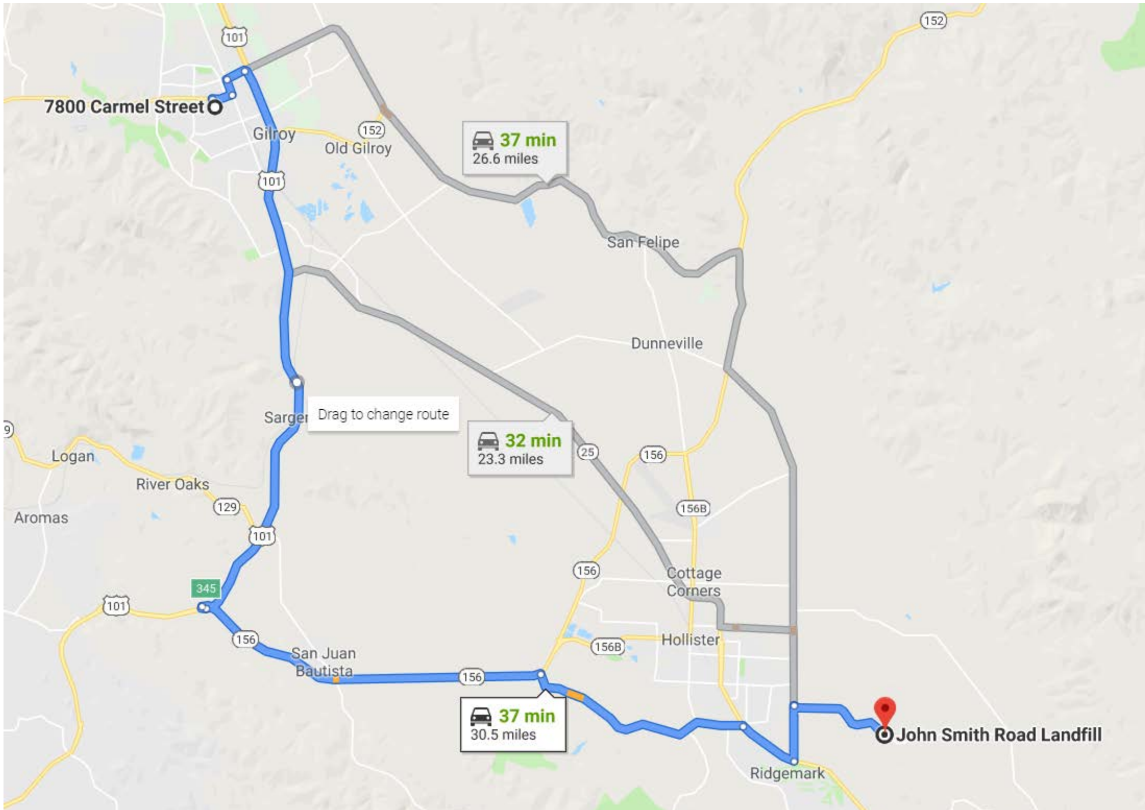
**Route to John Smith Road Landfill, 2650 John Smith Road, Hollister, CA (non- hazardous, Class II, waste facility):**

1. Loaded trucks will exit from the Project Site's west gate turn RIGHT on Carmel Street;
2. Head north on Carmel Street (0.2 mi);
3. Turn RIGHT onto 1st Street (0.4 mi);
4. 1st Street becomes Monterey Road (0.3 mi)
5. Turn RIGHT onto Leavesley Road (0.4 mi);
6. Merge onto CA 152E / US-101 N (12.1 mi);
7. Take EXIT 345 for CA-156 toward San Juan Bautista/Hollister (0.2 mi);
8. Keep RIGHT at the fork and merge onto CA-156 E (7.5);
9. Turn RIGHT onto Union Road (4.8 mi);
10. Turn RIGHT onto CA-25 E (1.3 mi);
11. Turn LEFT onto Fairview Road (1.1 mi);
12. Turn RIGHT onto John Smith Road (2.2 mi);

**Arrive at 2650 John Smith Road, Hollister, CA 95023**

Total trip approximately 30.5 miles; 37 min.

## Route to John Smith Road Landfill, Hollister, CA.



# OPTION #2

# TRANSPORTATION ROUTE

# TO

# KIRBY CANYON RECYCLING AND DISPOSAL FACILITY

**Option #2: Route to Kirby Canyon Recycling and Disposal Facility**

A highway route has been identified for transportation of soil from the Project Site to the Kirby Canyon Recycling and Disposal Facility located in Morgan Hill, California. The selected route is the most direct and will provide the least risk of exposure to surrounding communities. None of the roadways selected are listed with the California Highway Patrol as prohibited for hauling non-hazardous waste. The transportation route to the landfill is described below and illustrated on the associated map.

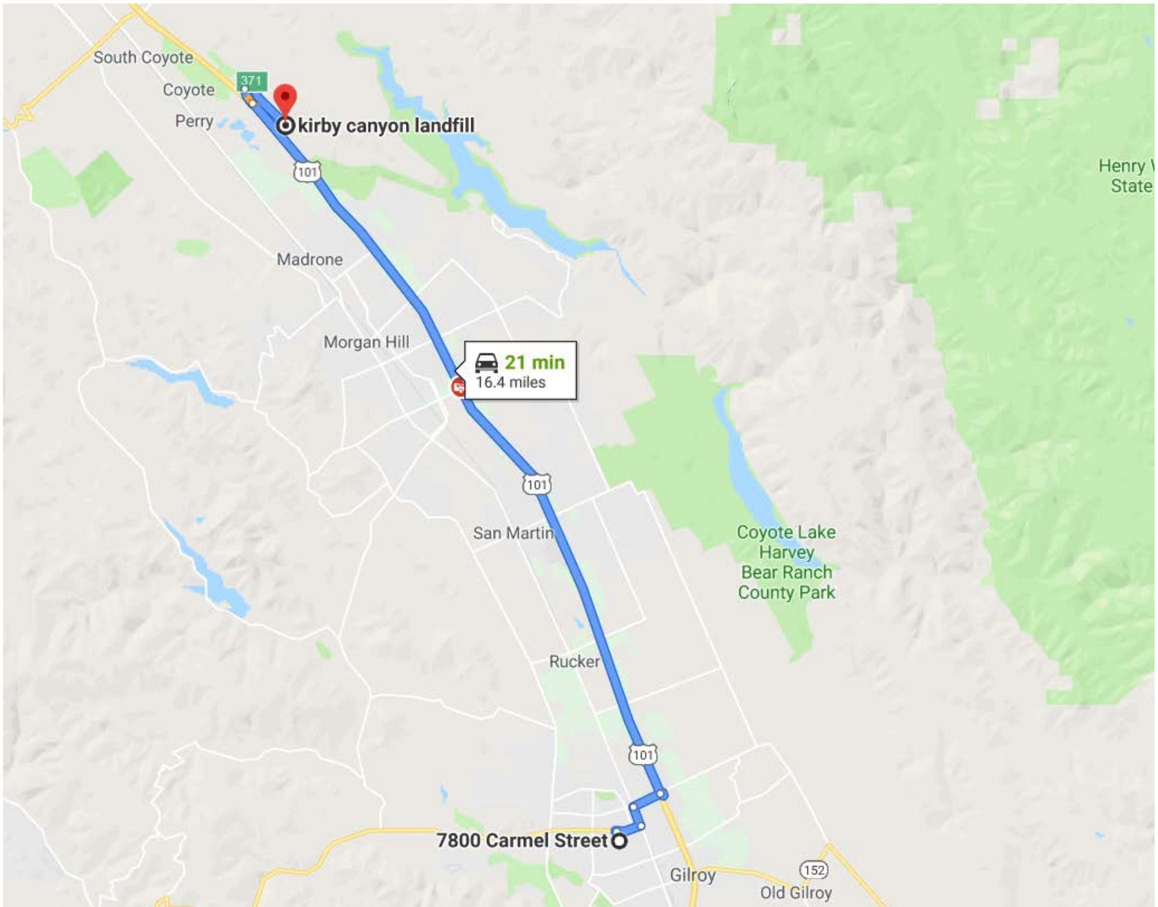
**Route to Kirby Canyon Recycling and Disposal Facility, 910 Canyon Creek Golf Drive, Coyote, CA (non- hazardous, Class II, waste facility):**

1. Loaded trucks will exit from the Project Site's west gate turn RIGHT on Carmel Street;
2. Head north on Carmel Street (0.2 mi);
3. Turn RIGHT onto 1st Street (0.4 mi);
4. 1st Street becomes Monterey Road (0.3 mi)
5. Turn RIGHT onto Leavesley Road (0.4 mi);
6. Turn RIGHT take US-101 N onramp (0.2 mi);
7. Merge onto US-101 N (13.5 mi);
8. Take EXIT 371 for Coyote Creek Golf Drive (0.3 mi);
9. Turn RIGHT onto Coyote Creek Golf Drive (1.0 mi);

**Arrive at 910 Canyon Creek Golf Drive, Coyote, CA**

Total trip approximately 16.4 miles; 21 min.

## Route to Kirby Canyon Recycling and Disposal Facility, Morgan Hill, CA.



# OPTION #3

# TRANSPORTATION ROUTE

# TO

# WASTE MANAGEMENT, KETTLEMAN HILLS

**Option #3: Waste Management, Kettleman Hills**

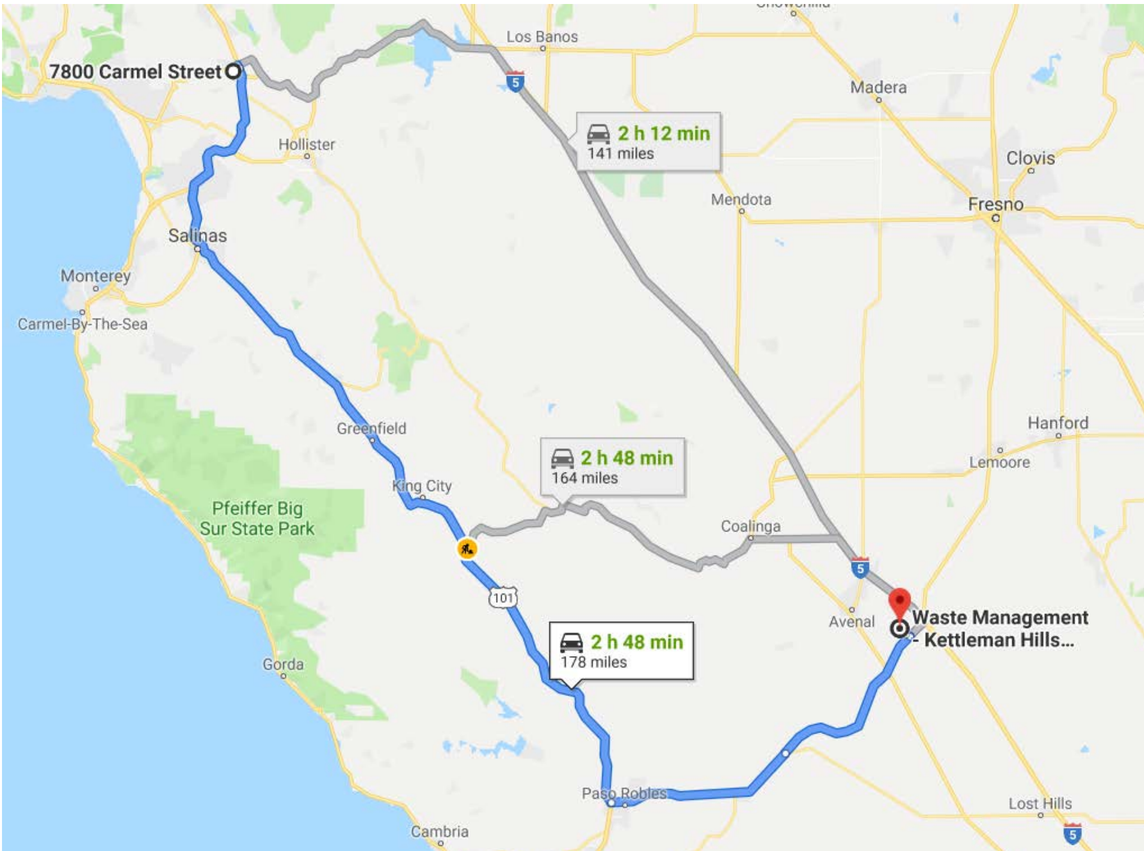
A highway route has been identified for transportation of soil from the Project Site to the Kettleman Hills Hazardous Waste Facility located in Kettleman Hills, California. The selected route is the most direct and will provide the least risk of exposure to surrounding communities. None of the roadways selected are listed with the California Highway Patrol as prohibited for hauling non-hazardous waste or hazardous waste. The transportation route to the landfill is described below and illustrated on the associated map.

**Route to Kettleman Hills Hazardous Waste Facility, 35251 Old Skyline Boulevard, Kettleman Hills, California (Class I hazardous waste facility):**

1. Loaded trucks will exit from the Project Site's west gate turn RIGHT on Carmel Street;
2. Head north on Carmel Street (0.2 mi);
3. Turn RIGHT onto 1st Street (0.4 mi);
4. 1st Street becomes Monterey Road (0.3 mi)
5. Turn RIGHT onto Leavesley Road (0.4 mi);
6. Merge onto US-101 S towards Los Angeles (125 mi)
7. Take EXIT 231B for CA-46 E toward Fresno/Bakersfield (0.2 mi);
8. Turn LEFT onto CA-46 E (25.0 mi);
9. Turn LEFT onto Old State Highway (0.7 mi);
10. Continue onto Skyline Road (0.2 mi);
11. Arrive at Kettleman Hills Hazardous Waste Facility, 35251 Old Skyline Boulevard, Kettleman Hills, California. (On the left)

Total trip approximately 178 miles; 2 hrs, 48 min.

## Route Map to Clean Harbors, Buttonwillow, CA.



# APPENDIX K

# DTSC ADVISORY ON IMPORTED CLEANFILL MATERIAL

# Information Advisory
# Clean Imported Fill Material

October 2001

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

***It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.***

*State of California*

*California Environmental Protection Agency*

## Executive Summary

*This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.*

## Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.dtsc.ca.gov.*

## Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

## Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

### Potential Contaminants Based on the Fill Source Area

| Fill Source: | Target Compounds |
|---|---|
| Land near to an existing freeway | Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310) |
| Land near a mining area or rock quarry | Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH |
| Agricultural land | Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A) |
| Residential/acceptable commercial land | VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191) |

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

## Recommended Fill Material Sampling Schedule

| Area of Individual Borrow Area | Sampling Requirements |
|---|---|
| 2 acres or less | Minimum of 4 samples |
| 2 to 4 acres | Minimum of 1 sample every 1/2 acre |
| 4 to 10 acres | Minimum of 8 samples |
| Greater than 10 acres | Minimum of 8 locations with 4 subsamples per location |

| Volume of Borrow Area Stockpile | Samples per Volume |
|---|---|
| Up to 1,000 cubic yards | 1 sample per 250 cubic yards |
| 1,000 to 5,000 cubic yards | 4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards |
| Greater than 5,000 cubic yards | 12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards |

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

### Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

## Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

*For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.*