Attachment D

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

REMOVAL ACTION WORKPLAN

SEDGWICK ELEMENTARY SCHOOL EXPANSION PROJECT 10480 FINCH AVENUE, CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA (Site Code: 204271)

Prepared for:
CUPERTINO UNION SCHOOL DISTRICT

JANUARY 2018

padre
associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

January 25, 2018
Project Number: 1601-3361

Department of Toxic Substances Control
School Property Evaluation and Cleanup Division
8800 Cal Center Drive
Sacramento, California 95826-3200

Attention: Mr. Jose Luevano, Project Manager

Subject: Removal Action Workplan, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California (Site Code 204271-11)

Dear Mr. Luevano:

Padre Associates, Inc. (Padre) on behalf of Cupertino Union School District has prepared this Removal Action Workplan (RAW) for the Sedgwick Elementary School Expansion Project, located at 10480 Finch Avenue in Cupertino, Santa Clara County, California (Project Site).

The RAW has been prepared based on the results of the Final Preliminary Environmental Assessment (PEA) dated July 2015, the Supplemental Site Investigation (SSI) dated January 2016, and the RAW scoping meeting held with the Department of Toxic Substances Control on July 20, 2017.

If you have any questions or comments please contact the undersigned at (916) 333-5920, Ext. 24.

Sincerely,

PADRE ASSOCIATES, INC.

PROFESSIONAL GEOLOGIST
ALAN CHURCHILL
No. 9378
Exp. 6-30-19
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: Travis J. Kirk, Director Facilities and Modernization, Cupertino Union School District

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Sedgwick Elementary School Expansion Project
Cupertino, Santa Clara County, California
(Site Code: 204271)

1.0 INTRODUCTION

Padre Associates, Inc. (Padre), on behalf of Cupertino Union School District (District), has prepared this Removal Action Workplan (RAW) for the Sedgwick Elementary School Expansion Project, located at 10480 Finch Avenue in Cupertino, Santa Clara County, California (Project Site). The Project Site is identified on **Plate 1-1**: Site Location and **Plate 1-2**: Site Plan.

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

- *Final Preliminary Environmental Assessment, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California* dated September 15, 2015; and
- *Supplemental Site Investigation, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California (Site Code 204271)* dated January 7, 2016.

The Preliminary Environmental Assessment (PEA) and Supplemental Site Investigation (SSI) defined the extent of organochlorine pesticides (OCPs) and lead in surface soil at the Project Site exceeding U.S. EPA Regional Screening Levels (RSLs) or DTSC-modified screening levels. Copies of the DTSC letters approving the PEA and SSI reports are 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).

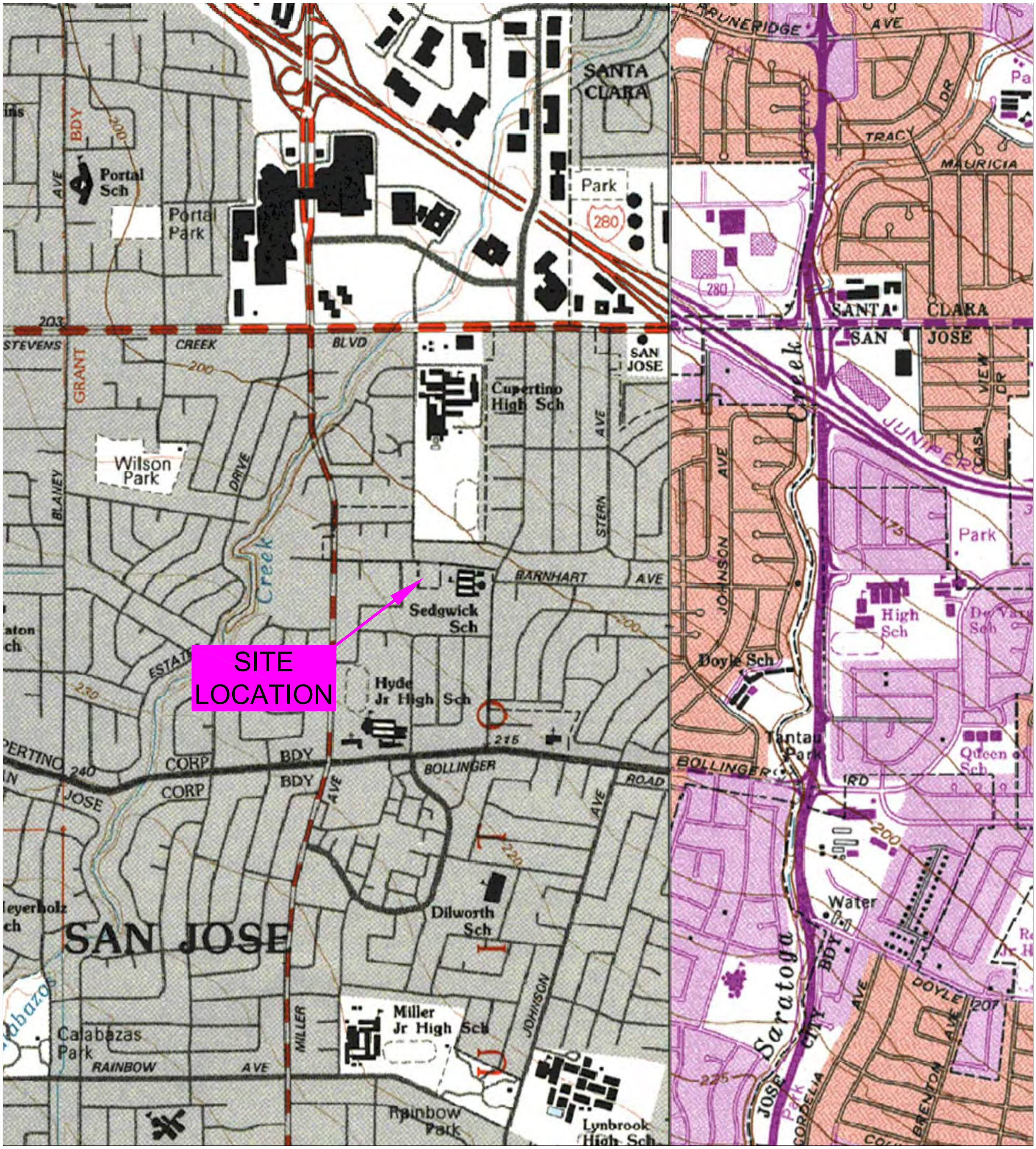
1.1 REMOVAL ACTION OBJECTIVES

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 purchased the Project Site in 2017 as part of the future expansion of Sedgwick Elementary School. At this time, no specific plans have been developed, however the expansion project will not result in the addition of classrooms or students to the existing elementary school. If needed, public water will be provided by the San Jose Water Company, and public sewer will be provided to the Project Site by the Sunnyvale Sanitation District.



U.S.G.S. 7.5 MINUTE QUADRANGLE
CUPERTINO, CALIFORNIA 1991

0 1500'
SCALE

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SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/13/17	AC	AJK

PLATE 1-1

SITE LOCATION

SOURCE: GOOGLE EARTH MAP DATED NOV. 2016

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SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/13/17	AC	AJK

PLATE 1-2

SITE PLAN

2.0 BACKGROUND

The Project Site consists of approximately 1.48 acres of residential land and, which is identified by the Santa Clara County Assessor's Office as Assessor Parcel Number (APN) 375-40-067. The Project Site is located adjacent to the northwest corner of the Sedgwick Elementary School property at 10480 Finch Avenue in Cupertino, Santa Clara County, California.

The Project Site was previously owned by F.A. Pestarino Jr. Trustee, and had been owned by the Pestarino family since the 1930s. The property historically contained a prune tree orchard. According to a review of available historical aerial photographs, the Project Site was planted as an orchard from at least 1939 through the late 1950s. The existing residential building is present in a 1956 aerial photograph.

In addition to the residence, the Project Site contains a workshop (wood-framed with corrugate metal roof) located at the southeast corner of the Project Site. Located south and adjacent to the workshop are two, small, single-room dwellings that are wood-framed and situated on concrete blocks.

Potential chemicals of concern (COC) identified at the Project Site included residual pesticides and arsenic in soils associated with historic agricultural use; residual pesticides associated with termiticides and ant control in surface and subsurface soil from historic and existing buildings; the potential for lead in soils from the weathering of lead-based paint from historic and existing buildings; the potential for polychlorinated biphenyls (PCBs) in soil from the weathering of caulking around old window frames of historic and existing buildings; and the potential presence of total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) in and soil and soil gas beneath the Project Site associated with a former gasoline underground storage tank (UST).

Padre completed a PEA for the Project Site dated September 2015, and an SSI dated January 2016. The purpose of the investigations 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 results of the PEA and SSI identified the presence of chlordane (pesticide) and lead in soil above residential screening levels. Therefore, further action was recommended to eliminate, reduce, and/or mitigate the identified COC at the Project Site. The results of the PEA and SSI are discussed further in Sections 2.7.2 and 2.7.3 of this report.

2.1 SITE LOCATION AND DESCRIPTION

The Project Site is located at 10480 Finch Avenue in the eastern portion of City of Cupertino, Santa Clara County, California. Cupertino is located approximately 36 miles southeast of downtown San Francisco and 8 miles southwest of downtown San Jose. Additionally, Cupertino is located in Santa Clara County and is bordered by the City of Sunnyvale and a small portion of the City of Los Altos to the north, the cities of Santa Clara and San Jose to the east, the City of Saratoga to the south, and unincorporated Santa Clara County to the west (*Apple Campus 2 Project EIR*, June 2013).

The Project Site is bordered to the north by Phil Lane, beyond which is residential property; to the east and south by Sedgwick Elementary School; to the west by residential property; and to the northwest by Finch Avenue, beyond which is residential property.

2.1.1 Site Name, Address and Size

Site Name: Sedgwick Elementary School Expansion Project

Site Address: 10480 Finch Avenue, City of Cupertino, California, 95014

Site Size: 1.48 acres

2.1.2 Contact Person, Mailing Address and Phone Number

Travis J. Kirk, Director of Facilities and Modernization
Cupertino Union School District
10301 Vista Drive
Cupertino, CA 95014
Phone No. (408) 252-3000

2.1.3 Assessor's Parcel Numbers and Map

The County of Santa Clara identifies the Project Site as Assessor's Parcel Number (APN): 375-40-067. A copy of the Assessor's Parcel Map is presented in **Appendix B**.

2.1.4 Ownership

The Project Site is owned by the Cupertino Union School District.

2.1.5 Township, Range, and Section

The Project Site is located in Section 19, Township 7 South, Range 1 West, of the Cupertino Quadrangle, California USGS 7½-Minute Series, Topographic Map (1991). Approximate latitude and longitude of the central area of the property are identified to be:

- Latitude (North) 37° 18' 56.5194" (37.3157)
- Longitude (West) -122° 0' 35.2794" (-122.0098)

2.2 OPERATIONAL HISTORY AND STATUS

The Project Site consists of 1.48-acres of residential use property, and is located adjacent to the northwest corner of the Sedgwick Elementary School property. Prior to the 2017 purchase of the Project Site by the District, the property had been owned by the Pestarino family since the 1930s. The property historically contained a prune tree orchard from at least 1939 through the late 1950s and the existing residential building is present in a 1956 aerial photograph. Additionally, the Project Site contains a workshop (wood-framed with corrugate metal roof) located at the southeast corner of the Project Site. Located south and adjacent to the workshop are two, small, single-room dwellings that are wood-framed and situated on concrete blocks. These dwellings were the original residential structures.

2.3 TOPOGRAPHY

Based on a review of the USGS 7.5-minute series topographic map Cupertino Quadrangle, California, 1991 (photorevised 1982), the Project Site lies at an approximate elevation of 205 feet above mean sea level (msl) near the center of the Project Site. The overall topographic gradient for the surrounding area is to the northeast. The Project Site is relatively flat with storm water runoff directed northerly towards storm drains located in the adjacent street.

Calabazas Creek is located approximately 1,600-feet northwest of the Project Site and flows in a northeasterly direction. Saratoga Creek is located approximately 0.75 miles west of the Project Site and flows in a northerly direction.

2.4 GEOLOGY AND HYDROGEOLOGY

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 fall into two sub-provinces: the ranges north of San Francisco Bay and those from the bay south to Santa Barbara County. The northern ranges lie east of the San Andreas Fault zone, whereas most of the southern ranges are 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. The northern Coast Ranges are higher than the southern where Solomon Peak located in Trinity County rises to an elevation of 7,581 feet, the highest point in the Coast Ranges (Norris and Webb, 1990).

According to the United States Department of Agriculture, National Resources Conservation Service, Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/), two soil types are identified for the Project Site. Soils located within the southeast half of the Project Site consist of Urban Land-Stevens Creek Complex located on 0 to 2 percent slopes. Native soils consist of sandy loam, silt loam, and silty clay loam. Soils in the northwest half of the Project Site consist of Urban Land-Elpaloalto Complex located on 0 to 2 percent slopes. Native soils consist of clay loam and silty clay loam. Both of these soils are well drained and runoff is slow.

A review of the State Water Resources Control Board's GeoTracker website (http://geotracker.waterboards.ca.gov), identified groundwater assessment activities that were conducted for a facility located approximately 0.56 miles northeast of the Project Site. Reportedly, the depth to first groundwater at the referenced site is greater than 80 feet bgs, and groundwater is inferred to flow in a northeast direction.

2.5 LAND USES, SENSITIVE RECEPTORS, ECOSYSTEMS AND CULTURAL RESOURCES

The Project Site is located at 10480 Finch Avenue in Cupertino and according to the City of Cupertino Zoning Map (April 2017) is zoned as R1-6 (single family residential).

Prior to the 2017 purchase of the Project Site by the District, the property had been owned by the Pestarino family since the 1930s. The property historically contained a prune tree orchard from at least 1939 through the late 1950s and the existing residential building is present in a 1956 aerial photograph. Additionally, the Project Site contains a workshop (wood-framed with corrugate metal roof) located at the southeast corner of the Project Site. Located south and adjacent to the workshop are two, small, single-room dwellings that are wood-framed and situated on concrete blocks. These dwellings were the original residential structures.

The Project Site is bordered to the north by Phil Lane, beyond which is residential property; to the east and south by Sedgwick Elementary School; to the west by residential property; and to the northwest by Finch Avenue, beyond which is residential property.

According to the *Final Santa Clara Valley Habitat Plan* dated August 2012, the Project Site is not located within an area of significant biological resource and no endangered or threatened species are found in the immediate vicinity of the Project Site. Additionally, no wetlands have been identified at the Project Site.

According to the *Cupertino General Plan Community Vision 2015 – 2040* (October 2015) there are no historic sites located within the immediate vicinity of the project. There are several structures in the City of Cupertino including schools, churches, and residences that are identified as historic sites.

There is a potential that prehistoric and historic resources could be located below the surface and may be encountered during the course of future construction activities. In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, an immediate evaluation of the find should be conducted by a qualified archaeologist (CEQA §15064.5 (f)).

2.6 METEOROLOGY

Cupertino is located at the southern end of the San Francisco Bay. The eastern part of the city, located in the Santa Clara Valley, is flat while the western part of the city slopes into the Santa Cruz Mountains. During the month of July the average low temperature is 54 degrees Fahrenheit (°F) and the average high temperature is 82 °F. During January the average low temperature is 39 °F and the average high temperature is 58 °F.

During the summer, there is a moderate flow of marine air through the lower passes of the mountains that frequently reach speeds of 20 miles per hour (mph) or more. The same pattern is also responsible for the light to moderate winds from the northwest that blow up the Santa Clara Valley on summer afternoons. In winter winds are predominantly southerly and are strongest at higher elevations. Precipitation averages only 16 inches in parts of the Santa Clara Valley, but over the mountains to the east it is as much as 30 inches.

2.7 PREVIOUS SITE ACTIONS

2.7.1 Phase I Environmental Site Assessment

Cornerstone Earth Group (Cornerstone), on behalf of David J. Powers & Associates, prepared the document titled *Phase I Environmental Site Assessment and Preliminary Soil Quality Evaluation, 10480 Finch Avenue, Cupertino, California* and dated July 1, 2014. Base on the findings of the Phase I Environmental Site Assessment (ESA), Cornerstone identified the following recognized environmental conditions (RECs):

- Historic agricultural use;
- Lead in soil related to the weathering of lead-based paint (LBP); and
- A former 500-gallon underground storage tank (UST) that was removed in 1996. Based on the result so the soil sampling performed during UST removal activities, the Santa Clara Valley Water District (SCVWD) issued a case-closure letter for the UST dated March 26, 1997 stating that *"Due to the low levels of hydrocarbons detected and the site location, Santa Clara Valley Water District staff believes that with time the residual pollution will naturally attenuate and does not require any further corrective action at this time."*

Since RECs were identified as part of the Phase I ESA, Cornerstone conducted preliminary soil assessment activities at the Project Site. Based on the historic agricultural use (orchard) at the Project Site and the age/construction of the existing structures, a total of sixteen surface soil samples were collected throughout the Project Site and chemically analyzed for the presence of pesticides, arsenic, lead, and mercury. Five of the soil samples were collected at the perimeter of the residence, and two soil samples were collected at the perimeter of the workshop. Below is summary of the analytical results:

- Chlordane was reported at concentrations up to 2,800 micrograms per kilogram (ug/kg);
- Arsenic was reported at concentrations ranging from 5.2 milligrams per kilogram (mg/kg) to 15 mg/kg; and
- Lead was reported at concentrations ranging from 9.0 mg/kg to 100 mg/kg.

Additionally, the soil assessment activities included the advancement of one drill hole using direct-push drilling technology to an approximate depth of 20 feet at the location of the former UST. Soil samples were collected from approximate depths of 8 feet and 12 feet, which were chemically analyzed for the presence of TPHg, benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl-tert butyl ether (MTBE). Reportedly, TPHg, BTEX, or MTBE concentrations were not identified in the soil sample collected from a depth of 8 feet below ground surface (bgs). However, TPHg, ethylbenzene, and total xylenes were identified at concentrations of 1,300 mg/kg, 27 mg/kg, and 180 mg/kg, respectively in the 12-foot soil sample.

2.7.2 Preliminary Environmental Assessment

A PEA was completed for the Project Site, and is documented in the Padre prepared report titled: *Preliminary Environmental Assessment, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California, September 15, 2015.*

The results of the PEA screening level risk assessment estimated the total risk from COPCs identified in soils at the Project Site to be 3.2×10^{-5}, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The total health hazard from COPCs identified in soils at the Project Site is estimated to be 0.46, which does not provide an increased health hazard (i.e., >1). Therefore, a response action to reduce and/or eliminate the COPCs identified in surficial soils at the Project Site is recommended.

Lead concentrations ranged from 9.0 to 310 mg/kg in soil samples collected throughout the Project Site. Using DTSC's lead risk assessment spreadsheet model (LeadSpread Version 8), exposure to the lead concentrations identified at the Project Site would result in a 90th percentile blood lead concentration of 8.0 micrograms per deciliter (µg/dl) in children, which exceeds the Office of Environmental Health Hazard Assessment (OEHHA) blood toxicity level of 1 µg/dl. Therefore, a response action to reduce or eliminate lead-impacted soil is recommended.

Arsenic concentrations ranged from 5.2 to 15 mg/kg in soil samples collected from across the Project Site. The arsenic data set consisted of four soil samples collected as part of the PEA, and 16 soil samples previously collected as part of a preliminary soil evaluation completed by others (Cornerstone, 2014). The four PEA soil samples were collected as step-out and step-down samples at the location of soil sample SS-6, which reported the highest Project Site arsenic concentration at 15 mg/kg. Arsenic concentrations reported for the PEA soil samples ranged from 5.7 to 13 mg/kg, indicating that arsenic concentrations in soil at this location do not present a potential "hotspot" for arsenic in soil. A statistical evaluation was performed by calculating the 95% Upper Confidence Limit (UCL) for the arsenic data set. The 95% UCL for arsenic in soil at the Project Site was calculated to be 10 mg/kg. A graphical evaluation completed by creating a normal probability plot of the arsenic data set. The shape of the plotted data presents a relatively normal distribution. Therefore, arsenic concentrations identified in surface soil at the Project Site are representative of ambient concentrations and further assessment and/or remedial action for arsenic in soil is not warranted.

Results of the soil gas assessment conducted at the Project Site identified low level concentrations of VOCs; however, none of the of the VOCs exceeded their respective human health screening levels. The results of the PEA screening level risk assessment for soil gas estimated the total risk to be 8.6×10^{-9}, which does not provide an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The cumulative hazard was estimated to be 0.0003, which does not provide a significant health hazard (>1). Therefore, further assessment and/or remediation regarding VOCs identified in soil gas at the Project Site is not warranted.

Due to elevated concentrations of OCPs and lead identified in surface soil around existing structures at the Project Site, Padre recommended a response action to reduce or eliminate the potential impact of these contaminants. The recommended remedial action is excavation, removal, and offsite disposal at an appropriate landfill. Prior to the response action, Padre recommended conducting a Supplemental Site Investigation (SSI) to further define chlordane and lead impacts around the structures.

DTSC approved the *Final PEA* report in a letter dated January 26, 2016. A copy of the Conceptual Site Model, data summary tables and associated plates from the PEA report is presented in **Appendix C.**

2.7.3 Supplemental Site Investigation

An SSI was completed for the Project Site, and is documented in the Padre prepared report titled: *Supplemental Site Investigation, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California, January September 15, 2015.*

The organochlorine pesticides chlordane, DDD, DDE, DDT, dieldrin, gamma-BHC (lindane), endrin heptachlor, heptachlor epoxide, and toxaphene were identified in surface soils at the Project Site. Using the highest concentration for each COC identified at the Project Site, the total risk index was estimated to be 3.3 x 10^{-5}, which provides an increased cancer risk of greater than 1 in 1,000,000 (>10^{-6}). Chlordane is the predominant pesticide of concern with the impacted areas identified to be located at the north, west and southeast perimeters of the main residence structure.

Lead concentrations ranged from 9.0 mg/kg to 310 mg/kg in soil samples collected across the Project Site which exceeds DTSC's screening level of 80 mg/kg. Using the 95% UCL (60 mg/kg), a risk assessment was performed using the DTSC lead risk assessment spreadsheet model (LeadSpread Version 8). Based on the LeadSpread output, exposure to the lead concentrations detected at the Project Site will result in a 90th percentile blood lead concentration of 0.8 µg/dl in children which is below OEHHA's blood toxicity level of 1 µg/l. However, a further review of lead in soil data identifies a group of six soil samples located near the workshop/single-room dwelling with concentrations of lead ranging from 83 mg/kg to 310 mg/kg. Therefore, a response action to reduce or eliminate the lead-impacted soil along the west and southwest side of the workshop/single-room dwelling is recommended.

Due to elevated concentrations of COC identified in surface soil around existing structures located at the Project Site, Padre recommended further action to reduce or eliminate the potential impact of these contaminants. The recommended remedial action is excavation, transportation and off-site disposal at an appropriate landfill.

DTSC approved the *Final SSI* report in a letter dated January 8, 2016. A copy of the data summary tables and associated plates from the SSI report is presented in **Appendix C.**

3.0 NATURE, SOURCE, AND EXTENT OF CONTAMINANTS

3.1 NATURE AND SOURCE OF CONTAMINANTS

The results of the PEA and SSI identified and confirmed the presence of chlordane 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.

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 300 cubic-yards (cy). The areas of concern (AOC) requiring a response action are presented on **Plate 3-1**. The vertical extent of soil contamination extends to depths of approximately 2.0 feet. The AOC has been designated into three sub-areas described below:

- AOC – A: Residence (approx. 240 cy);
- AOC – B: Outbuildings (approx. 50 cy); and
- AOC – C: Grass area (approx. 10 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 by 10% to 25% (expansion factor). Additionally, excavated soil is transported and disposed of by weight (i.e., tonnage). A rule of thumb for calculating dry weight for silty sand is to multiple the soil volume by 1.35 to obtain the soil amount in tons. Therefore, the calculated quantity of soil to be transported and disposed of at the appropriate landfill is calculated as follows:

- 300 cy (insitu) x 1.2 (expansion factor) x 1.35 (conversion factor) = 486 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 486 tons. Transporting soil using a truck and trailer combination would allow for approximately 22 tons per load. Therefore, the calculated quantity of truck and trailer loads is calculated as follows:

- 486 tons divided by 22 tons per load = 22 truck and trailer loads.

The locations of the removal action 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 7.7.2.

3.3 HEALTH EFFECT OF CONTAMINANTS

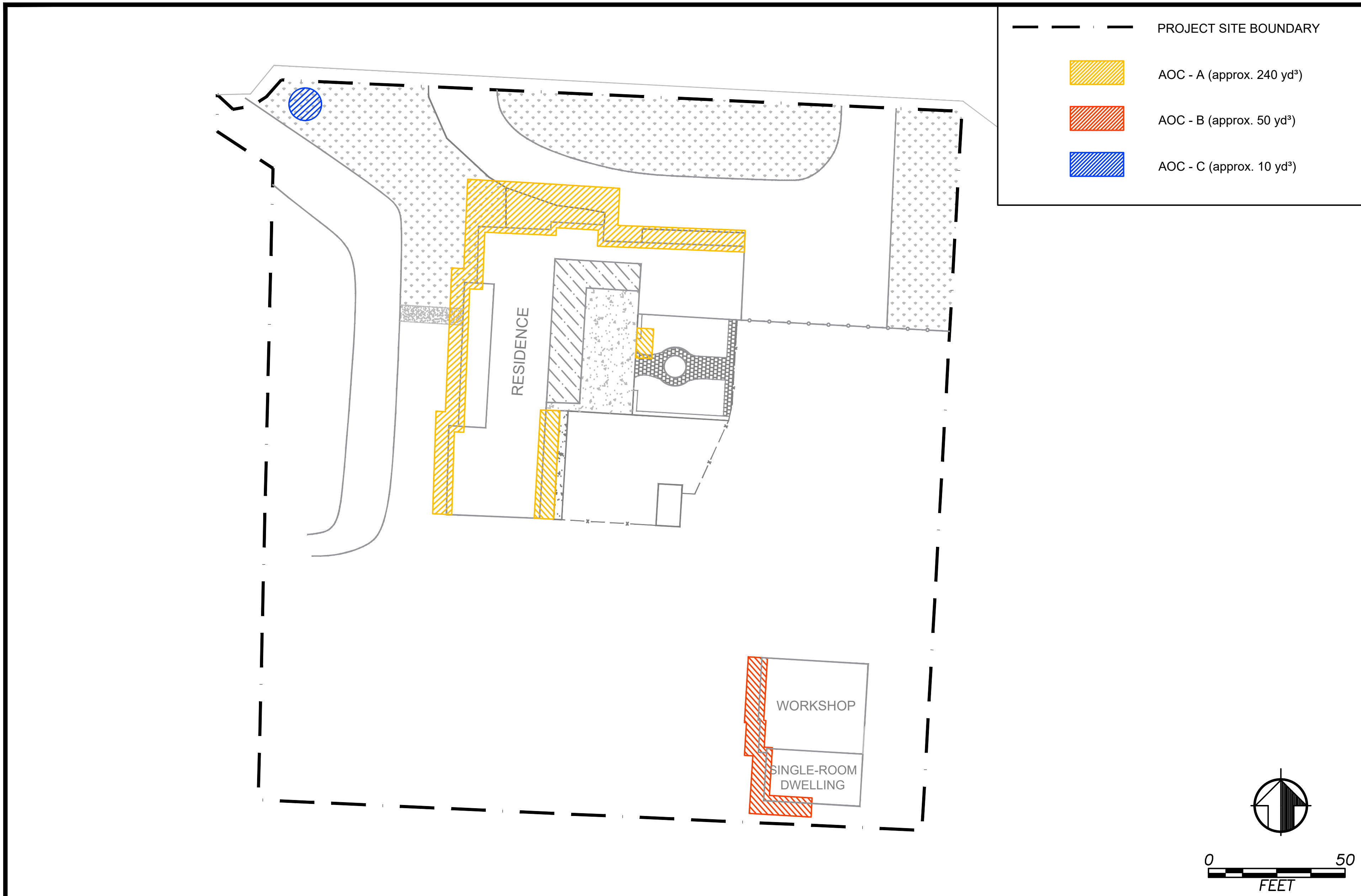
The identified COC and their health effects are discussed below:

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).

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 is presented in **Appendix C**.



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SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/28/17	AC	AJK

PLATE 3-1

AREAS OF CONCERN

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 results of the PEA human health screening-level evaluation identified the following COC in soil at the Project Site:

- Chlordane; and
- Lead.

The DTSC-modified screening levels or the U.S. EPA RSLs (if DTSC-modified screening levels are not available) were used to conduct a screening-level human health risk assessment using the residential land-use scenario. 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), which is DTSC's point of departure for managing risks. 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 Human Health Risk Assessment (HHRA) Note 3 (revised August 2017) the maximum detected chemical concentrations in soil were evaluated as potential exposure point concentrations (EPCs). 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 non-carcinogens, the chemical-specific hazard index is the ratio of the EPC to the screening level based on non-carcinogenic effects. 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 from OCPs identified in soils at the Project Site was estimated to be 3.3×10^{-5}, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The total health hazard from OCPs identified in soils at the Project Site was estimated to be 0.46, which does not present an increased health hazard (i.e., >1). Chlordane is the predominant pesticide of concern within the impacted areas which are identified to be located at the north, west and southeast perimeters of the main residence structure.

Lead concentrations in soil were compared to the OEHHA's residential screening level of 80 mg/kg. This risk-based soil concentration developed in DTSC's lead risk spreadsheet (LeadSpread 8) is based on the OEHHA incremental blood lead criterion. The value is meant to be implemented as an estimate of the EPC usually based on the 95 percent confidence limit on the arithmetic mean, not as a 'not to exceed' soil concentration.

Lead concentrations ranged from 9.0 mg/kg to 310 mg/kg in soil samples collected across the Project Site which exceeds DTSC's screening level of 80 mg/kg. Using the 95% UCL (60 mg/kg), a risk assessment was performed using the DTSC lead risk assessment spreadsheet model (LeadSpread Version 8). Based on the LeadSpread output, exposure to the lead concentrations detected at the Project Site will result in a 90th percentile blood lead concentration of 0.8 µg/dl in children which is below OEHHA's blood toxicity level of 1 µg/l. However, a further review of lead in soil data identifies a group of six soil samples located near the workshop/single-room dwelling with concentrations of lead ranging from 83 mg/kg to 310 mg/kg. Therefore, a response action to reduce or eliminate the lead-impacted soil along the west and southwest side of the workshop/single-room dwelling is recommended.

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	13	0.440 [(a)]
Lead	310	80 [(b)]

Notes:
mg/kg – milligrams per kilogram
(a) DTSC's HHRA Note 3 (August 2017)
(b) OEHHA LeadSpread Version 8.

4.1.1 Environmental Screening Risk Evaluation

A detailed ecological screening evaluation was not performed as part of the PEA because the Project Site has been developed as a residential property since the 1950s. 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 HSA-FY15/16-115) with DTSC on June 30, 2017. 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 and lead. 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	0.440 [(a)]
Lead	80 [(b)]

Notes:

mg/kg – milligrams per kilogram
(a) DTSC's HHRA Note 3 (August 2017)
(b) OEHHA LeadSpread Version 8.

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 300 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.

Effectiveness

- 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 $200,000 to $230,000.

5.2.2.3 Treatment

Bioremediation can be used to treat OCPs 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 in soil. The time to complete in-situ bioremediation activities for OCPs 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 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 cleanfill 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 preparation of a LUC are approximately $40,000 to $50,000, and O&M implementation costs are approximately $15,000 to $25,000 annually. In addition, environmental monitoring costs during construction activities would cost approximately $25,000 to $35,000. The planned demolition of the existing structures in preparation for new construction (structures, play fields) would result in significant soil disturbance and the potential for spreading contamination throughout the Project Site. Protecting workers from exposure to COC at the Project Site during demolition and construction activities would be problematic. Therefore, the establishment of ECs and ICs at the Project Site 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 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 300 cy of soil containing elevated concentrations of chlordane and lead at the Project Site.
- Stockpile excavated soil in quantities of approximately 150 cy per stockpile 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 stockpiled soil to the appropriate disposal facility; and
- Prepare 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 $192,500. A summary of the estimated cost for the removal action is outlined below:

• DTSC School Oversight Cost:	$ 40,000.
• Preparation of a Removal Action Workplan (RAW):	$ 15,000.
• Pre-construction Activities:	$ 5,000.
• Environmental Contractor (air monitoring, soil sampling, waste profiling):	$ 35,000.
• Removal Contractor (excavation, stockpile, loading):	$ 25,000.
• Soil Transport and Disposal (50% Class I):	$ 36,500.
• Soil Transport and Disposal (50% Class II):	$ 16,000.
• Site Restoration:	$ 5,000.
• Preparation of a Removal Action Completion Report:	$ 15,000.
Total Cost Estimate:	$192,500.

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 August 2017. 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:

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

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

$$\text{Chlordane:}\quad 0.00013\ \text{mg/m}^3 = \frac{13\ \text{mg/kg x }10\ \text{mg/m}^3}{1{,}000{,}000\ \text{mg/kg}}$$

$$\text{Lead:}\quad 0.0031\ \text{mg/m}^3 = \frac{310\ \text{mg/kg x }10\ \text{mg/m}^3}{1{,}000{,}000\ \text{mg/kg}}$$

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. 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	0.00013 mg/m^3	0.5 mg/m^3
Lead	0.0031 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.

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 F**.

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 will be stockpiled onsite pending waste characterization. Based on the estimated volume of soil to be excavated (300 cy), the generated stockpiles will each contain approximately 150 cy of soil. Each stockpile will be labeled and sampled for waste characterization by collecting one 4-point composite soil sample from each stockpile, and chemically analyzed for the following constituents, or as required by the permitted waste disposal facility:

- OCPs (EPA Method 8081A); and
- CAM 17 Metals (EPA Method 6010/7000 series).

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
Lead	1,000 mg/kg	5.0 mg/L	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.

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. When the lead agency approves or determines to carry out a CEQA-exempt project, the agency may file a Notice of Exemption (NOE).

NOE is a brief notice which may be filed by an agency after it has decided to carry out or approve a project and has determined that the project is exempt from CEQA as being a certified State regulatory program activity, statutory exemption, categorical exemption, or general rule exemption. While filing of a signed NOE with the State Clearinghouse (SCH) or a County Clerk, as appropriate, for an approved project by the lead agency or project proponent is generally not required, filing for certain housing projects approved or carried out by a local agency is mandatory. The statute of limitation period for legal challenges to the agency's exemption decision is 35 days with a filed NOE and 180 days without a filled NOE.

The proposed RA at the Project Site is a CEQA project with DTSC as the lead agency. Two primary CEQA exemptions available for DTSC RAW-approval actions are: Class 30 Categorical Exemption, as specified in California Code of Regulations, Title 14, section 15330 (14 CCR 15330); and General Rule Exemption, as specified in California Code of Regulations, title 14, section 15061(b)(3) (14 CCR 15061).

<u>Exemption Status</u>: (Select one that is applicable)

☒ a. Class 30 Categorical Exemption as specified in 14 CCR 15330

☐ b. General Rule Exemption, as specified in 14 CCR 15061

<u>Reasons Why Project is CEQA-Exempt</u>: (Select all that are applicable and add reference, source or section number to support each selected reason)

☒ a. Special Qualifications of Class 30 Categorical Exemption (14 CCR 15330): (**Select all that are applicable**)

☐ (1) The project is a minor cleanup action to be taken to prevent, minimize, stabilize, mitigate or eliminate the release or threat of release of a hazardous waste or hazardous substance. The estimated project cost is $200,000 which falls well below the cost criteria of $1 million. The estimated cost includes costs for preparation, approval and implementation of the RAW; implementation of an approved operation and maintenance plan (if applicable); administration of a land use covenant (if applicable), and DTSC oversight. (See Sections 5.3 and 5.4)

☐ (2) The project is consistent with applicable state and local environmental permitting requirements including, but not limited to, (**Select all that are applicable**)

☒ (a) offsite disposal (See Section 7.8);

☐ (b) air quality rules such as those governing volatile organic compounds (VOCs);

☒ (c) water quality standards, e.g., waste discharge requirements or storm water discharge requirements by the State Water Resources Control Board (SWRCB)or an appropriate Regional Water Quality Control Board (RWQCB) (See Section 6.4); and

☐ (d) (Type in site-specific situations) (not applicable)

and approved by the regulatory body with jurisdiction over the site.

☒ (3) The project will not require the onsite use of a hazardous waste incinerator or thermal treatment unit. (See Section 5.3)

☒ (4) The project will not require the relocation of residences or businesses. (See Sections 5.3 and 7.2.4)

☒ (5) The project will not involve the potential release into the air of volatile organic compounds (VOCs) as defined in Health and Safety Code section 25123.6, except for small scale in situ soil vapor extraction and treatment systems which have been permitted by the local Air Pollution Control District (APCD) or Air Quality Management District (AQMD). (See Section 6.3)

☐ b. General Exceptions to Categorical Exemptions of All Classes (14 CCR 15300.2): (**Select all that are applicable**)

☐ (1) The cumulative impact of successive projects of the same type on the same place, over time is not significant. (See Section 5.3)

☐ (2) There is no reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances, because of the relatively small volume (approximately ___ CY), low level of work activity (minor excavation and disposal), short project duration (approximately five working days), and control measures associated with excavation and off-site disposal of the impacted soils at the Project Site. (See Section 5.3)

☐ (3) There is no possibility that the project may result in damage to scenic resources within a designated State scenic highway.

☐ (4) The project is not located on a site which is included on any list compiled pursuant to Government Code section 65962.5. (See Section 2.1.3, Cortese List)

☐ (5) The project will not cause a substantial adverse change in the significance of a historical resource. (See Section 2.5)

☐ c. The Project Site is not in an area of biological or cultural resource significance. (See Sections 2.5, 7.2.5 and 7.2.6)

☐ d. The RAW has been prepared to support the decision for a LUC at the Project Site. The LUC will restrict land uses of the Project Site to school operations and related day care center activities only and prohibit use of the Project Site as a residence, hospital, or other similar sensitive land use. The LUC will also require O&M activities of annual inspection and reporting for DTSC's oversight, to ensure the integrity and long-term protectiveness of the LUC. This LUC removal action will not have a significant effect on the environment because the LUC will not result in any physical activities at the Project Site.

☐ e. As required by California Code of Regulations, title 22, division 39, section 67391.1(b), the RAW clearly (1) specifies that the limitations or controls will be incorporated into an appropriate land use covenant; and (2) includes a description of the implementation and enforcement provisions, including, but not limited to, frequency of owner inspections, frequency of DTSC inspections, owner reporting requirements; necessary to ensure the integrity and long-term protectiveness of the land use covenant.

☐ f. The project is not subject to CEQA because it can be seen with certainty that there is no possibility that the project may have a significant effect on the environment, because of the relatively small volume (approximately ___ CY), low level of work activity (minor excavation and disposal), short project duration (approximately five working days), and control measures associated with excavation and off-site disposal of the impacted soils at the Site. The project is covered by the General Rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment.

As a result, it has been preliminarily determined that this cleanup action is a Class 30 Action, to be taken to minimize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance.

As part of its approval process for the project, DTSC has prepared a Draft Notice of Exemption. Upon approval of this RAW, DTSC will file the NOE with the Governor's Office of Planning and Research (OPR). A copy of the DTSC NOE is presented in **Appendix D**.

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 approximately 0.08 acres. 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. A responsiveness summary, including DTSC's response to all public comments received, will be found in Appendix E of the Final RAW, and placed in the information repositories for public viewing.

6.3.1.1 Community Assessment

As part of the public participation process for the PEA report, the District issued a public notice of the planned public review period and public hearing on November 27 and December 4, 2015. The public notice was published in the San Jose Post - Record. The PEA report was made available for public review from November 30, 2015 through December 31, 2015 at both the Cupertino Union School District Office and the Operations Center. Additional copies were placed at the Cupertino Public Library. The public notice was presented at the school board meeting held on December 15, 2015. No written or verbal comments were received.

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 Community Update (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 E**. 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:

- Cupertino Union School District, District Office
  1309 South Mary Avenue, Suite #150, Sunnyvale, California 94087
  Contact: Travis Kirk, Director – Facility Modernization
  (408) 252-3000
  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

- Cupertino Public Library
  10800 Torre Avenue, Cupertino, California 95014
  Contact: Branch Manager (408) 446-1677
  Open: 10am – 9 pm (Mon. - Thur.); 10am – 6pm (Fri. and Sat.); and 12pm – 6pm (Sun).

- DTSC – Envirostor, www.envirostor.dtsc.ca.gov/public. At the webpage search bar, type in Sedgewick. The “Sites/Facilities” information will appear. Click on “View Information”, the summary page for “Sedgewick Elementary School Expansion Project” will appear. Click on “Site Facility Docs”, where you can access project related documents.

A Community Update 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 Community Update 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 Community Update is presented in **Appendix F**. If a copy of the Community Update 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 Project Site 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 F).

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 5pm, Monday through Friday. There shall be no start-up of machines or equipment before 7:30am, and there shall be no cleaning or servicing of machines or equipment past 6:00pm. 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.

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. The work zones for the RA are illustrated on **Plate 7-2**. 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

The excavation program will consist of excavating, stockpiling, and transporting for off-site disposal of approximately 300 cy of soil containing elevated levels of identified COCs. The completed excavations will be sampled to confirm that the removal action has met the DTSC approved cleanup goals (Section 4.3). The soil stockpiles will be sampled and profiled for waste classification and approval for disposal at an appropriate landfill facility. The soil stockpiles will then be loaded into truck and trailer combinations for transported to the approved facility. The excavation areas 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. Work zones are presented on **Plate 7-2**, and the excavation plan is presented on **Plate 7-3**.

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.

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 2 to 2.5-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

Soil will be staged near the south central portion of the Project Site. Based on the estimated volume of soil to be excavated (300 cy), the generated stockpiles will each contain approximately 150 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 and CAM 17 metals, or 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 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. 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) identified as follows:

- AOC – A: Residence (approx. 240 cy);
- AOC – B: Outbuildings (approx. 50 cy); and
- AOC – C: Grass area (approx. 10 cy).

The total depth of each AOC is approximately 2.0-feet, resulting in an estimated volume of 300 cy of excavated soil. The locations of the AOCs are presented on **Plate 7-3**. The location of the excavated soil staging area is presented on **Plate 7-2**.

Each AOC will be demarcated with white marking paint by the RA environmental consultant. The RA 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 staging area, where stockpiles of approximately 150 cy will be created, covered with plastic and labeled.

Excavation areas and the soil staging area 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 wind sock. 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	0.00013 mg/m^3	0.5 mg/m^3	---	---
Lead	0.0031 mg/m^3	0.05 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

Stockpiled soil will be profiled for acceptance by the selected disposal facilities. Waste characterization will include chemical analysis for OCPs and CAM 17 Metals. 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. 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 **Plates 7-4**.

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. 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

Hand held 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 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 1.2, and a conversion factor 1.35 to obtain the soil amount in tons.

Where as:

- In-situ soil volume (cy) x 1.2 (expansion factor) x 1.35 (conversion factor) = tons
- 300 cy x 1.2 (expansion factor) x 1.35 (conversion factor) = 486 tons.
- 486 tons ÷ 22 tons per load = 22 truck and trailer loads.

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

Non-Hazardous Waste Landfill (Class II)
Newby Island Sanitary Landfill
1601 Dixon Landing Road
Milpitas, California 95035
(408) 262-2871

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 (Class I)
Clean Harbors, LLC
Buttonwillow (Hazardous Waste Facility)
2500 West Lokern Road
McKittrick, California 93251
(661) 762-6200

Detailed information on waste transportation and disposal is described in the Transportation Plan (**Appendix H**).

7.9 BACKFILL AND SITE RESTORATION

After the completion of RA activities and the removal of all building foundations, the Project Site will be re-graded and restored to meet the needs of the final school site design. 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. A copy of the DTSC advisory is presented in Appendix I. 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.

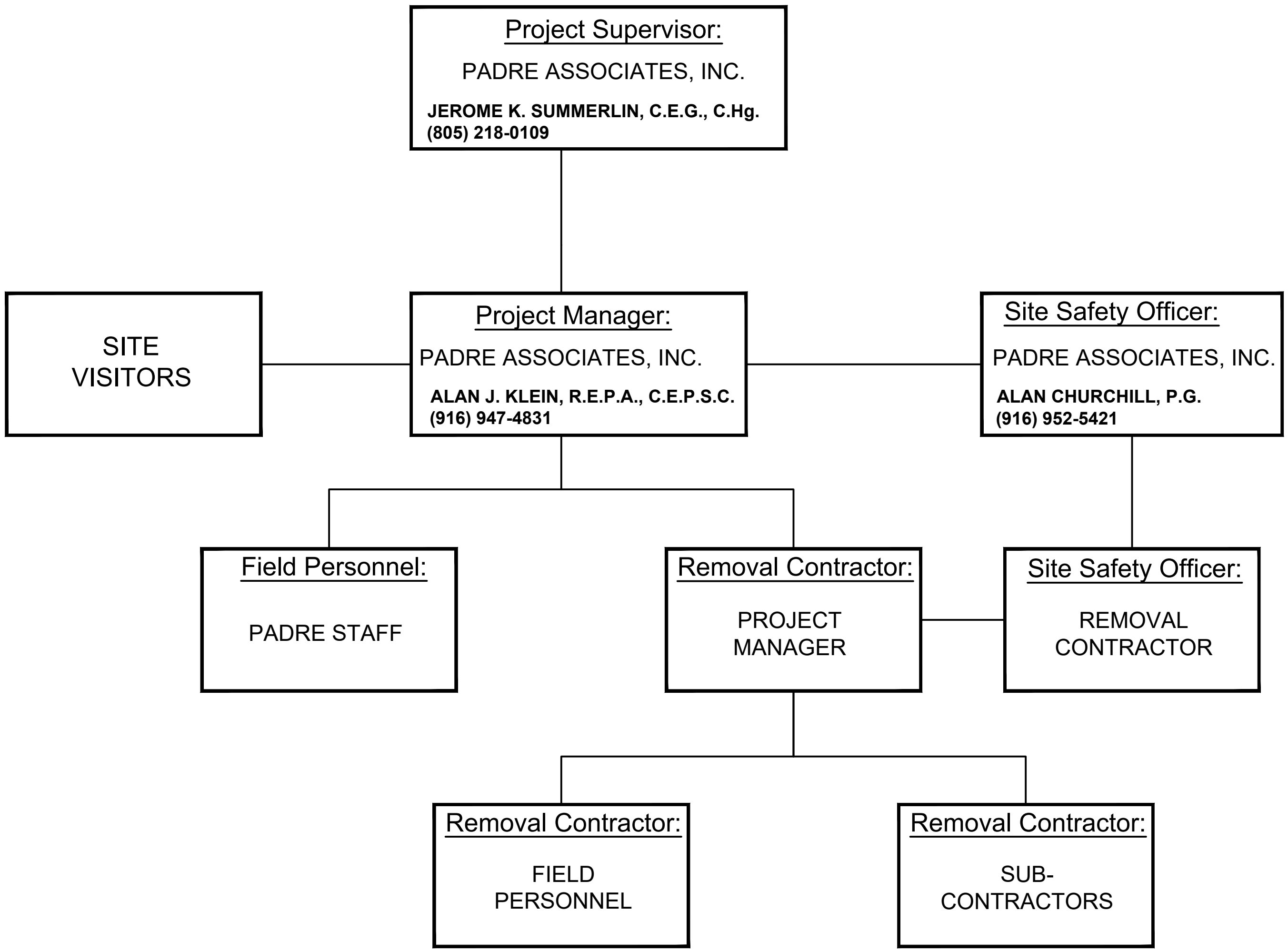
Under CERCLA, 42 U.S.C. Section 9617(c), Section 117(c) requires that, if the removal action being undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an explanation of the significant differences (ESD) and the reasons such changes were made. 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

Cupertino Unified School District
Sedgwick Elementary Expansion Project
Cupertino, California



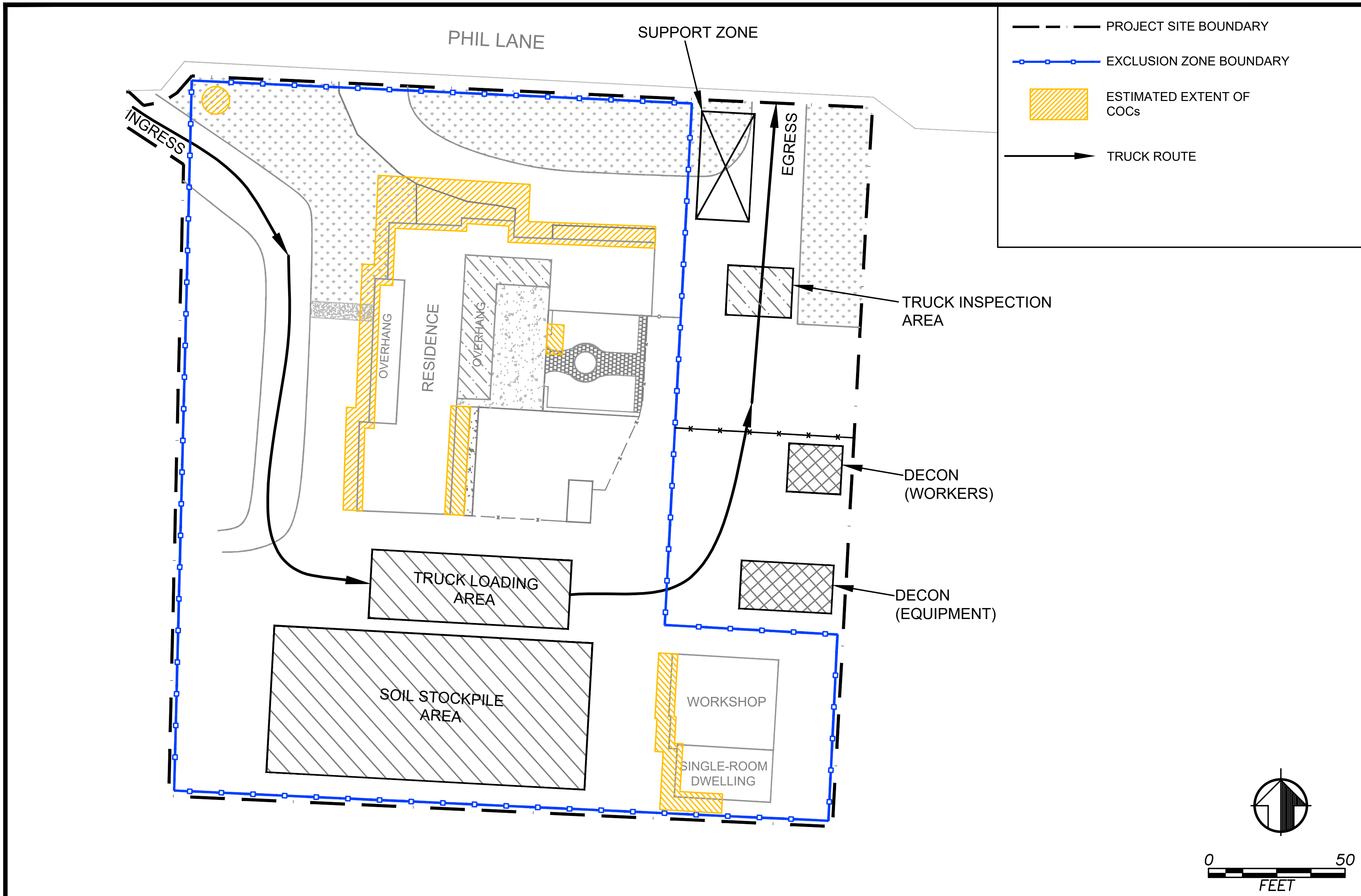
padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/13/17	AC	AJK

PLATE 7-1

ORGANIZATION CHART



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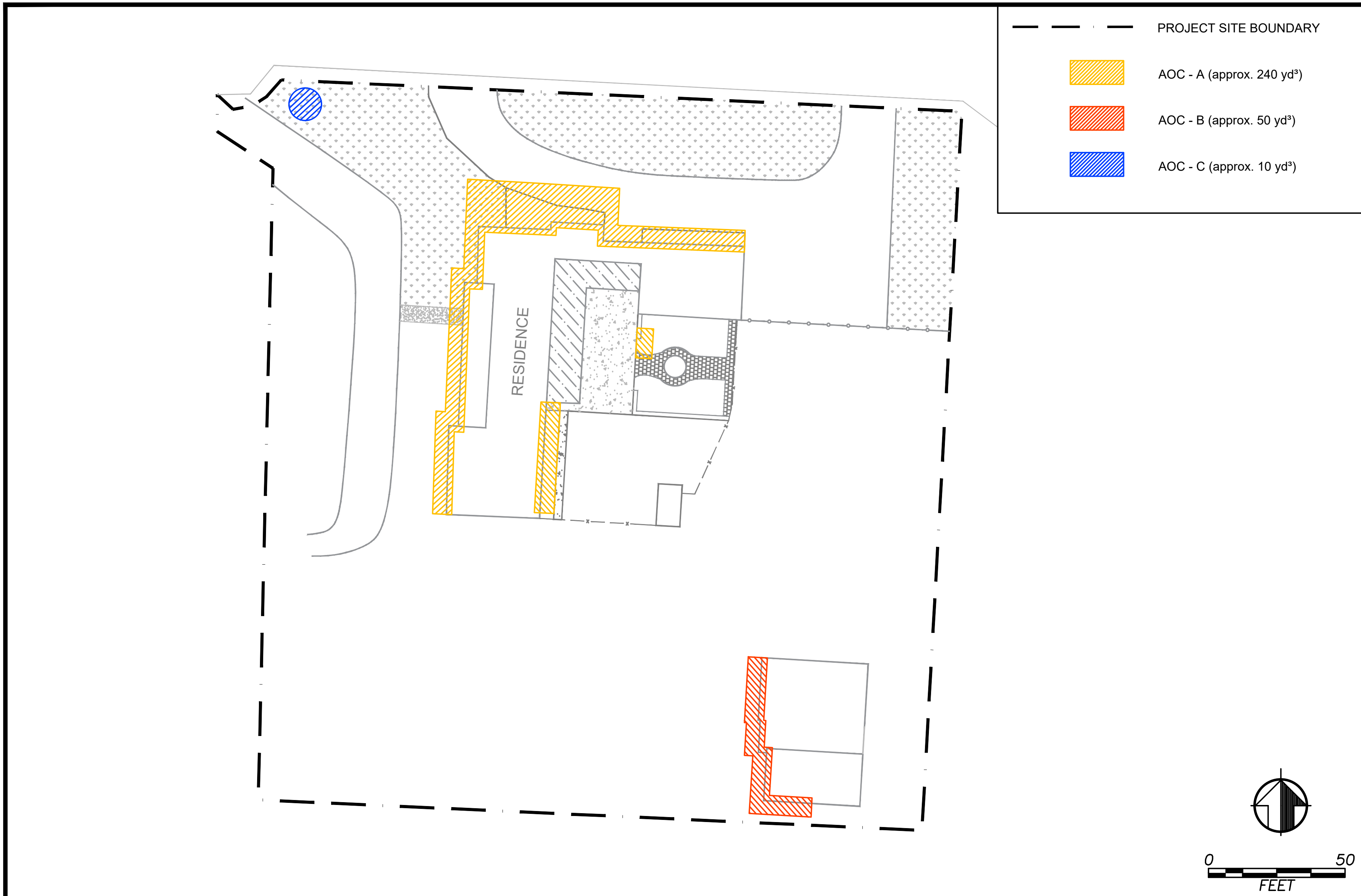
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/26/17	AC	AJK

PLATE 7-2

WORK ZONES



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PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/28/17	AC	AJK

PLATE 7-3

EXCAVATION PLAN

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SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/31/17	AC	AJK

PLATE 7-4

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. Table 8-1 summarizes the anticipated schedule of implementation and subsequent reporting for this project. A Removal Action Completion Report (RACR), documenting all activities conducted pursuant to an approved RAW and certifying that all activities have been conducted consistent with this RAW, will be prepared as expeditiously as possible upon completion of the RA and submitted to DTSC for review and approval.

Table 8-1: Schedule of Tasks

Task	Days to Complete	Cumulative Days	Notes
1. RA Site Preparation	10-15	10-15	Contractor coordination; Field Work Notice; Site Control; and Equipment Staging.
2. Soil Excavation and Soil Staging	10-15	20-30	Assumes no weather delays.
3. Confirmation Soil Sampling and Waste Characterization	5-10	25-40	Site restoration activities can begin upon consent of confirmation samples.
4. Landfill Approval	10	35-50	Assumes RA Contractor has provided facility with pre-notification.
5. Soil Loading, Transportation and Disposal	5-10	40-60	Assumes Contractor has pre-scheduled with trucking company.
6. RACR	30	70-90	
7. DTSC Site Certification	45	115-135	

9.0 REFERENCES

Bay Area Air Quality Management District.

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.

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California, Geological Survey, *A General Location Guide For Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos*. Open File Report 2000-19, 2000.

California Division of Mines and Geology, *Geologic Map of San Francisco – San Jose Quadrangle California, (1:250,000)*, 1990 (Second Printing 2005).

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City of Cupertino Planning Department, *Cupertino General Plan Community Vision 2015 – 2040*, October 2015

City of Cupertino Planning Department, *Zoning Map*, April 2017

Cornerstone Earth Group, *Phase I Environmental Site Assessment and Preliminary Soil Quality Evaluation, 10480 Finch Avenue, Cupertino, California*, July 11, 2014.

County of Santa Clara - Assessor's Office

County of Santa Clara – Planning Department

Jennings, C.W., Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, 1994.

Jennings and Bryant, Fault Activity Map of California, California Geological Survey, 2010.

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Norris, R. M., & R. W. Webb, 1976 (Second Edition 1990), *Geology of California*, John Wiley & Sons, New York, pp. 412-427.

Padre Associates, Inc., *Geologic Hazards Report, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California*, January 2015.

______*Preliminary Environmental Assessment, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California,* September 2015.

______*Preliminary Environmental Assessment Workplan, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California,* May 2015.

______*Technical Memorandum, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California Cupertino Union School District,* September 2015.

______*Supplemental Site Investigation Summary Report, Sedgwick Elementary School Expansion Project, 10480 Finch Avenue, Cupertino, Santa Clara County, California Cupertino Union School District,* January 2016.

Santa Clara Valley Habitat Agency (http://scv-habitatagency.org/178/Santa-Clara-Valley-Habitat-Plan)

United States Department of Agriculture, National Resources Conservation Service, Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/).

USGS Geological Survey; Cupertino Quadrangle, California, Topographic Map, 1991.

APPENDIX A

DTSC'S FINAL PEA AND SSI APPROVAL LETTER

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Edmund G. Brown Jr.
Governor

January 26, 2016

Ms. Mary Ann Duggan, P.E.
Director – Facility Modernization
Cupertino Union School District
10301 Vista Drive
Cupertino, California 95014

APPROVAL OF THE PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT [FURTHER ACTION RECOMMENDATION], CUPERTINO UNION SCHOOL DISTRICT, SEDGWICK ELEMENTARY SCHOOL EXPANSION PROJECT, 10480 FINCH AVENUE, CUPERTINO, SANTA CLARA COUNTY (PROJECT CODE 204271)

Dear Ms. Duggan:

On January 22, 2016, the Cupertino Union 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 November 30, 2015 through December 31, 2015, and a public hearing was held on December 15, 2015. No public comments were received regarding the PEA Report.

In addition, DTSC reviewed the revised PEA Report (Padre Associates, Inc., September 28, 2015) received on September 30, 2015. The PEA Report was revised in response to DTSC comments on the draft version forwarded in a letter dated September 2, 2015. The PEA Report presents investigation results and conclusions based on a health risk screening evaluation.

According to the PEA Report, the District plans to acquire the approximately 1.48-acre parcel identified by Santa Clara County as Assessor's Parcel Number 375-40-067, located at 10480 Finch Avenue, Cupertino, California (Site) for potential future expansion of the existing Sedgwick Elementary School. The proposed property acquisition will not increase the number of students or classrooms at the Sedgwick Elementary School.

Historically, the Site has been operated as an orchard from 1939 to 1956, and used as residential property since 1956. Two small, single-room dwellings are located to the south of a workshop. The dwellings are of wood-frame construction, resting on concrete blocks. A 500-gallon gasoline underground storage tank (UST) was removed from the Site in 1996. Laboratory analyses of two soil samples, collected during the UST removal from below the tank, detected total petroleum hydrocarbons as gasoline (TPHg) (up to 60 milligrams per kilogram [mg/kg]), benzene (up to 0.081 mg/kg), toluene (up to 0.030 mg/kg), ethyl benzene (up to 0.094 mg/kg) and xylenes (up to 0.130 mg/kg). The Santa Clara Valley Water District subsequently issued a March 26, 1997 case closure letter stating that no further action related to the UST release was required. The Site is bound to the north by Phil Lane followed by single family residential subdivisions; to the south by Sedgwick Elementary School playfield, followed by single family residential subdivisions; to the west by single family residential subdivisions; and, to the east by Sedgwick Elementary School, followed by South Tantau Avenue and single family residential subdivisions.

A PEA was conducted to investigate for the potential presence of the following recognized environmental conditions that may pose a threat to human health and the environment:

- organchlorine pesticides (OCPs) and arsenic in soil from historic agricultural use;
- lead in soil from weathering of lead-based paint used on existing and historic on-site building structures; and termiticides in soil from existing and historic on-site building structures with wood components;
- polychlorinated biphenyls in soil from the weathering of sealant compounds used in existing and historic building structures; and,
- volatile organic compounds and TPHg in soil from the former on-site UST.

The results of the PEA screening level risk assessment estimated the total risk from chemicals of concern (COCs) identified in soils at the Site to be 3.2×10^{-5}, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). The total health hazard index from COCs identified in soils at the Site is estimated to be 0.46, which does not provide an increased health hazard (i.e., >1). Lead concentrations ranged from 9.0 to 310 milligrams per kilograms (mg/kg) in soil samples collected throughout the Site. Using DTSC's lead risk assessment spreadsheet model (LeadSpread Version 8), exposure to the lead concentrations identified at the Site would result in a 90th percentile blood lead concentration of 8.0 micrograms per deciliter (µg/dl) in children, which exceeds the Office of Environmental Health Hazard Assessment blood toxicity level of 1 µg/dl.

Due to elevated concentrations of OCPs and lead identified in surface soil around existing structures at the Site, the PEA recommends further action to reduce or eliminate the impact of these contaminants. The recommended response action is excavation, removal, and offsite disposal at an appropriate landfill facility.

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. DTSC estimates the preparation and implementation of the required response action will take six months or more to complete.

Pursuant to Education Code section 17213.2, subdivision (a), if the District elects to pursue site construction, the District shall enter into an agreement with DTSC to oversee response actions at the Site. Please forward a written request to enter into a Voluntary or School Cleanup Agreement with DTSC signed by an authorized District representative, to:

Ms. Ellen DelMar
Agreement Coordinator
School Evaluation and Brownfields Outreach
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630
Ellen.Delmar@dtsc.ca.gov
Ph: 714.484.5482
Fax: 714.484.5326

The request should include the following information:

- Docket number for the existing EOA [HSA-EOA 14/15-092].
- School name and DTSC project code [Sedgwick Elementary School Expansion Project, 204271].
- Description of further action to be conducted (Supplemental Site Investigation, Removal Action, Remedial Investigation, Feasibility Study or Remedial Action) [Removal Action].
- Chemicals of concern at the site [OCPs and Lead].
- Date of the approved PEA Report [January 26, 2016].
- Date of DTSC determination for response action [January 26, 2016].
- Designation of the representative who will coordinate agreement activities with DTSC and be the responsible signatory on the agreement.

Ms. DelMar will prepare and forward an agreement for review and signature. Subsequently, a project manager will contact the District to schedule a scoping meeting. For additional information regarding the cleanup process or entering into an agreement, please contact Mr. Jose Salcedo at (916) 255-3732 or via e-mail at Jose.Salcedo@dtsc.ca.gov.

If you have any questions regarding the project, please contact me at (916) 255-3577 or via e-mail at Jose.Luevano@dtsc.ca.gov.

Sincerely,

Jose Luevano, Project Manager
Northern California Schools Unit
Brownfields and Environmental Restoration Program

cc: (via e-mail)

Mr. Alan Churchill
Project Geologist
Padre Associates, Inc.
AChurchill@padreinc.com

Mr. Alan J. Klein, R.E.P.A., C.P.E.S.C., C.E.M.
Senior Environmental Scientist
Padre Associates, Inc.
AKlein@padreinc.com

Ms. Valerie Hanley, Ph.D.
DTSC Staff Toxicologist
Human and Ecological Risk Office
Valerie.Hanley@dtsc.ca.gov

Mr. Jose Salcedo, P.E., Chief
DTSC Northern California Schools Unit
Jose.Salcedo@dtsc.ca.gov

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Edmund G. Brown Jr.
Governor

January 8, 2016

Ms. Mary Ann Duggan, P.E.
Director – Facility Modernization
Cupertino Union School District
10301 Vista Drive
Cupertino, California 95014

APPROVAL OF SUPPLEMENTAL SITE INVESTIGATION REPORT, CUPERTINO UNION SCHOOL DISTRICT, SEDGWICK ELEMENTARY SCHOOL EXPANSION PROJECT, 10480 FINCH AVENUE, CUPERTINO, SANTA CLARA COUNTY (PROJECT CODE 204271)

Dear Ms. Duggan:

The Department of Toxic Substances Control (DTSC) reviewed the revised Supplemental Site Investigation Report (SSI Report – Padre Associates, Inc., January 7, 2016) received on January 7, 2016. The SSI Report was revised based on comments issued on December 16, 2015 via electronic mail. The SSI Report presents investigation results to further delineate areas of concern, and conclusions based on a health risk screening evaluation for the site.

The approximately 1.48-acre project area consists of a single-family residential parcel identified by Santa Clara County as Assessor's Parcel Number 375-40-067, located at 10480 Finch Avenue, Cupertino, California (Site). The Site has been used as residential property since 1956. An orchard existed on the Site from 1939 to 1956. Two small, single-room dwellings are located to the south of a workshop. The dwellings are of wood-frame construction, resting on concrete blocks.

The DTSC-approved SSI Technical Memorandum included a sampling strategy to further delineate the lateral and/or vertical extent of impacted soil associated with sample locations P-4 (west side of residence), P-10 and P-11 (north side of residence), P-15 (east side of residence), SS-6 (northwest yard area), P-13 and P-15 (residence courtyard), and P-17 and P-28 (single-room dwelling). Samples were analyzed for organochlorine pesticides (OCPs) and/or lead.

The SSI sample results indicate that OCPs were identified in surface soils at the Site. Using the highest concentration for each chemical of concern identified at the Site, the total risk index was estimated to be 3.3 x 10-5, which provides an increased cancer risk of greater than 1 in 1,000,000 ($>10^{-6}$). Chlordane is the predominant OCP of concern with impacted areas located at the north, west, and southeast perimeters of the residence structure. Lead concentrations in six soil samples located along the west and southwest side of the workshop/single-room dwelling ranges from 83 milligrams per kilograms (mg/kg) to 310 mg/kg. The SSI Report concludes that a response action that includes excavation, transportation, and off-site disposal at an appropriate landfill of approximately 300 cubic yards of surface soil impacted with elevated concentrations of lead and OCPs around existing structures be completed for the Site.

Based on review of the SSI 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. DTSC concurs with the conclusion and recommendations of the SSI Report that a response action for the Site is required and hereby approves the SSI Report.

If you have any questions regarding the project, please contact me at (916) 255-3577 or via e-mail at Jose.Luevano@dtsc.ca.gov.

Sincerely,

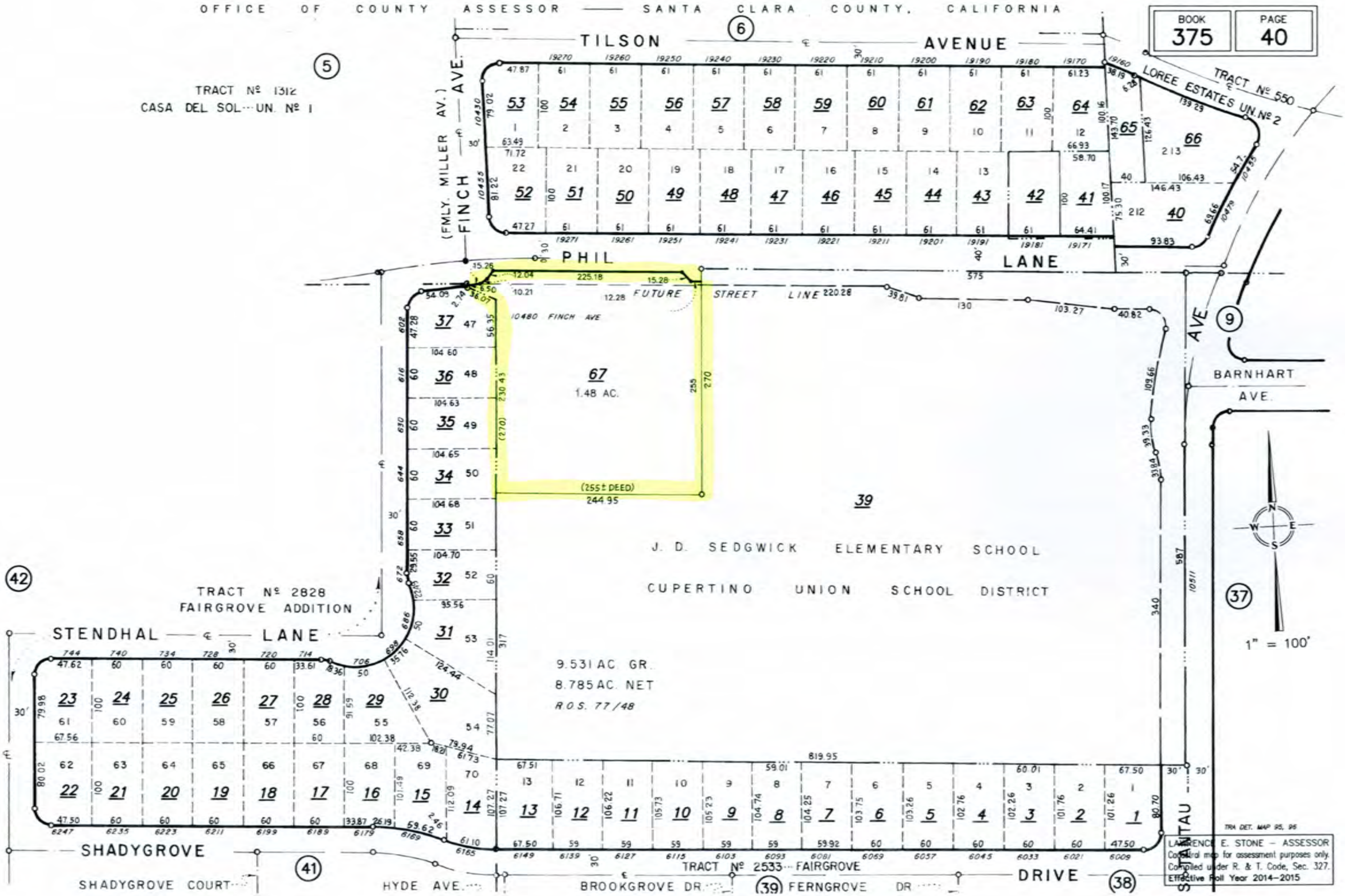
Jose Luevano, Project Manager
Northern California Schools Unit
Brownfields and Environmental Restoration Program

cc: via e-mail

Mr. Alan J. Klein, R.E.P.A., C.P.E.S.C., C.E.M. Senior Environmental Scientist Padre Associates, Inc. AKlein@padreinc.com	Ms. Valerie Hanley, Ph.D. DTSC Staff Toxicologist Human and Ecological Risk Office Valerie.Hanley@dtsc.ca.gov
Mr. Alan Churchill Project Geologist Padre Associates, Inc. AChurchill@padreinc.com	Mr. Jose Salcedo, P.E. Chief DTSC Northern California Schools Unit Jose.Salcedo@dtsc.ca.gov

APPENDIX B

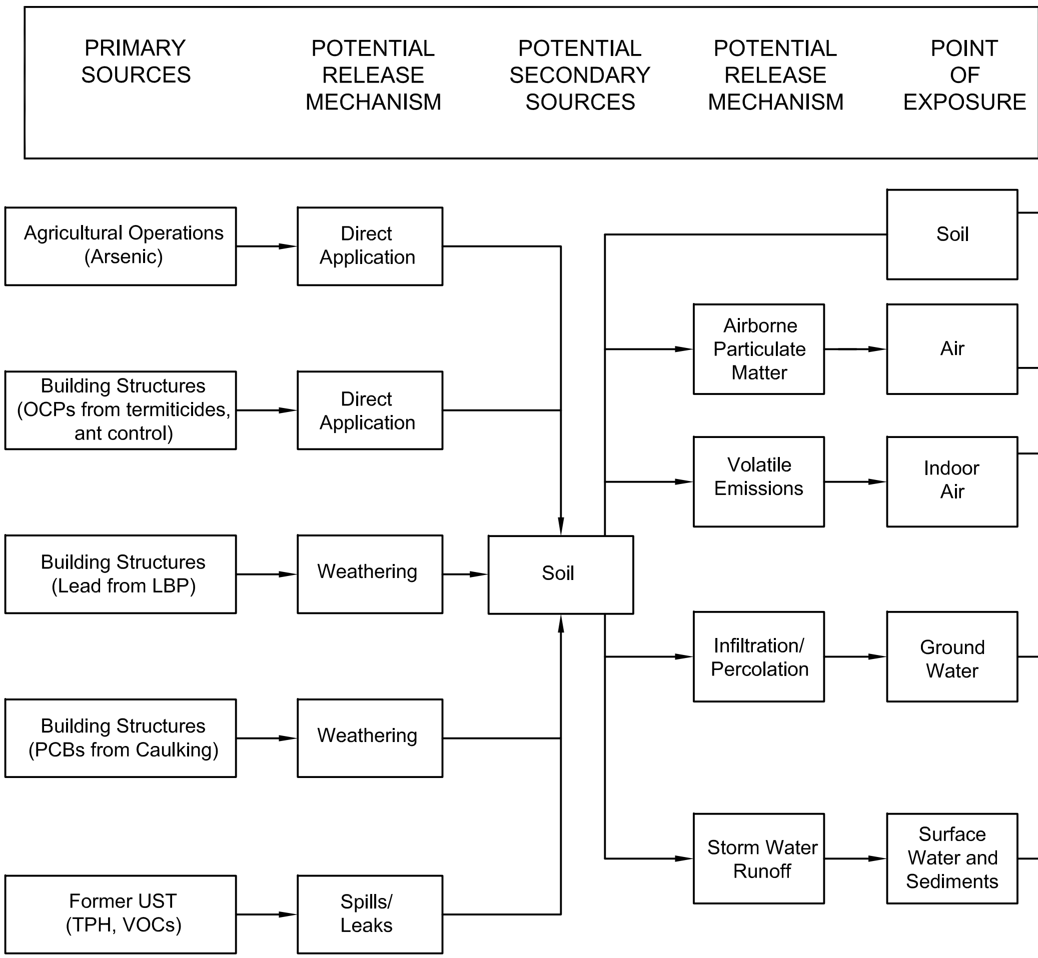
ASSESSOR'S PARCEL MAP



OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA
BOOK 375
PAGE 40
TILSON AVENUE
PHIL LANE
FINCH AVE.
(FMLY. MILLER AV.)
TRACT Nº 1312
CASA DEL SOL···UN. Nº 1
LOREE ESTATES UN. Nº 2
TRACT Nº 550
BARNHART AVE.
10480 FINCH AVE
FUTURE STREET LINE
67
1.48 AC.
(255± DEED)
39
J. D. SEDGWICK ELEMENTARY SCHOOL
CUPERTINO UNION SCHOOL DISTRICT
9.531 AC. GR.
8.785 AC. NET
R.O.S. 77/48
TRACT Nº 2828
FAIRGROVE ADDITION
STENDHAL LANE
SHADYGROVE
SHADYGROVE COURT
HYDE AVE.
BROOKGROVE DR.
FERNGROVE DR.
DRIVE
TRACT Nº 2533···FAIRGROVE
1" = 100'
TRA DET. MAP 95, 96
LAWRENCE E. STONE – ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2014–2015

APPENDIX C

CONCEPTUAL SITE MODEL
AND PEA / SSI DATA SHEETS



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

● - Complete Exposure Pathway

○ - Incomplete Exposure Pathway

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

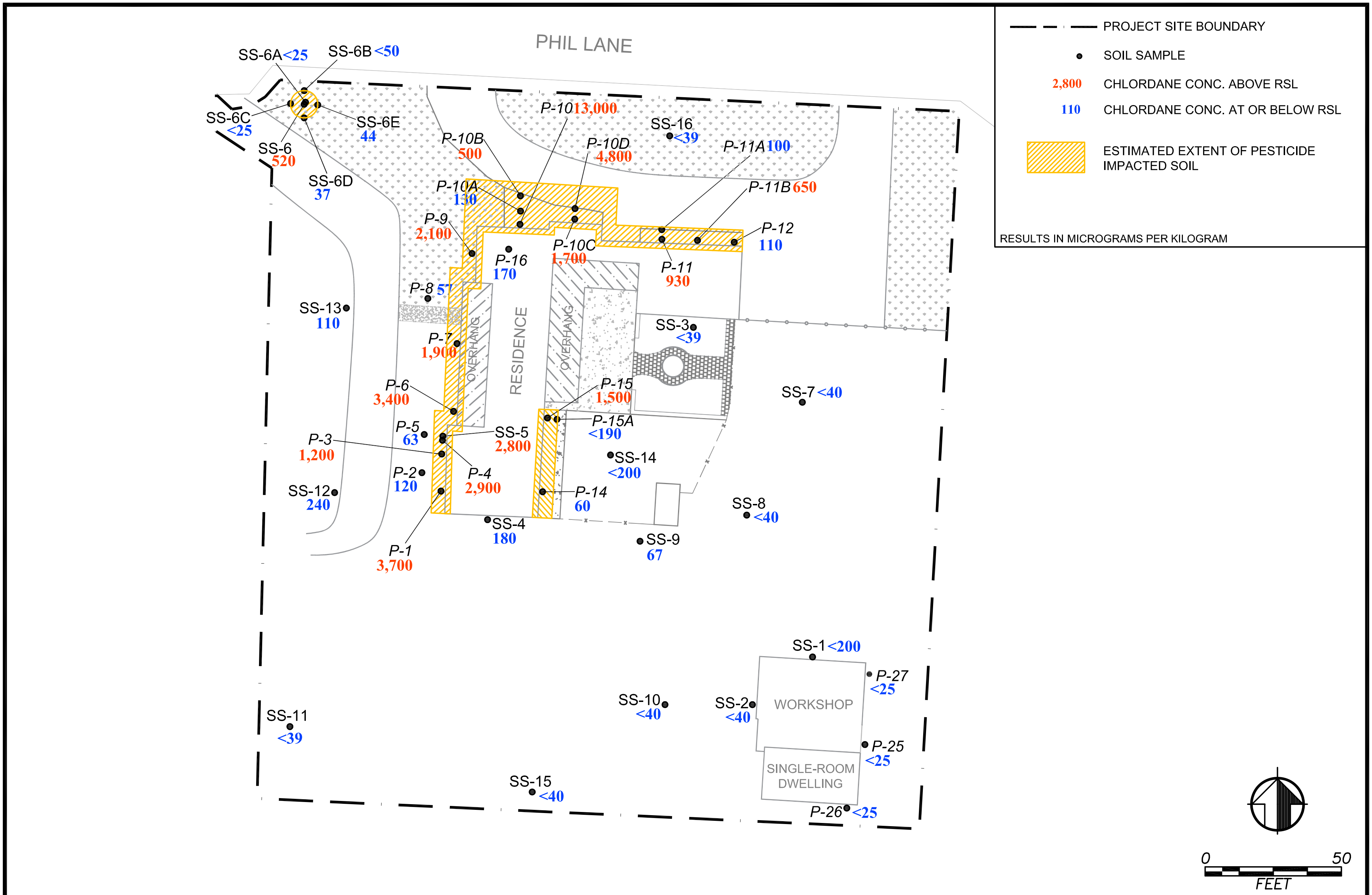
padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1401-2171	9/24/15	AC	AJK

PLATE 4-1

CONCEPTUAL SITE MODEL



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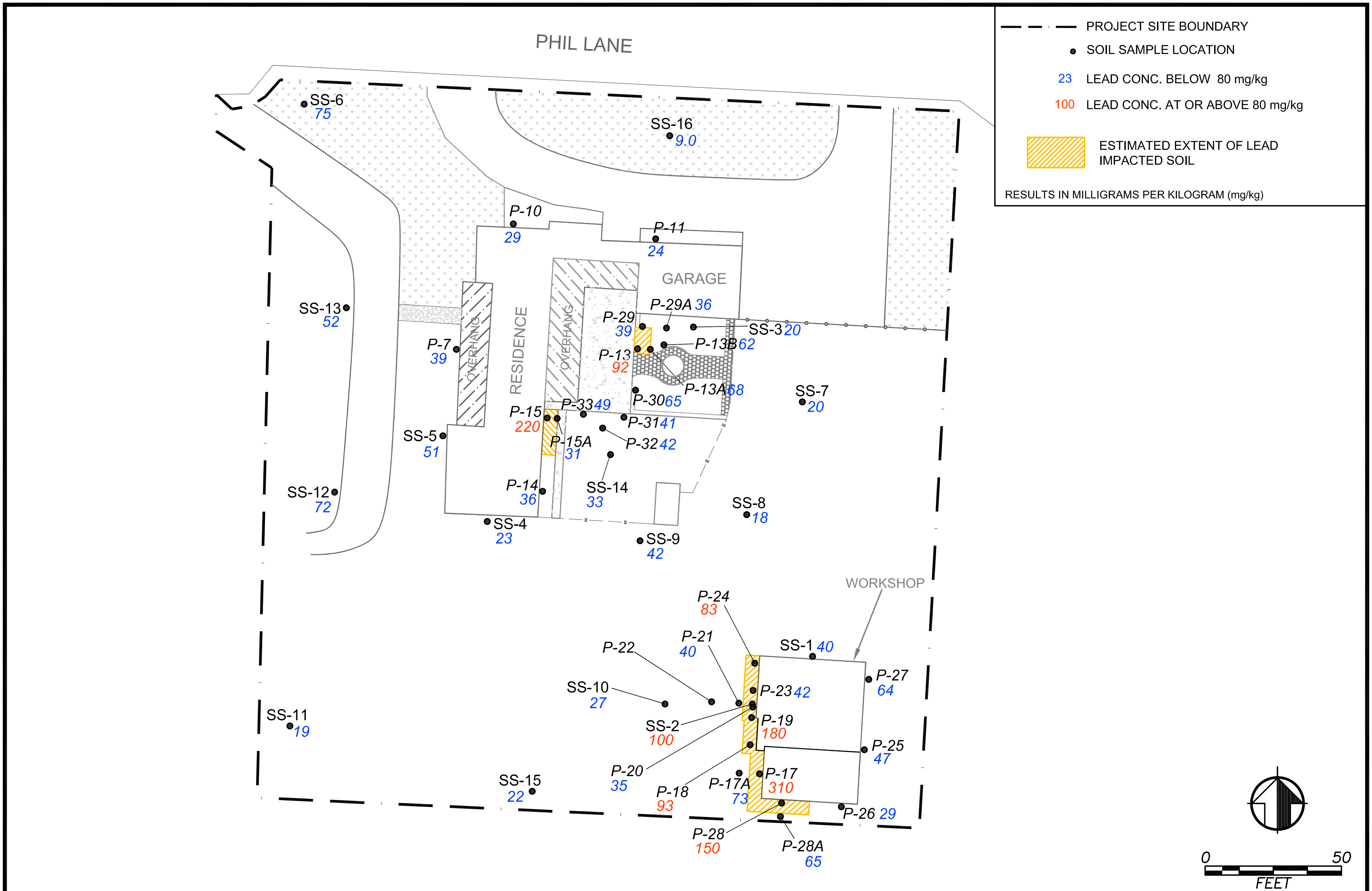
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1401-2172	11/11/15	AC	AJK

PLATE 6-1

ESTIMATED EXTENT OF PESTICIDE IMPACTED SOIL



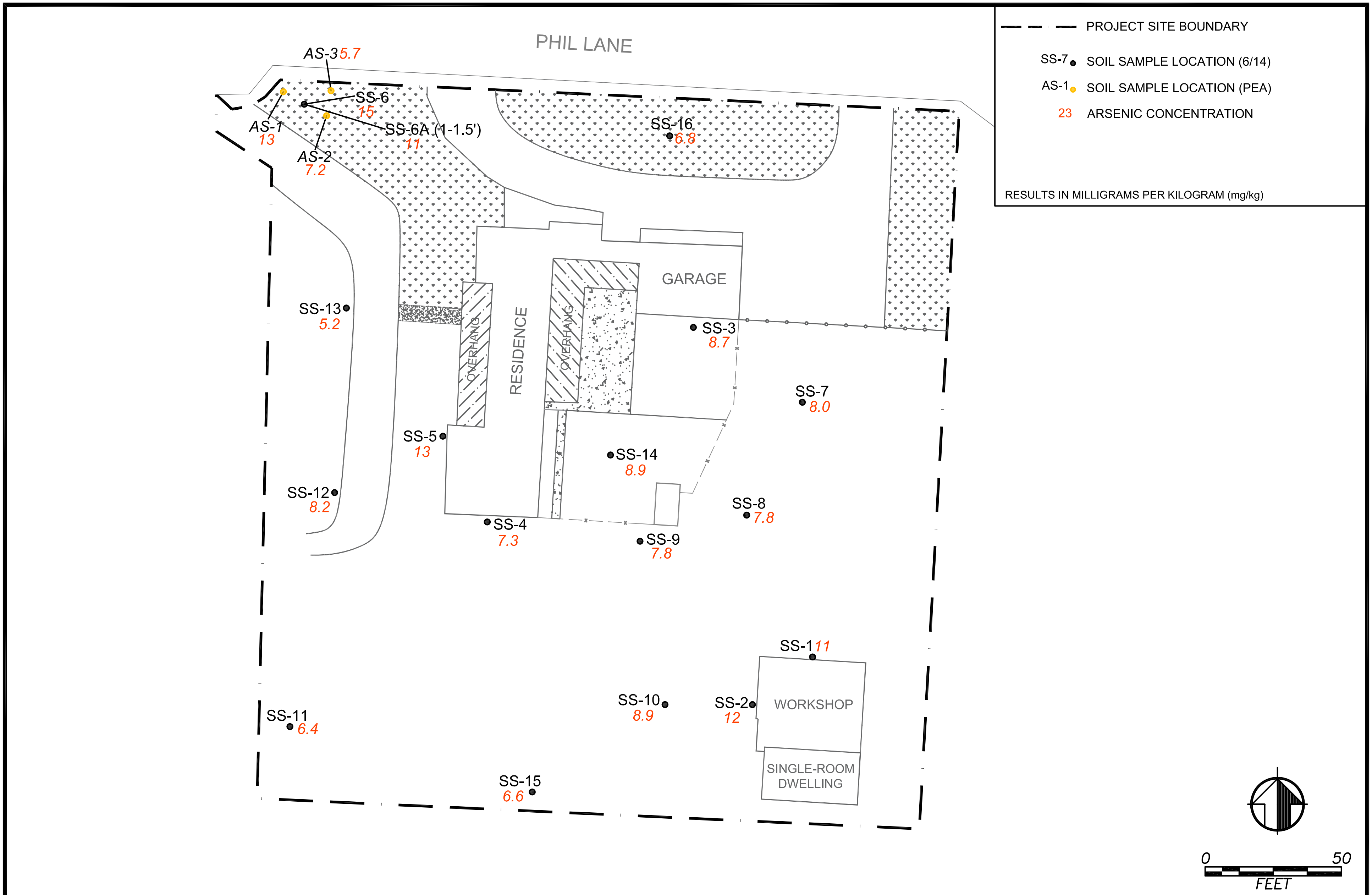
padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1401-2172	11/10/15	AC	AJK

PLATE 6-2

ESTIMATED EXTENT OF LEAD IMPACTED SOIL



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SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1401-2171	9/15/15	AC	AJK

PLATE 6-3

ARSENIC RESULTS

Table 4-1 - Soil Results for 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 cyclopentadiene	Toxaphene
PEA (July 2015)																				
P-1 (SURF)	<10	<10	<10	**3,700**	<10	**350**	**260**	<10	<10	<10	<10	<10	<10	<10	<10	**23**	<10	<100	<200	<500
P-1 (SURF)DUPE	<20	<20	<20	**2,800**	<20	**290**	**210**	<20	<20	<20	<20	<20	<20	<20	<20	**31**	<20	<200	<400	<1,000
P-1 (1-1.5')	<1.0	<1.0	<1.0	**87**	<1.0	**9.5**	**5.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.86J**	<1.0	<10	<20	<50
P-2 (SURF)	<1.0	<1.0	<1.0	**120**	<1.0	**77**	**44**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.8**	<1.0	<10	<20	<50
P-2 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	**0.46J**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-3 (SURF)	<10	<10	<10	**1,200**	<10	**56**	**46**	<10	<10	<10	<10	<10	<10	<10	<10	**4.0J**	<10	<100	<200	<500
P-3 (1-1.5')	<1.0	<1.0	<1.0	**220**	<1.0	**6.5**	**8.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-4 (SURF)	<1.0	<1.0	<1.0	**2,900**	<1.0	**140**	**130**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**7.4**	<1.0	<10	<20	<50
P-4 (1-1.5')	<10	<10	<10	**1,100**	<10	**44**	**38**	<10	<10	<10	<10	<10	<10	<10	<10	**7.8J**	<10	<100	<200	<500
P-5 (SURF)	<1.0	<1.0	<1.0	**63**	**0.76 J**	**24**	**24**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.6**	<1.0	<10	<20	<50
P-5 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	**0.93J**	**1.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-6 (SURF)	<10	<10	<10	**3,400**	<10	**120**	**210**	<10	<10	<10	<10	<10	<10	<10	<10	**6.0J**	<10	<100	<200	<500
P-6 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	**0.94J**	**0.73J**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-7 (SURF)	<10	<10	<10	**1,900**	<10	**120**	**110**	<10	<10	<10	<10	<10	<10	<10	<10	**26**	<10	<100	<200	<500
P-7 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	**1.4**	**1.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-8 (SURF)	<1.0	<1.0	<1.0	**57**	<1.0	**14**	**11**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.3**	<1.0	<10	<20	<50
P-8 (1-1.5')	<1.0	<1.0	<1.0	<25	**1.1**	**3.9**	**3.4**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-9 (SURF)	<1.0	<1.0	<1.0	**2,100**	<1.0	**53**	**120**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**13**	<1.0	<10	<20	<50
P-9 (SURF) DUPE	<10	<10	<10	**1,800**	<10	**47**	**120**	<10	<10	<10	<10	<10	<10	<10	<10	**8.3J**	<10	<100	<200	<500
P-9 (1-1.5')	<1.0	<1.0	<1.0	**38**	**0.35J**	**3.9**	**12**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-10 (SURF)	<1.0	<1.0	<1.0	**13,000**	<1.0	**39**	**160**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**21**	**57**	<1.0	<10	<20	<50
P-10 (1-1.5')	<1.0	<1.0	<1.0	**40**	<1.0	**1.4**	**4.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-10 (1-1.5') DUPE	<1.0	<1.0	<1.0	**38**	<1.0	**1.9**	**4.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.0**	<1.0	<10	<20	<50
P-11 (SURF)	<1.0	<1.0	<1.0	**930**	<1.0	**35**	**93**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**4.0**	<1.0	<10	<20	<50
P-11 (1-1.5')	<1.0	<1.0	<1.0	**95**	<1.0	**12**	**24**	**0.53J**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0	<10	<20	<50
P-12 (SURF)	<1.0	<1.0	<1.0	**110**	<1.0	**12**	**18**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.2**	<1.0	<10	<20	<50
P-12 (1-1.5')	<1.0	<1.0	<1.0	<25	**0.41J**	**2.7**	**6.3**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-14 (SURF)	<1.0	<1.0	<1.0	**60**	**2.2**	**97**	**61**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**0.25J**	**0.71J**	<1.0	<10	<20	<50
P-14 (1-1.5')	<1.0	<1.0	<1.0	<25	**0.47J**	**14**	**9.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-15 (SURF)	<1.0	<1.0	**0.49J**	**1,500**	<1.0	**410**	**160**	**6.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**11**	<1.0	<10	<20	<50
P-15 (1-1.5')	<1.0	<1.0	<1.0	<25	**9.3**	**50**	**36**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.4**	<1.0	<10	<20	<50
HHRA NOTE #3				430																
RSLs	39	--	570	1,700	2,300	2,000	1,900	34	--	--	--	--	--	--	130	70	--	210	--	490

Table 4-1 - Soil Results for OCPs (cont')
(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 cyclopentadiene	Toxaphene
P-15 (1-1.5') DUPE	<1.0	<1.0	<1.0	<25	8.9	50	31	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<10	<20	<50
P-16 (SURF)	<1.0	<1.0	<1.0	170	3.3	4.5	18	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<10	<20	<50
P-25 (SURF)	<1.0	<1.0	<1.0	<25	0.49J	62	25	0.43J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-25 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	2.6	2.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-26 (SURF)	<1.0	<1.0	<1.0	<25	<1.0	43	23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-26 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	3.1	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-27 (SURF)	<1.0	<1.0	<1.0	<25	2.8	150	62	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-27 (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
SSI (October 2015)																				
SS-6A (SURF)	<1.0	<1.0	<1.0	<25	0.54J	12	6.5	0.42J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.65J	<1.0	<1.0	<10	<20	<50
SS-6A (1-1.5')	<1.0	<1.0	<1.0	<25	0.53J	6.9	4.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
SS-6B (SURF)	<2.0	<2.0	<2.0	<50	1.2J	25	15	1.5 J	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<40	410
SS-6B (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	0.98J	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
SS-6C (SURF)	<1.0	<1.0	<1.0	<25	1.2	17	16	0.85J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.35J	<1.0	<10	<20	<50
SS-6C (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	5.0	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
SS-6D (SURF)	<1.0	<1.0	<1.0	37	0.87J	11	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.39J	<1.0	<10	<20	<50
SS-6D (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	4.2	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
SS-6E (SURF)	<1.0	<1.0	<1.0	44	2.5	21	20	0.54J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<10	<20	<50
SS-6E (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	0.45J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.26 J	<1.0	<1.0	<10	<20	<50
P-4A (2-2.5')	<1.0	<1.0	<1.0	20J	<1.0	0.99J	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-10A (SURF)	<1.0	<1.0	<1.0	130	1.6	6.5	7.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
P-10A (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	2.2	7.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.29 J	<1.0	<1.0	<10	<20	<50
P-10B (SURF)	<1.0	<1.0	<1.0	500	1.6	7.8	8.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.94 J	5.2	<1.0	<10	<20	<50
P-10B (1-1.5')	<1.0	<1.0	<1.0	<25	<1.0	1.0	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.23J	<1.0	<10	<20	<50
P-10C (SURF)	<1.0	<1.0	<1.0	1,700	<1.0	5.3	5.8	<1.0	<1.0	<1.0	<1.0	2.1	<1.0	<1.0	0.76 J	19	<1.0	<10	<20	<50
P-10C (1-1.5')	<1.0	<1.0	<1.0	410	2.8	6.1	4.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.8	<1.0	<10	<20	<50
P-10D (SURF)	<1.0	<1.0	<1.0	4,800	<1.0	28	81	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.4	30	<1.0	<10	<20	<50
P-10D (1-1.5')	<1.0	<1.0	<1.0	31	0.33J	2.7	7.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.28J	<1.0	<10	<20	<50
P-11A (SURF)	<1.0	<1.0	<1.0	100	1.8	12	27	0.76J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2J	<1.0	<10	<20	<50
P-11A (1-1.5')	<1.0	<1.0	<1.0	83	2.1	6.9	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
HHRA NOTE #3				430																
RSLs	39	--	570	1,700	2,300	2,000	1,900	34	--	--	--	--	--	--	130	70	--	210	--	490

Table 4-1 - Soil Results for OCPs (cont') (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 cyclopentadiene	Toxaphene
P-11B (SURF)	<1.0	<1.0	<1.0	650	4.3	26	55	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.7	<1.0	<10	<20	<50
P-11B (SURF) DUPE	<1.0	<1.0	<1.0	470	4.4	21	44	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.71J	3.8	<1.0	<10	<20	<50
P-11B (1-1.5')	<1.0	<1.0	<1.0	58	<1.0	3.8	9.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.32J	0.55 J	<1.0	<10	<20	<50
P-15A (SURF)	<1.0	<1.0	<1.0	190	6.4	150	55	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.4	<1.0	<10	<20	<50
P-15A (1-1.5')	<1.0	<1.0	<1.0	<25	1.7	9.2	7.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.34J	<1.0	<1.0	<10	<20	<50
P-15A (1-1.5') DUPE	<1.0	<1.0	<1.0	<25	0.99J	6.2	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<20	<50
Phase II (July 2014)																				
SS-1*	<9.9	<9.9	<9.9	<200	21	320	87	<9.9	<9.9	9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	<200
SS-2*	<2.0	<2.0	<2.0	<40	26	280	33	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-3*	<2.0	<2.0	<2.0	<39	26	280	33	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<39
SS-4*	<2.0	<2.0	<2.0	180	31	230	26	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<39
SS-5*	<20	400	280	2,800	26	360	91	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	--	--	<400
SS-6*	<2.0	86	50	520	28	55	26	8.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	12	<2.0	--	--	<40
SS-7*	<2.0	5.9	3.7	<40	29	240	26	2.9	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-8*	<2.0	<2.0	<2.0	<40	21	120	14	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-9*	<2.0	7.0	5.5	67	48	260	29	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-10*	<2.0	<2.0	<2.0	<40	31	220	16	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-11*	<2.0	3.2	3.5	<39	32	180	21	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<39
SS-12*	<9.7	25	31	240	17	150	60	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	<190
SS-13*	<2.0	15	12	110	21	42	14	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-14*	<9.8	<9.8	<9.8	<200	28	410	88	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	<200
SS-15*	<2.0	3.5	3.9	<40	47	190	26	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	<40
SS-16*	<1.9	<1.9	<1.9	<39	<1.9	8.8	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	--	--	<39
HHRA NOTE #3				430																
RSLs	39	--	570	1,700	2,300	2,000	1,900	34	--	--	--	--	--	--	130	70	--	210	--	490

Notes:
µg/kg – micrograms per kilogram
* Surface soil sample (Cornerstone, June 2014)
-- Not reported
HHRA – Human Health Risk Assessment Note #3, Table 1 (May 2015).
RSL – U.S. EPA Regional Screening Levels (June, 2015)
3,700 – above screening level

Table 4-2 - Soil Results for Arsenic and Lead (results in mg/kg)

Sample Identification	Arsenic	Lead
U.S. EPA Method	6020	6020
PEA (July 2015)		
SS-6A (1-1.5')	**11**	--
AS-1 (SURF)	**13**	--
AS-2 (SURF)	**7.2**	--
AS-3 (SURF)	**5.7**	--
P-7 (SURF)	--	**39**
P-7 (1-1.5')	--	**79**
P-10 (SURF)	--	**29**
P-10 (1-1.5')	--	**9.3**
P-11 (SURF)	--	**24**
P-11 (1-1.5')	--	**13**
P-13 (SURF)	--	**92**
P-13 (1-1.5')	--	**17**
P-14 (SURF)	--	**36**
P-15 (SURF)	--	**220**
P-17 (SURF)	--	**310**
P-17 (SURF) DUP	--	**310**
P-17 (1-1.5')	--	**43**
P-18 (SURF)	--	**93**
P-18 (1-1.5')	--	**17**
P-19 (SURF)	--	**180**
P-19 (1-1.5')	--	**31**
P-19 (1-1.5') DUPE	--	**27**
P-20 (SURF)	--	**35**
P-20 (1-1.5')	--	**11**
P-21 (SURF)	--	**40**
P-21 (1-1.5')	--	**9.4**
P-23 (SURF)	--	**42**
P-23 (1-1.5')	--	**13**
Screening Level	AB	80[B]

Table 4-2 - Soil Results for Arsenic and Lead (cont')
(results in mg/kg)

Sample Identification	Arsenic	Lead
U.S. EPA Method	6020	6020
P-24 (SURF)	--	**83**
P-24 (1-1.5')	--	**10**
P-24 (1-1.5') DUP	--	**9.0**
P-25 (SURF)	--	**47**
P-25 (1-1.5')	--	**9.8**
P-26 (SURF)	--	**29**
P-26 (1-1.5')	--	**12**
P-27 (SURF)	--	**64**
P-27 (SURF) DUP	--	**39**
P-27 (1-1.5')	--	**14**
P-28 (SURF)	--	**150**
P-28 (1-1.5')	--	**12**
SSI (October 2015)		
P-13A (SURF)	--	**68**
P-13B (SURF)	--	**62**
P-15A (SURF)	--	**31**
P-17A (SURF)	--	**73**
P-17A (SURF) DUPE	--	**60**
P-28A (SURF)	--	**65**
P-29 (SURF)	--	**39**
P-29A (SURF)	--	**36**
P-30 (SURF)	--	**65**
P-31 (SURF)	--	**41**
P-32 (SURF)	--	**42**
P-33 (SURF)	--	**49**
Screening Level	AB	80[B]

Table 4-2 - Soil Results for Arsenic and Lead (cont')
(results in mg/kg)

Sample Identification	Arsenic	Lead
U.S. EPA Method	6020	6020
Phase II (June 2014)		
SS-1	**11**	**40**
SS-2	**12**	**100**
SS-3	**8.7**	**20**
SS-4	**7.3**	**23**
SS-5	**13**	**51**
SS-6	**15**	**75**
SS-7	**8.0**	**20**
SS-8	**7.8**	**18**
SS-9	**7.8**	**42**
SS-10	**8.9**	**27**
SS-11	**6.4**	**19**
SS-12	**8.2**	**72**
SS-13	**5.2**	**52**
SS-14	**8.9**	**33**
SS-15	**6.6**	**22**
SS-16	**6.8**	**9.0**
Screening Level	AB	80[B]

Notes:

mg/kg milligrams per kilogram
'--' Not analyzed
150 Above screening level
AB Ambient background concentration
B OEHHA Leadspread Version 8

Table 6-3 - Soil Results for PCBs
(results in mg/kg)

Sample Identification	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs Total
P-4 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
P-9 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
P-10 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
P-11 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
P-14 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
P-15 (SURF)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RSLs	0.23	0.17	0.17	0.23	0.23	0.12	0.24	0.24

Notes:
mg/kg – milligrams per kilogram
RSLs– U.S. EPA Regional Screening Level (June 2015)

Table 6-4 – Soil Results for TPHg, BTEX, and MTBE (results in mg/kg)

Sample Identification	TPH-Gasoline (C_6 –C_{12})	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
U.S. EPA Method	8260	8260	8260	8260	8260	8260
DH-1 (12')	**0.18**	<0.0034	<0.0034	<0.0034	**0.026**	<0.0034
DH-1 (15')	<0.081	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033
DH-1 (20')	<0.081	<0.0032	<0.0032	<0.0032	<0.0032	<0.0032
DH-2 (15')	<0.084	<0.0034	<0.0034	<0.0034	<0.0034	<0.0034
DH-2 (20')	<0.081	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033
DH-3 (15')	<0.087	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035
DH-3 (20')	<0.092	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037
DH-4 (15')	<0.088	<0.0035	<0.0035	<0.0035	<0.0035	<0.0035
DH-4 (20')	<0.082	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033
DH-5 (15')	<0.13	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
DH-5 (20')	<0.14	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
HHRA Note #3		0.33	1,100			
RSL		1.2	4,900	5.8	650	47

Notes:

TPH – Total Petroleum Hydrocarbons
BTEX – Benzene, toluene, ethylbenzene, total xylenes
MTBE – Methyl tert butyl ether
HHRA – Human Health Risk Assessment Note #3, Table 1
RSL – U.S. EPA Regional Screening Level (June 2015)

Table 6-5 - Soil Gas Results for TPHg and VOCs by EPA Method TO-15 (µg/m³ of Vapor)

Sample ID	TPH-Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl-t butyl ether (MTBE)	2-Hexanone	All Other VOCs
SV-1 (5')	<720	<1.6	**5.6**	**2.9**	<6.6	<1.8	<2.1	<1.3
SV-1 (8')	<720	**2.8**	**11**	**3.4**	**12**	<1.8	**5.6**	<1.3
HHRA Note #3		97	310,000	1,100	100,000	11,000	31,000	
RSLs	31,000	360	5,200,000	1,100	100,000	11,000	31,000	

Notes:

µg/m³ – micrograms per cubic meter
TPHg – Total Petroleum Hydrocarbons as Gasoline
HHRA – Human Health Risk Assessment Note #3, Table 3. Screening level includes attenuation factor (0.001) for future residential structures.
"—" - not established or not used
RSL – USEPA Regional Screening Level (June 2015). Screening level includes attenuation factor (0.001) for future residential structures.

APPENDIX D

NOTICE OF EXCEPMPTION

APPENDIX D

NOTICE OF EXCEMPTION

CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF EXEMPTION

To: Office of Planning and Research
State Clearinghouse
P.O. Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Department of Toxic Substances Control
Northern California Schools
Brownfields and Environmental Restoration Program
8800 Cal Center Drive
Sacramento, California 95826

Project Title: Sedgwick Elementary School Expansion Project Removal Action Workplan

Project Location: 10480 Finch Avenue, Cupertino, California

County: Santa Clara

Project Description: The California Department of Toxic Substances Control (DTSC), following the 30-day public review and comment period, is considering approval the Sedgwick Elementary School Expansion Project Removal Action Workplan (RAW - Padre Associates, Inc., dated January 2018) pursuant to authority granted under Chapter 6.8, Division 20, sections 25323.1 and 25356.1 of the Health and Safety Code (H&SC). The RAW was prepared on behalf of the Cupertino Union School District (District). The 1.48-acre expansion parcel is identified by the Santa Clara County Assessors Offie as Assessor's Parcel Number 375-40-067, and located at 10480 Finch Avenue, Cupertino, California (Site).

The project will excavate approximately 300 cubic yards of shallow soil (0 to 2 feet below ground surface), where lead and the organochlorine pesticide (OCP) chlordane were found to exceed the respective action level. The removal of the contaimanted soil reduces the human health-based risk to an acceptable standard for residential use. In 2017 the District acquired the Site for potential future expansion of the existing Sedgwick Elementary School. The District has not identified specific plans for the Site, however, the expansion will not result in the addition of classrooms or students to the existing elementary school.

Background: The approximately 1.48 acre Site had been operated as an orchard from 1939 to 1956, and used as residential property since 1956. Two small, single-room dwellings are located to the south of a workshop. The dwellings are of wood-frame construction, resting on concrete blocks. The Site is bound to the north by Phil Lane and single family residential subdivisions; to the south by Sedgwick Elementary School playfield and single family residential subdivisions; to the west by single family residential subdivisions; and, to the east by Sedgwick Elementary School, and South Tantau Avenue and single family residential subdivisions. A 500-gallon gasoline underground storage tank (UST) was removed from the Site in 1996. Laboratory analyses of two soil samples, collected during the UST removal from below the tank, detected total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, and xylenes. The Santa Clara Valley Water District subsequently issued a March 26, 1997 case closure letter stating that no further action related to the UST release was required based on removal of the UST and confirmation analytical data results.

A Preliminary Environmental Assessment (PEA) dated September 2015 and a Supplemental Site Investigation, (SSI) dated January 2016 were completed for the Site. The investigations established 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 existed at the Site.

The PEA investigated for the presence of the following recognized environmental conditions that may have posed a threat to human health and the environment:

- OCPs and arsenic in soil from historic agricultural use;
- Lead in soil from weathering of lead-based paint used on existing and any prevous structures; and termiticides in soil from existing and historic on-site building structures with wood components;
- Ppolychlorinated biphenyls in soil from the weathering of sealant compounds used in existing and historic building structures; and,
- Volatile organic compounds and gasoline in soil from the former on-site UST.

The PEA Report concluded six soil samples located near the primary residence and the workshop with concentrations of COCs exceeding residential screening levels and further action was recommended to address the contaimination of pesticide and lead.

The SSI consisted of step-out and step-down soil samples to further delineate the extent of OCPs and lead contamination in the area of the main residence and to further evaluate elevated lead concentrations identified at the southeast portion of the Site. The results of the SSI were used to determine the extent of the response action at the Site.

<u>Project Activities</u>: . The project activities include:

- Demolition of existing structures are scheduled to be completed immediately prior to implementation of the RAW. Demolition activities will be completed under the oversight of the environmental consultant in an effort to minimize disturbance of impacted soils.
- Excavation of approximately 300 cubic yards (approximately 20 to 25 truckloads) of soil with chlordane (pesticide) greater than 0.43 mg/kg and lead greater than 80 milligram per kilogram (mg/kg). Perform statistical analysis to verify that the estimated mean soil lead value (95% Upper Confidence Limit) of soil remaining is less than or equal to 80 mg/kg.
- Segregate and stockpile Class I and Class II contaminated soil waste to minimize waste to be disposed in a Class I landfill.
- Perform sampling and analysis of the excavated soil to facilitate waste characterization for landfill disposal.
- Transport the contaminated soil off-site to a licensed disposal facility in accordance with applicable regulations.
- Conduct confirmation soil sampling to verify that remedial goals have been achieved.
- Import of clean soil is not proposed for this response action.

This is a small and short-term excavation project. It is anticipated that the off-haul of impacted soil will requireapproximately three weeks. Engineering controls to be implemented during excavation activities include fugitive dust prevention, track-out prevention, surface and stockpile protection, ingress/egress development, vehicle movement, and implementation of best management practices. Noise-generating activities consisting of excavation equipment and trucks will be limited to between 8:00 a.m. to 5:00 p.m., Monday to Friday, there shall be no start-up of machines or equipment before 7:30 a.m., and no cleaning or servicing of machines or equipment past 6:00 p.m., and no weekend work will be conducted. Traffic will be coordinated with the trucking company to minimize truck traffic on surrounding surface streets and reduce dust generation during on-site transportation.

Specific environmental safeguards and monitoring procedures that are enforceable and made a condition of RAW approval are included in an approved Health and Safety Plan, Dust Control Plan, Confirmation Sampling and Analysis Plan, and Transportation Plan and Quality Assurance Project Plan.

In the event biological, cultural or historical resources are discovered in the course of project activities, work will be suspended while a qualified biologist, cultural or historical specialist makes an assessment of the area and arrangements are made to protect or preserve any resources that are discovered. If human remains are discovered, no further disturbance will occur in the location where the remains are found, and the County Coroner will be notified pursuant to Health and Safety Code Chapter 2, Section 7050.5.

<u>Name of Public Agency Approving Project</u>: Department of Toxic Substances Control

<u>Name of Person or Agency Carrying Out Project</u>: Cupertino Union School District

<u>Exemption Status</u>: (check one)

☐ Ministerial [PRC, Sec. 21080(b)(1); CCR, Sec. 15268]
☐ Declared Emergency [PRC, Sec. 21080(b)(3); CCR, Sec.15269(a)]
☐ Emergency Project [PRC, Sec. 21080(b)(4); CCR, Sec.15269(b)(c)]
☒ Categorical Exemption: Class 30 [Cal. Code Regs. title 14, §15330]
☐ Statutory Exemptions: [State code section number]
☐ General Rule [CCR, Sec. 15061 (b) (3)]

<u>Exemption Title</u>: Minor Actions Taken to Prevent, Minimize, Stabilize, Mitigate, or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substance.

<u>Reasons Why Project is Exempt</u>:

1. The project is a minor action designed to prevent, minimize, stabilize, mitigate or eliminate the release or threat of release of hazardous waste or hazardous substances.
2. The project will not exceed $1 million in cost.

3. The project does not involve the onsite use of a hazardous waste incinerator or thermal treatment unit or the relocation of residences or businesses, and does not involve the potential release into the air of volatile organic compounds as defined in Health and Safety Code Section 25123.
4. The exceptions pursuant to Cal. Code Rags., tit. 14, § 15300.2 have been addressed as follows:
   - Cumulative Impact. The project will not result in cumulative impacts because it is designed to be a short-term, final remedy that would not lead to a succession of projects of the same type in the same place over time.
   - Significant Effect. The environmental safeguards and monitoring procedures that are enforceable and made a condition of project approval will prevent unusual circumstances from occurring so that there is no possibility that the project will have a significant effect on the environment.
   - Scenic Highways. The project will not damage scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, because it is not located within a highway officially designated as a state scenic highway.
   - Hazardous Waste Sites. The project is not located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.
   - Historical Resources. The project will not cause a substantial adverse change in the significance of a historical resource because there are none at the Site.

Evidence to support the above reasons is documented in the project file record, available for inspection at the following address:

Department of Toxic Substances Control
Brownfields and Environmental Restoration
8800 Cal Center Drive
Sacramento, California 95826

Project Manager Signature		Date
Jose Luevano	Hazardous Substances Engineer	916-255-3577
Project Manager Name	Project Manager Title	Phone No.

Branch Chief Signature		Date
Mark Malinowski	Supervising Engineering Geologist	916-255-3717
Branch Chief Name	Branch Chief Title	Phone No.

TO BE COMPLETED BY OPR ONLY

Date Received For Filing and Posting at OPR:

APPENDIX E

COMMUNITY PROFILE REPORT

APPENDIX E

COMMUNITY PROFILE REPORT

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Department of Toxic Substances Control

8800 Cal Center Drive
Sacramento, California 95826

COMMUNITY PROFILE

SEDGWICK ELEMENTARY SCHOOL

EXPANSION PROJECT

10480 FINCH AVENUE

CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

March 2018

Approved by:

Tammy Pickens
Public Participation Specialist
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826

Table of Contents

1.0 INTRODUCTION

1.1 PURPOSE OF THE COMMUNITY PROFILE

This Community Profile has been prepared by the Department of Toxic Substances Control (DTSC) for the Sedgwick Elementary School expansion project located 10480 Finch Avenue in Cupertino, California 95014 (Site). This Community Profile provides the public with a description of the Site and the community in which it is located, and helps DTSC determine potential community interest in the cleanup, and recommends future public participation activities for the cleanup. In addition, the Community Profile also describes community demographics and land uses in areas surrounding the Site.

1.2 DTSC OVERSIGHT RESPONSIBILITIES

DTSC is the lead regulatory agency for making the decision for the cleanup. As the regulatory agency providing oversight, DTSC is responsible to ensure that the public and environment are protected from potential exposure to contamination. As part of the cleanup process, DTSC ensures that community members are informed about any cleanup and related activities, and that the public has an opportunity to be involved in DTSC's decision making process.

1.3 SOURCES OF INFORMATION FOR THE COMMUNITY PROFILE

The Community Profile is prepared based on information from a variety of sources. A primary source of information for the Community Profile comes from the community itself. DTSC distributed a Community Survey to residents and businesses within a quarter-mile radius of the Site to help assess community interest and concern regarding the investigation and cleanup of the Site. A copy of the Community Survey and the survey results are included in Appendix A. DTSC has also consulted with and reviewed information provided by the City of Cupertino to assist in preparing this Community Profile. Recent demographic information for the City of Cupertino has been researched in the preparation of the Community Profile and is provided in Section 2.3. Additionally, the Community Profile has been prepared using information from technical documents prepared for the Site.

1.4 ORGANIZATION OF THE COMMUNITY PROFILE

The Community Profile is organized in three sections; 1.0) Introduction, 2.0) Site and Community Description, and 3.0) Project Public Participation. In addition, the Key Contacts for the project have been included in Section 3.2.

2.0 SITE AND COMMUNITY DESCRIPTION

2.1 SITE LOCATION AND DESCRIPTION

The Site is approximately 1.48-acres property near the existing Sedgwick Elementary School. The property will expand the Sedgwick Elementary School but there are no immediate construction plans for the expansion property. Potable water and sewer services will continue to be provided by the local municipality.

2.1.1 SURROUNDING LAND USES

The Site is bound to the north by Phil Lane followed by single family residential subdivisions; to the east by Sedgwick Elementary School, followed by South Tantau Avenue and single family residential subdivisions; to the south by Sedgwick Elementary School playfield, followed by single family residential subdivisions; and, to the west by single family residential subdivisions.

2.1.2 CURRENT LAND USE

The Site is currently an existing school.

2.2 SITE HISTORY

The Site is approximately 1.48-acres and historically operated as an orchard from 1939 to 1956, and used as residential property since 1956. A 500-gallon gasoline underground storage tank was removed from the Site in 1996. A house and workshop remains on the property and will be removed immediately following the cleanup.

2.3 COMMUNITY DESCRIPTION

The City of Cupertino is in Santa Clara County and directly west of San Jose on the western edge of the Santa Clara Valley with portions extending into the foothills of the Santa Cruz Mountains. It was ranked by Forbes for having the most educated small towns, with local public schools ranking highly in the country. It is also known as the home of Apple Inc. corporate headquarters.

Cupertino in the 19th century was a small rural village at the crossroads of Stevens Creek Road and Saratoga-Mountain View Road (also known locally as Highway 9; later Saratoga-Sunnyvale Road, and then renamed to De Anza Boulevard within Cupertino city limits). Back then, it was known as the West Side and was part of Fremont Township. The primary economic activity was fruit agriculture. Almost all of the land within Cupertino's present-day boundaries was covered by prune, plum, apricot, and cherry orchards. A winery on Montebello Ridge overlooking the Cupertino valley region was also in operation by the late 19th century.

Soon railroads, electric railways, and dirt roads traversed the West Side farmlands. Monta Vista, Cupertino's first housing tract, was developed in the mid-20th century because of the electric railway's construction.

According to the 2010 U.S. Census, Cupertino has a resident population of approximately 57,965 people (99.4% of the population) lived in households, 61 (0.1%) lived in noninstitutionalized group quarters, and 276 (0.5%) were institutionalized. Table 1 presents demographic information about the City of Cupertino.

Table 1
Cupertino Demographic Characteristics

Source: 2010 U.S. Census

Category	Count	Percent
Total Population	**58,302**	**100%**
Race		
White	**18,270**	**31.3%**
African American/Black	**344**	**0.6%**
Native Indian/American	**117**	**0.2%**
Other Race	**670**	**1.1%**
Two or More Races	**1,952**	**3.3%**
Hispanic or Latino	**2,113**	**3.6%**
Asians	**36,895**	**63.3%**
Native Hawaiian/Pacific Islander	**54**	**0.1%**
Median Household Income (2015)		
76,310		
Education (Population 25 years and over (2015))		
High school graduate or higher		**83.4%**
Bachelor's degree or higher		**23.1%**
Language		
Speak only English		**58.4%**
Speak a language other than English		**41.6%**
Speak English less than 'very well'		**42.5%**
5 to 17 years old		**17.3%**
18 to 64 years old		**48.0%**
65 years old and over		**76.0%**

2.4 COMMUNITY INTEREST AND MEDIA COVERAGE

DTSC searched of web-based sources that serve the Cupertino area. DTSC will continue to monitor and review any media coverage related to environmental issues at the Site throughout the duration of the project. DTSC will continue to monitor and review any media coverage related to environmental issues at the Site throughout the duration of the project.

A Community Survey was mailed on December 18, 2017 to the federal, state, and local elected officials, as well as various city and county agencies to identify concerns regarding the contamination found at the Site. Approximately 981 surveys were mailed out, 23 were sent by email, and 40 surveys were completed and returned, which is a 4.0**%** return rate. A copy of the Community Survey and the survey results is provided in Appendix A of this Community Profile.

47.5**%** of survey respondents stated that they have at least moderate interest in the investigation and cleanup activities at the Site. In addition, 45**%** of survey respondents stated that they might attend a public meeting for the project if one were held at a convenient time for them. The Community Survey, and the survey results, is included in Appendix A of this Community Profile.

2.5 COMMUNITY CONCERNS

Survey respondents wanted to know the exact location of the Site in relation to their place of residence or business. Furthermore, respondents stated that they have concerns regarding the toxins at the Site, and specifically if those toxins are harmful to the surrounding community.

2.6 SENSITIVE RECEPTORS IN THE LOCAL AREA

No day care centers, schools (primary and secondary), hospitals, or other sensitive communities or receptors were identified within ¼ mile of the Site. No residences are located within ¼ mile of the Site.

3.0 PUBLIC PARTICIPATION

3.1 RECOMMENDED PUBLIC PARTICIPATION ACTIVITIES

DTSC has determined that based on the responses received to the community survey, the community has 47.5 % interest in the Site activities. Some respondents indicated they have concerns regarding the environmental contamination, but have also expressed confidence that DTSC can oversee the cleanup of the Site. After consideration of community feedback, DTSC recommends the following public participation activities during the investigation and cleanup process.

- A public notice will be published in the newspaper prior to DTSC's final cleanup decision for the Site. The public notice will announce the Public Comment Period dates for the cleanup for the Site.

- A copy of the draft RAW, the required California Environmental Quality Act document, this Community Profile, and other Site-related documents will be placed in the information repositories listed in Section 3.3 prior to the start of the public comment period.

- A Community Update will be prepared to provide historical information, describe the current Site conditions and provide information on the cleanup plan. It will be distributed to the project mailing list that include the City of Cupertino key contacts and the DTSC mandatory mailing list.

- DTSC will contact local community organizations and/or elected officials, as well as other organizations and individuals that survey respondent's recommended DTSC contact, to set-up a project briefing, if desired. A public meeting, open house session, or community briefing will be considered and may be scheduled if DTSC is requested to conduct one.

With respect to public participation, DTSC will continue to conduct Community Assessments on an as-needed basis throughout the life of the project to monitor the language needs of the local community. The public participation documents for the Site will be provided in English. If subsequent Community Assessments indicate the affected community has translation needs, DTSC will translate all public participation documents to the appropriate languages to ensure those needs are addressed. As investigation and cleanup activities progress, DTSC will review the public participation activities for the Site at various stages of the project. If it is determined that additional public participation activities are necessary, DTSC will implement them as needed.

3.2 KEY CONTACTS

Kamala Harris US Senator	US Senate	112 Hart Senate Office Building Washington, DC 20510
Diane Feinstein US Senator	US Senate	112 Hart Senate Office Building Washington, DC 20510
Jim Beall State Senator	US State Senator	2105 S. Bascom Avenue Ste. 154 Campbell, California 95008
Evan Low Assembly Member	US Assembly Member	20111 Stevens Creek Blvd Ste. 220 Cupertino, California 95014
Savita Vaidhyanathan Mayor, City of Cupertino	Cupertino City Council	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
Darcy Paul Vice Mayor	Cupertino City Council	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
Barry Chang Council Member	Cupertino City Council	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
Rod G. Sinks Council Member	Cupertino City Council	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
Steven Scharf Council Member	Cupertino City Council	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
David Brandt City Manager	City of Cupertino	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
	City of Cupertino Code Enforcement	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
	City of Cupertino Community Development	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
	City of Cupertino Environment & Sustainability	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
	City of Cupertino Public Works	Cupertino City Hall 10300 Torres Avenue Cupertino, California 95014
Jose Luevano Project Manager	Site Mitigation and Brownfields Reuse Program Department Toxic Substances Control	8800 Cal Center Drive Sacramento, California 95826
Tammy Pickens Public Participation Specialist	Public Participation Branch Department Toxic Substances Control	8800 Cal Center Drive Sacramento, California 95826

Abbott Dutton Public Information Officer	Office of Communications Department Toxic Substances Control	1001 I Street, 22nd Floor Sacramento, California 95812

3.3 INFORMATION REPOSITORIES

To facilitate community access to key project documents and information, a local information repository will be established and the project Administrative Record (AR) will be made available to the public. The location of the local information repository is listed below, as well as the location of the DTSC Sacramento Regional Office, which is the storage location of the project AR. The repository will include copies of key technical documents, the community profile, fact sheets, and other Site-related documents as they are developed and approved.

Cupertino Library
10800 Torres Avenue
Cupertino, California 95014
(408) 446-1677; Call for hours

DTSC – Sacramento Regional Office
8800 Cal Center Drive
Sacramento, California 95826
(916) 255-3758, Call for an appointment

Cupertino Union School District, District Office
1309 South Mary Avenue, Suite #150
Sunnyvale, California 94087
Contact: Travis Kirk, Director - Facility Modernization
(408) 252-3000; Open: 8am - 5:00pm (M-F)

Information can also be found online at DTSC's Envirostor website: www.envirostor.dtsc.ca.gov

3.4 DTSC PROJECT CONTACTS

Tammy Pickens
Public Participation Specialist
Department of Toxic Substances Control
Sacramento Regional Office
Sacramento, California 95826
Phone: (916) 255-3594, 1-866-495-5651
Tammy.Pickens@dtsc.ca.gov

Jose Luevano
Project Manager
Department of Toxic Substances Control
Sacramento Regional Office
Sacramento, California 95826
Phone: (916) 255-3577
Jose.Luevano@dtsc.ca.gov

Appendix A

Community Cover Letter and Survey Results

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Edmund G. Brown Jr.
Governor

December 13, 2017

Dear Community Member,

The Department of Toxic Substances Control (DTSC) is overseeing an environmental investigation and cleanup of the Cupertino Union School District (District) expansion property (Site) located at 10480 Finch Avenue in Cupertino, California 95014. The Site is located near the exiting Sedgwick Elementary School. There are no immediate construction plans for the expansion property.

In January 2016, an environmental investigation was completed at the property and found high levels of lead and chlordane (a commonly used pesticide chemical) in the soil on the northern, western and southeastern sides of the residential structure and on the western side of the workshop. DTSC is sending this letter and Community Survey to make you aware of the cleanup, and to learn more about your interest in the project.

The Site is approximately 1.48-acres and historically operated as an orchard from 1939 to 1956, and used as residential property since 1956. A 500-gallon gasoline underground storage tank was removed from the Site in 1996. A house and workshop remains on the property and will be removed immediately following the cleanup. The expansion property will not increase the number of students or classrooms at the school.

We are requesting your participation to assist us in assessing community interest in the cleanup project as part of our Public Participation Program. Your response to the enclosed Community Survey will help DTSC determine the level of community interest and future community outreach activities for the cleanup project.

If you have questions about the survey, please contact:

Tammy Pickens
DTSC Public Participation Specialist
(916) 255-3594; toll free at 1-866-495-5651
Tammy.Pickens@dtsc.ca.gov

Jose Luevano
DTSC Project Manager
(916) 255-3577
Jose.Luevano@dtsc.ca.gov

Please complete and return the enclosed Community Survey by **January 10, 2018**.

Sincerely,

Tammy Pickens
DTSC Public Participation Specialist

Department of Toxic Substances Control December 2017

Community Survey

The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products.

SEDGWICK ELEMENTARY SCHOOL EXPANSION

Please complete and return this Community Survey for State Cleaners to: **Tammy Pickens, Public Participation Specialist at 8800 Cal Center Drive, Sacramento, California 95826 by January 10, 2018**. Enclosed is a self-addressed envelope.

MAILED: 981 **RECIEVED: 40**

1. Please check the box, which decribes your current knowledge about this site.

- ❐ I do not know anything about this site. 19/40
- ❐ I have heard about this site but have little or no information on them. 16/40
- ❐ I know a lot about this site. 5/40

2. Select your interest level regarding this site and receiving information about this site.

- ❐ Unsure if I am interested or not. 3/40
- ❐ No interest. Do not want information about this site. 1/40
- ❐ Some interest. Interested in hearing or reading more about this site. 19/40
- ❐ I am very interested. I would read information mailed to me and talk to people about this site. 17/40

3. Select your willingness to attend a meeting regarding this site.

- ❐ I would attend a meeting. 12/40
- ❐ I might attend a meeting if it was convenient for me. 18/40
- ❐ I would not attend a meeting. 9/40

4. What is your language need for receiving information about this site?

❐ English 40/40 ❐ Spanish 0/40 ❐ Other 0/40

5. We want to tell you more about this site. What is the best way for you to receive information?

- ❐ US Postal Service – Printed material and/or letters. 31/40
- ❐ Electronic Version – Read via Email or Website 15/40
- ❐ Newspaper. – What newspaper do you read? 6/40
- ❐ Radio. – What radio station do you listen to? 3/40
- ❐ Community meetings. – When is the best time for you to attend? 7/40

❐ Weekday 2/40 ❐ Weeknights 11/40 ❐ Weekends 2/40

Cal/EPA DTSC State of California

6. We sometimes need to talk with community members to learn more. Would you be willing to talk with us?
   - ☐ Yes 18/40 (*Use space provided in question #9.*)
   - ☐ No 18/40

7. Is there an active community group or individual(s) in your neighborhood that we should add to our mailing list?

   Please provide us with the following information:

   Name ____________________

   Address ____________________

   City, State, Zip Code ____________________

   Telephone: __________ Email: __________

8. Please feel free to add any other comments you may have about the site or regarding public participation.

9. If you would like to receive information regarding this Site, please complete the information below. Select the box below to indicate if you want to be added, removed, or just update your current information.

   ☐ **Add** me to Mailing List ☐ **Update** my information ☐ **Remove** me for the Mailing List

   You may also request to receive Site information via email only by checking this box ☐ **Email Only**

   Name ____________________

   Address ____________________

   City, State, Zip Code ____________________

   Telephone: __________ Email: __________

   Note: *While the mailing list is solely for DTSC to keep you informed of our activities at this site, the list is a public record and, if requested, may be subject to release.*

We appreciate the time you have taken to fill out this survey for us. If you have questions or concerns regarding this site, please contact the project team:

Tammy Pickens
Public Participation Specialist
8810 Cal Center Drive
Sacramento, California 95826
(866) 495-5651 and/or (916) 255-3594
Tammy.Pickens@dtsc.ca.gov

Jose Luevano
Project Manager
8800 Cal Center Drive
Sacramento, California 95826
(916) 255- 3577
Jose.Luevano@dtsc.ca.gov

More Site information and documents can be found on DTSC EnviroStor Database System at: http://www.envirostor.dtsc.ca.gov/public/

NOTICE TO HEARING IMPAIRED: TTY users may use the California Relay Service @ 711 or 1-800-855-7100. You may also contact the Public Participation Specialist listed at the end of this update.

Appendix B
Site Location Map

SOURCE: GOOGLE EARTH MAP DATED NOV. 2016

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	7/13/17	AC	AJK

PLATE 1-2

SITE PLAN

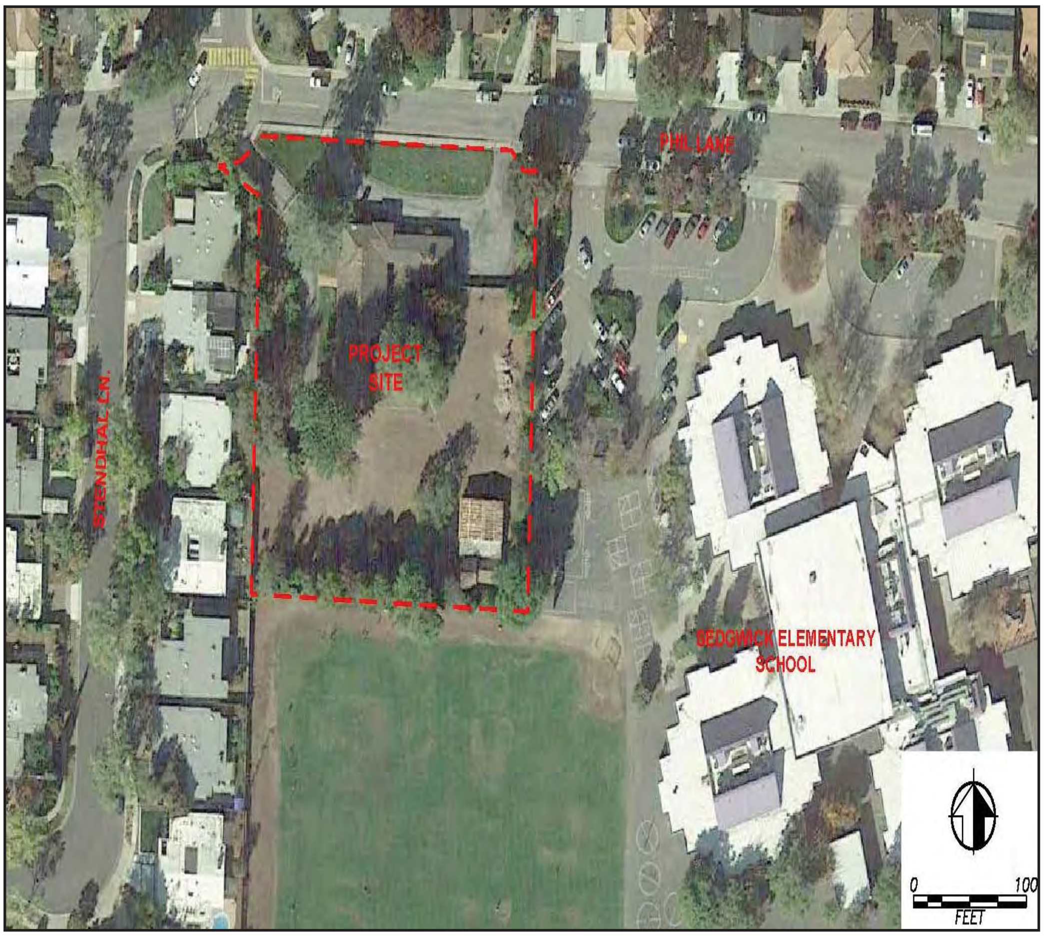
APPENDIX F

DTSC COMMUNITY UPDATE

COMMUNITY UPDATE

The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products.

PROPOSED CLEANUP PLAN FOR THE CUPERTINO UNION SCHOOL DISTRICT



DTSC invites you to review and comment on the draft Removal Action Workplan (RAW) also called draft cleanup plan for of the Cupertino Union School District (District) expansion property located at 10480 Finch Avenue in Cupertino, California 95014 (Site). The Site is located near the exiting Sedgwick Elementary School.

An environmental investigation found high levels of lead and chlordane (a commonly used pesticide chemical) in the soil.

Public Comment Period

March 23, 2018 - April 23, 2018

DTSC will accept public comments on the draft RAW for the Site during the public comment period of **March 23, 2018 – April 23, 2018**. All comments must be received by **April 23, 2018** and sent to:

Jose Luevano
DTSC Project Manager
8800 Cal Center Drive
Sacramento, California 95826
(916) 255-3577
Jose.Luevano@dtsc.ca.gov

SITE HISTORY AND INVESTIGATIONS

The Site consists of 1.48 acres of land that has been used for agricultural purposes from 1939 till 1956 and used as residential property since 1956. A 500-gallon gasoline underground storage tank was removed from the Site in 1996. A house and workshop remains on the property and will be removed immediately following the cleanup.

An environmental investigation conducted in January 2016, found high levels of lead and chlordane (a commonly used pesticide chemical) in the soil on the northern, western and southeastern sides of the residential structure and on the western side of the workshop. The Site is being cleaned up to protect human health and the environment, and to prepare the Site for school construction.

PROPOSED CLEANUP OPTIONS

The following four options were considered for the Site:

Alternative 1 – No Action
Alternative 2 – Excavation and Offsite Disposal
Alternative 3 – Treatment
Alternative 4 – Engineering and Institutional Controls

PREFERRED CLEANUP ALTERNATIVE

The preferred cleanup alternative selected is Alternative 2; Excavation and Offsite Disposal. This alternative would effectively reduce the contamination at the Site by removing the contaminated soil concentrations above the selected unrestricted land use levels. If this alternative is approved, approximately 300 cubic yards of contaminated soil would be excavated and disposed at a permitted offsite disposal facility. Clean fill material may be brought to the Site to backfill excavated areas.

SAFETY & DUST CONTROL

Large equipment, such as excavators and backhoes, will be used to excavate and stockpile the contaminated soil. Large soil transfer trucks will be used to haul contaminated soil to the off-site disposal facilities. The following actions will be implemented during the soil cleanup process to ensure public safety and minimize dust:

- The staging area will be fenced to restrict access;
- Stockpiled soil will be covered with tarps or other protective sheeting;
- Water spray will be used to control dust generation;
- Monitoring of the dust generated during the soil remediation activities will be conducted.;Tarps or other suitable enclosures will be used on trucks hauling the excavated soil.

SOIL REMOVAL AND TRUCK ROUTE

Proposed remedial activities will occur between the hours of 7 A.M.to 5 P.M., Monday - Friday. Approximately 20 truckloads will be required to transport the 300 cubic yards of contaminated offsite to a State-licensed disposal facility. The trucks will be operated by a licensed hazardous waste trucking contractor. Loaded trucks will exit from the Site's northeast gate and turn left on Phil Lane; head west of Phil Lane; turn right onto Miller Avenue; continue onto North Wolfe Road; use right lane to take Interstate I-280 S onramp; then merge onto I-280 N.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Based on the conditions of the Site and the proposed cleanup alternative, DTSC has determined the response action qualifies for a Class 30 Categorical Exemption pursuant to California Code of Regulations, title 14, section 15330, and intends to issue a Notice of Exemption (NOE) when the final Removal Action Workplan (RAW) is approved to comply with the California Environmental Quality Act (CEQA) requirements. The draft NOE will be made available for public review, along with other supporting documents in the information repositories.

NEXT STEPS

DTSC will review and consider comments received during the public comment period before making a final decision to approve, modify or deny the draft RAW. If comments are received, DTSC will prepare a Response to Comments at the completion of the public comment period. Anyone who submits comments will receive a copy of the Response to Comments document, in addition, a copy will be placed in the information repositories listed below.

INFORMATION REPOSITORIES

You may review the draft RAW and other Site-related documents at the following places:

Cupertino Union School District, District Office
1309 South Mary Avenue, Suite #150
Sunnyvale, California 94087
Contact: Travis Kirk, Director – Facility Modernization
(408) 252-3000; Open: 8am – 5:00pm (M-F)

Cupertino Library
10800 Torres Avenue
Cupertino, California 95014
(408) 446-1677; Call for hours

DTSC – Sacramento Regional Office
8800 Cal Center Drive
Sacramento, California 95826
(916) 255-3758; Call for appointment

Site documents are also available on-line at: www.envirostor.dtsc.ca.gov.

At the webpage search bar, type in Sedgewick. The "Sites/Facilities" information will appear. Click on "View Information", the summary page for "Sedgewick Elementary School Expansion Project" will appear. Click on "Site Facility Docs", where you can access project related documents.

DTSC CONTACT INFORMATION

The following individuals may be contacted with any questions or concerns you may have regarding the project:

Jose Luevano, Project Manager
(916) 255-3577
Jose.Luevano@dtsc.ca.gov

Tammy Pickens, Public Participation Specialist
(916) 255-3594, 1-866-495-5651
Tammy.Pickens@dtsc.ca.gov

Abbott Dutton, Public Information Officer
(916) 324-2997
Abbott.Dutton@dtsc.ca.gov

APPENDIX G

HEALTH & SAFETY PLAN

APPENDIX G
HEALTH & SAFETY PLAN

Project Title:	Removal Action Workplan (RAW) for the Sedgwick Elementary School Expansion Project.		
Project Address:	10480 Finch Avenue, Cupertino, 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 remedial action (RA) activities including soil excavation and off-site disposal and confirmation soil sampling are anticipated to last approximately one month.

PROJECT DESCRIPTION

The District purchased the Project Site in 2017 as part of the future expansion of Sedgwick Elementary School. At this time, no specific plans have been developed for improving the property. However, based on chemicals of concern (COCs) 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 COCs are identified to be chlordane (pesticide) and lead.

BACKGROUND

Padre completed a Preliminary Environmental Assessment (PEA) for the Project Site dated September 2015 and a Supplemental Site Investigation (SSI) dated January 2016. The PEA and SSI identified organochlorine pesticides (OCPs) and lead as COCs in soil requiring a response action. The selected response action for the COCs is excavation and off-site disposal at a licensed landfill facility. Based on established remedial cleanup goals (CGs), approximately 300 cubic yards of impacted soil will be excavated, chemically 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.

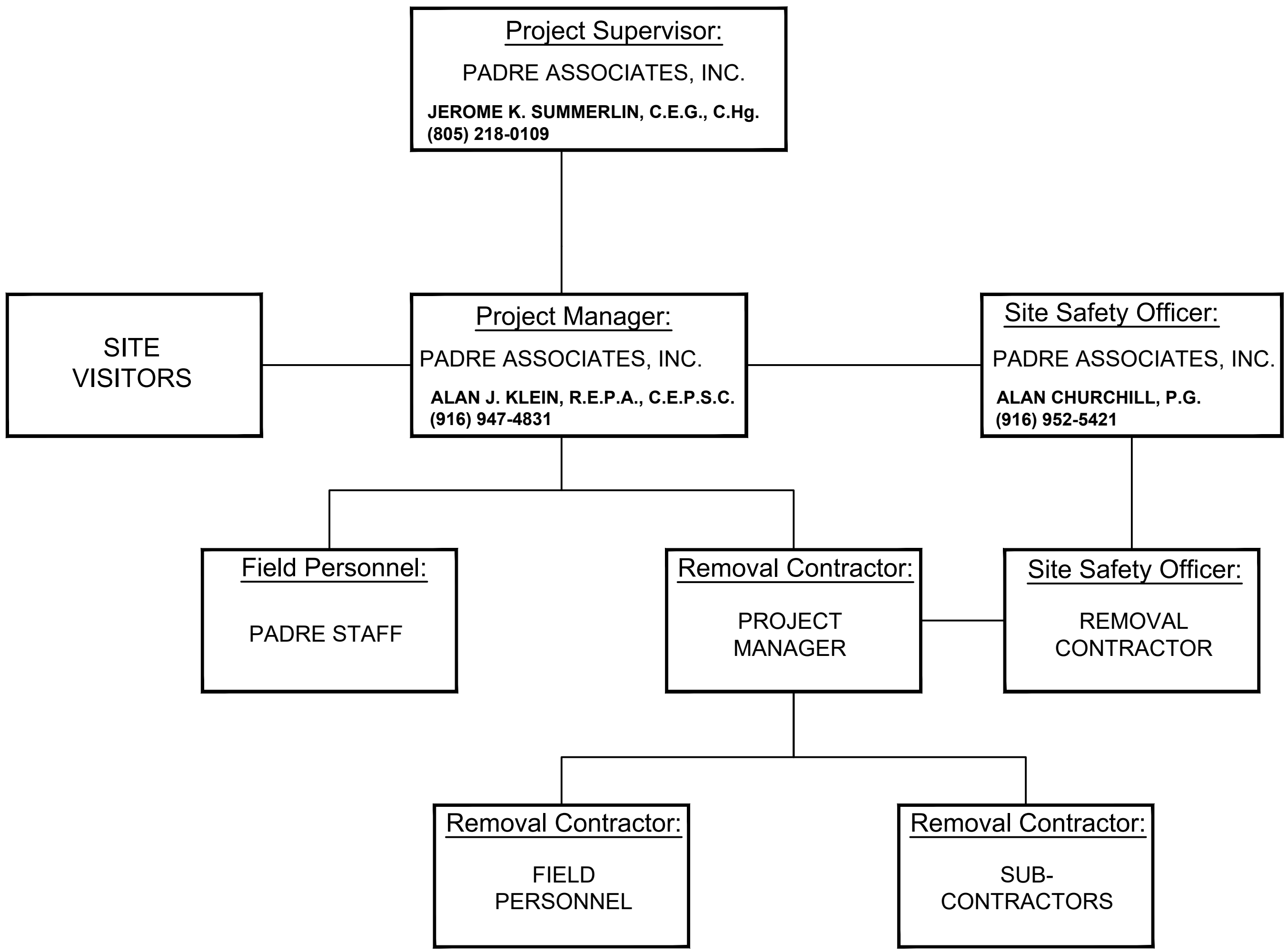
The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the Site H&SP and verify compliance with applicable safety and health requirements. The SSO must verify that all on-site personnel are qualified, trained and prepared 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 RAW 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 G-1: Organization Chart.

REMOVAL ACTION

Cupertino Unified School District
Sedgwick Elementary Expansion Project
Cupertino, California



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	3/12/18	AC	AJK

PLATE G-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:	Santa Clara Valley Medical Center is located approximately 6 miles east of the Project Site
Address:	751 South Bascom Road San Jose, California 95128
Phone:	(408) 885-5000
Ambulance response time:	Approximately 10 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 -

From work area, travel west on Phil Lane (0.2 miles);

Turn right onto Miller Avenue (0.5 miles);

Continue onto N Wolfe Road (0.4 miles);

Use right lane to take the on-ramp to I-280 South (0.2 miles);

Merge onto 1-280 S (3.3 miles);

Take Exit 6 for Winchester Blvd (0.2 miles);

Turn left onto Moorpark Avenue (1.1 miles);

Turn right onto S Bascom Avenue (0.1 miles);

Turn right onto Renova Drive (180 feet);

Turn left and arrive at hospital facility.

A map illustrating the driving directions is located at the end of the HSP.

SITE DESCRIPTION

Location:	10480 Finch Avenue, Cupertino, California.
Potential Hazards:	Soil containing OCPs and lead.
Surrounding Land Use:	Residential, elementary school.
Topography:	Relatively level.
Weather Conditions:	Cool with slight winds anticipated.

PROJECT OBJECTIVE

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

- Excavate approximately 300 cy of soil containing OCPs and lead above risk screening levels;
- Stockpile excavated soil and collect composite soil samples for waste characterization and disposal purposes;
- Collect confirmation soil samples from the excavation areas, and compare confirmation results to established cleanup goals (CGs). If needed, excavate an additional volume(s) of soil until the CGs are met; and
- Load and transport impacted soil (~500 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:	Jose Luevano, Project Manager
Agency:	CalEPA/DTSC
Program:	School Property Evaluation and Cleanup Division
Phone Number:	(916) 255-3577

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
Chlordane	Ingestion, inhalation and dermal contact	Highest Concentration Reported: **13 mg/kg**
Lead	Ingestion, inhalation and dermal contact	Highest Concentration Reported: **310 mg/kg**

The nature and sources and/or uses of identified COCs are 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.

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.

HEALTH EFFECTS OF CONTAMINANTS

Chemical information sheets for COCs are presented in Appendix G-1. 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).

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. 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.

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.) will be disconnected and capped at street, prior to the start of RA Activities.

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 on the southern Bay Area and experiences cool, mild weather in fall months. Therefore, exposure to heat stress at this site is considered low.

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 consist of a large residential property that is fenced off to public traffic. Therefore, the potential exposure to traffic hazards is considered low.

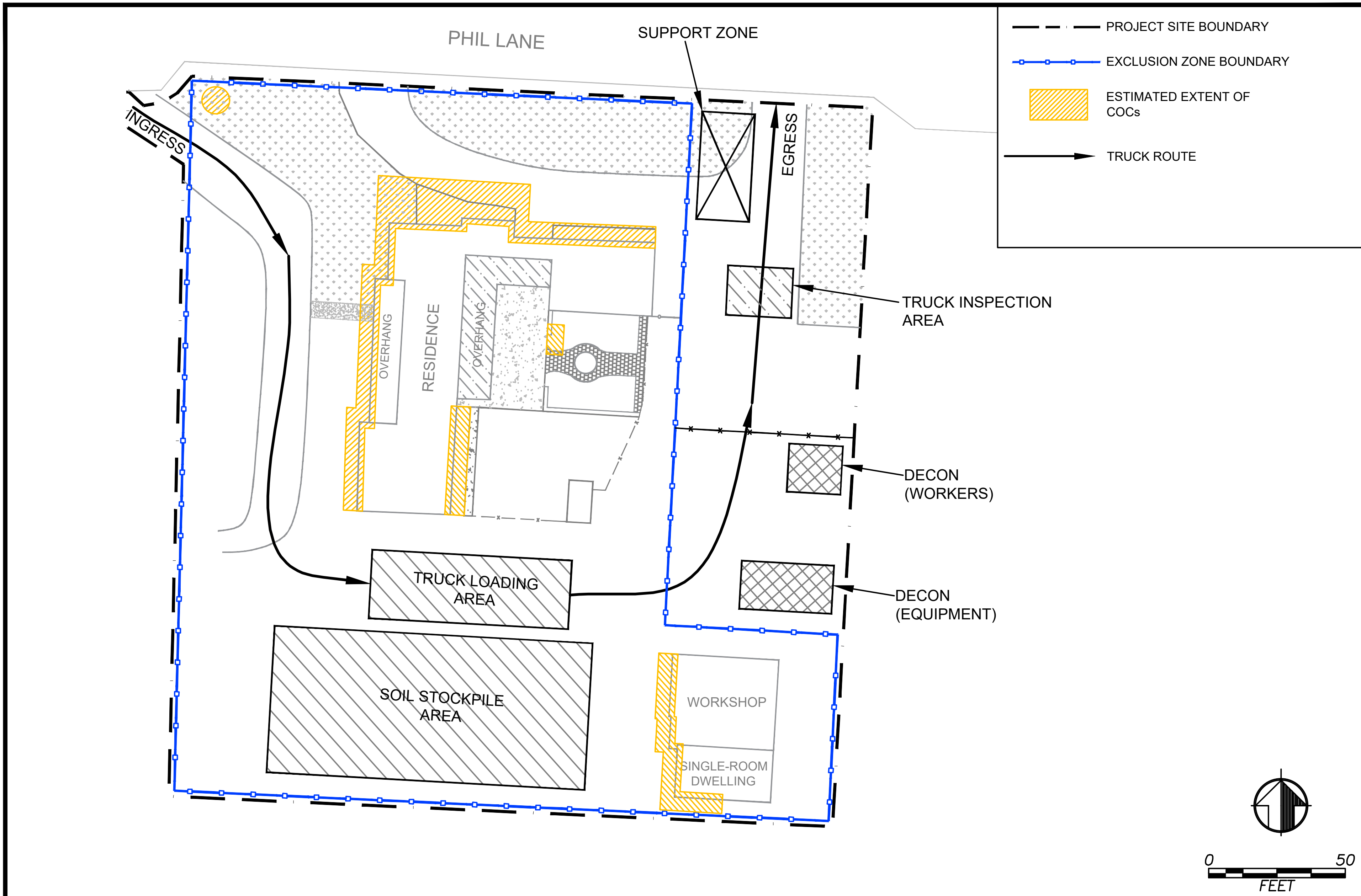
Biological Hazards Onsite. During field activities at the Project Site, a wide variety of insects, including bees, ticks and spiders may be encountered. Stings from bees may cause serious allergic reactions in certain individuals. Ticks are parasites that feed on the blood of an animal/human host and 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 Plate G-2.

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.



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	3/12/18	AC	AJK

PLATE G-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 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:

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

The dust exposure levels for each COC are as follows:

Chlordane: $$0.00013\ mg/m^3 = \frac{13\ mg/kg \times 10\ mg/m^3}{1{,}000{,}000\ mg/kg}$$

Lead: $$0.0031\ mg/m^3 = \frac{310\ mg/kg \times 10\ mg/m^3}{1{,}000{,}000\ mg/kg}$$

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. Air monitoring action levels for site workers are presented in Table G-2.

Table G-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	0.00013 mg/m^3	0.5 mg/m^3	---	---
Lead	0.0031 mg/m^3	0.05 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.

Sensitive Population. The Sedgwick Elementary School is located adjacent and east of the Project Site, and the students are considered a sensitive population. The fence line action level for total dust has been determined to be 0.05 mg/m^3. Therefore, assuming that total dust in air (at the fence line) contains the maximum concentration of each COC identified at the Project Site, the sensitive population exposure levels can be calculated as follows:

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

The dust exposure levels for each COC are as follows:

Chlordane: $0.00000065 \text{ mg/m}^3 = \frac{13 \text{ mg/kg} \times 0.05 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

Lead: $0.000016 \text{ mg/m}^3 = \frac{310 \text{ mg/kg} \times 0.05 \text{ mg/m}^3}{1{,}000{,}000 \text{ mg/kg}}$

For the adjacent sensitive population (students), the calculated dust exposure levels for each COC were compared to their risk screening level for ambient air. This comparison shows that the fence line action level for total dust is protective of the adjacent sensitive population. Air monitoring action levels for sensitive populations are presented in Table G-3.

Table G-3: Air Monitoring Action Levels for Sensitive Populations

Chemical of Concern	Calculated Dust Exposure Level[(a)]	Ambient Air Screening Level	Fence Line Action Level[(d)]
Chlordane	0.00000065 mg/m^3	0.0000083 mg/m^3 [(b)]	---
Lead	0.000016 mg/m^3	0.00015 mg/m^3 [(c)]	---
Total Dust[(b)]	--	--	0.05 mg/m^3

Notes: (a) – Calculated using 0.05 mg/m^3 total dust (fence line action level).
(b) – ambient air screening level, DTSC HHRA, Note 3.
(c) – ambient air screening level, USEPA Region 9 RSLs.
(d) – California ambient air quality standard (24 hour average for PM10).

Based on these conservative calculations, the selected engineering controls are protective of the most sensitive population.

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.

ATTACHMENT G-1
CHEMICAL INFORMATION SHEETS

PUBLIC HEALTH STATEMENT
CHLORDANE
CAS#: 12789-03-6

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.

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 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.

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

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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

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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/

APPENDIX H

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN (QAPP)

FOR

REMOVAL ACTION WORKPLAN
SEDGWICK ELEMENTARY SCHOOL EXPANSION PROJECT
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA
(SITE CODE: 204271)

Prepared for:

Cupertino Union School District

Prepared by:

Padre Associates, Inc.

August 2017

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APPENDIX G

QUALITY ASSURANCE PROJECT PLAN (QAPP)

For

Removal Action Workplan
Sedgwick Elementary School Expansion Project
Cupertino, Santa Clara County, California

1.0 INTRODUCTION

This document presents the quality assurance project plan (QAPP) for the planned remedial action activities to be completed at the Sedgwick Elementary School Expansion Project located at 10480 Finch Avenue in Cupertino, 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 Site Background

The Cupertino Union School District purchased the Project Site in 2017. At this time, no specific plans have been developed for improving the property. However, based on chemicals of concern (COCs) 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 COCs are identified to be chlordane (pesticide) and lead.

Padre completed a Preliminary Environmental Assessment (PEA) for the Project Site dated September 2015 and a Supplemental Site Investigation (SSI) dated January 2016. The PEA and SSI identified organochlorine pesticides (OCPs) and lead as chemicals of concern (COCs) in soil requiring a response action. The selected response action for the COCs is excavation and off-site disposal at a licensed landfill facility. Based on established remedial cleanup goals (CGs), approximately 300 cubic yards of impacted soil will be excavated, chemically characterized, transported, and disposed of at an appropriate disposal facility.

2.0 PROJECT DESCRIPTION

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 COCs identified during the PEA and SSI. 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 quality control (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 COCs 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 COCs 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 COCs 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 COCs 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 Cupertino Union School District (District) is the project proponent and is the party with ultimate responsibility for ensuring that the Project Site is safe for future 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

Jose Luevano, 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 COCs at concentrations above the CGs from 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 COCs 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 COCs 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 COCs 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 COCs 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:

$$\% \text{ RPD} = 100\% \times \frac{\text{Abs}(X2 - X1)}{\text{Avg}(X2 + X1)}$$

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:

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

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 Procedures for Data Validation

An independent data validation will be completed, independent of the laboratory providing analytical services. Guidance for performing data validation for the types of analyses to be utilized for this investigation is provided in the National Functional Guidelines. Data validation shall be documented in a manner consistent with these functional guidelines. The results of the data validation shall be recorded on validation forms and reported in the removal action completion report.

8.4 Data Qualifiers

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 G.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, *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.

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Table 1: Reporting Limits and Holding Times for COCs

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
Lead by EPA 6010	0.5	mg/kg	180 days
TTLC	1,000	mg/kg	180 days
STLC	5.0	mg/L	180 days
TCLP	5.0	mg/L	180 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
NA – not applicable

APPENDIX I

TRANSPORTATION PLAN

APPENDIX I

TRANSPORTATION PLAN FOR OFF-SITE DISPOSAL

Cupertino Union School District
Sedgwick Elementary School Expansion Project
Cupertino, Santa Clara County, California

INTRODUCTION

The Cupertino Union School District purchased the Project Site in 2017 and is located at 10480 Finch Avenue in Cupertino, California (Project Site). At this time, no specific plans have been developed for improving the property. However, based on chemicals of concern (COCs) 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 COCs are identified to be chlordane, a pesticide, and lead from weathering of lead-based paint from building structures.

Padre completed a Preliminary Environmental Assessment (PEA) for the Project Site dated September 2015 and a Supplemental Site Investigation (SSI) dated January 2016. The PEA and SSI identified organochlorine pesticides (OCPs) and lead as chemicals of concern (COCs) in soil requiring a response action. The selected response action for the COCs is excavation and off-site disposal at a licensed landfill facility. Based on established remedial cleanup goals (CGs), approximately 300 cubic yards of impacted soil will be excavated, chemically characterized, transported, and disposed of at an appropriate disposal facility.

A Removal Action Workplan (RAW) has been prepared to address the excavation and offsite disposal of surface soil at the Project Site containing COCs. This Transportation Plan has been prepared as a key component of the RAW. All removal, transportation and disposal activities will be performed in accordance with all applicable federal, state, and local laws, regulations, and ordinances.

WASTE CHARACTERIZATION AND QUANTITY

The COCs identified to be remediated include OPCs and lead in near surface soils. The planned volume of excavated soil is approximately 300 cubic yards of soil (insitu). Soil is typically transported and disposed of by weight. The estimated quantity of soil to be transported and disposed of has been calculated to be approximately 486 tons, which at 22 tons per load, would result in approximately 22 truck and trailer loads.

WASTE CHARACTERIZATION

The excavated soil will be temporarily stored as approximately 2 stockpiles. The soil stockpiles will be characterized to determine its waste classification per the requirements of the 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 and CAM 17 metals. It is anticipated that soils excavated from the

Project Site will be managed (handled, transported and disposed of) as a non-hazardous waste.

Waste characterization and landfill approval will be obtained prior to transporting soil off the Project Site. If detected concentrations of COCs 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 COCs 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 COCs 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
Lead	1,000 mg/kg	5.0 mg/L	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 for 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.

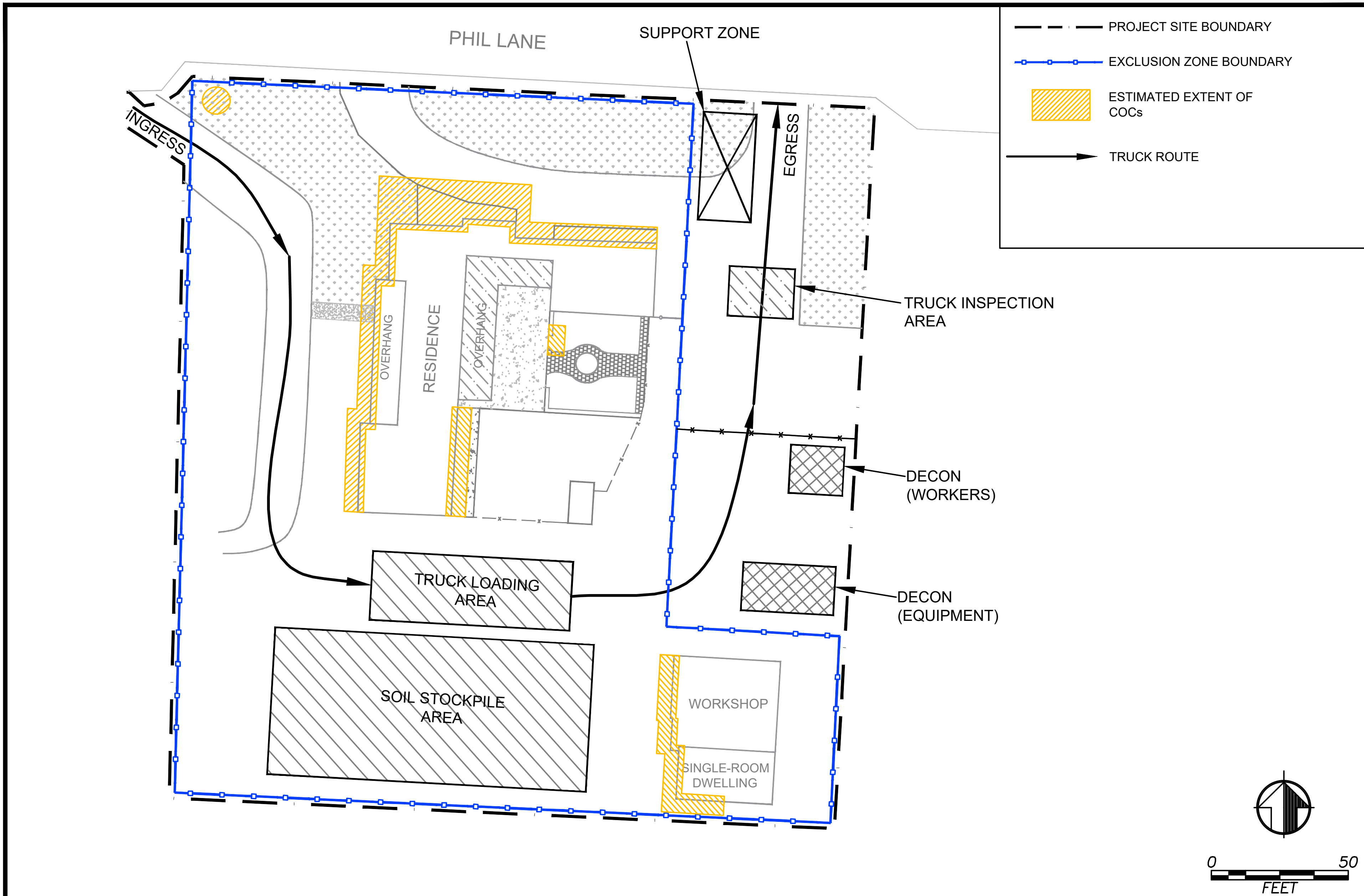
Compliance with the DTSC requirements of hazardous waste generation, temporary onsite storage, transportation and disposal is required. Any container used for onsite storage will be properly labeled with a hazardous waste label. Within 90 days after its generation, the hazardous waste will be transported 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.

REQUIREMENTS OF TRANPORTERS

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.

TRAFFIC CONTROL PROCEDURES

Trucks will enter and exit the Project Site from the northwest corner located at the intersection of Finch Avenue and Phil Lane (refer to Plate H-1). It appears that two to three 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.



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SEDGWICK ELEMENTARY SCHOOL EXPANSION
10480 FINCH AVENUE
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-3361	3/12/18	AC	AJK

PLATE I-1

WORK ZONES

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.

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.

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 facility has been identified to accept and store and/or treat non-hazardous soil generated from the removal activities:

Non-Hazardous Waste Landfill (Class II)

New Island Sanitary Landfill
1601 Dixon Landing Road
Milpitas, California 95035
(408) 262-2871

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 (Class I)

Clean Harbors, LLC
Buttonwillow (Hazardous Waste Facility)
2500 West Lokern Road
McKittrick, California 93251
(661) 762-6200

TRANSPORTATION ROUTE (CLASS II LANDFILL)

A highway route has been identified for transportation of soil from the Project Site to the Newby Island Sanitary Landfill Facility located in Suisun City, 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.

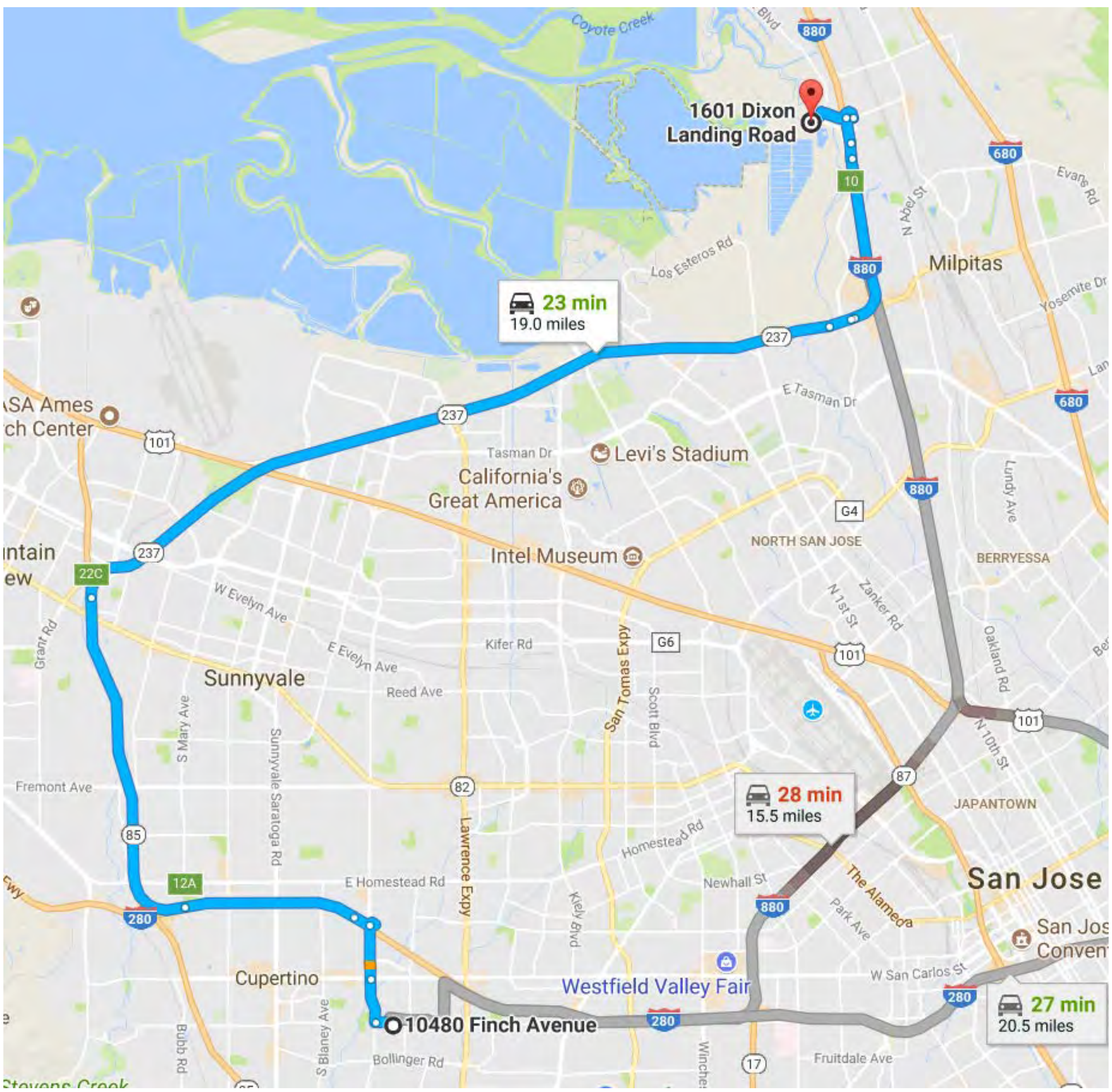
Route to Newby Island Sanitary Landfill, 1601 Dixon Landing Road, Milpitas, California (non- hazardous, Class II, waste facility):

1. Loaded trucks will exit from the Project Site's northeast gate and turn left on Phil Lane;
2. Head west of Phil Lane (0.2 mi);
3. Turn right onto Miller Avenue (0.5 mi);
4. Continue onto North Wolfe Road (0.6 mi)
5. Use right lane to take Interstate 280 N onramp (0.4 mi);
6. Merge onto I-280 N (1.8 mi);
7. Use the right two lanes to take Exit 12A to merge onto CA-85 N toward Mountain View (3.8 mi);
8. Take exit 22C to merge onto CA-237 E toward Oakland/San Jose/US-101S (8.6 mi);
9. Use the middle 2 lanes to take exit toward I-880 N (0.2 mi);

10. Use the right 2 lanes to keep left at the fork and follow signs for I-880 N/Oakland (200 ft.);
11. Keep right at the fork and merge onto I-880 N (1.8 mi);
12. Use the 2nd from the right lane to take exit 10 for Dixon Landing Road (0.2 mi.);
13. Keep left at the fork, follow signs for Dixon Landing Road W (0.3 mi);
14. Keep right at the fork, follow signs for Dixon Landing Road W (0.2 mi);
15. Use the right 2 land to turn right onto Dixon Landing Road (0.5 mi); and
16. Arrive 1601 Dixon Landing Road, Milpitas, CA 94585. (Facility is on the left)

Total trip approximately 19 miles; 30 min.

Route to Newby Island Sanitary Landfill, 1601 Dixon Landing Rd. Milpitas, CA.



TRANSPORTATION ROUTE (CLASS I LANDFILL)

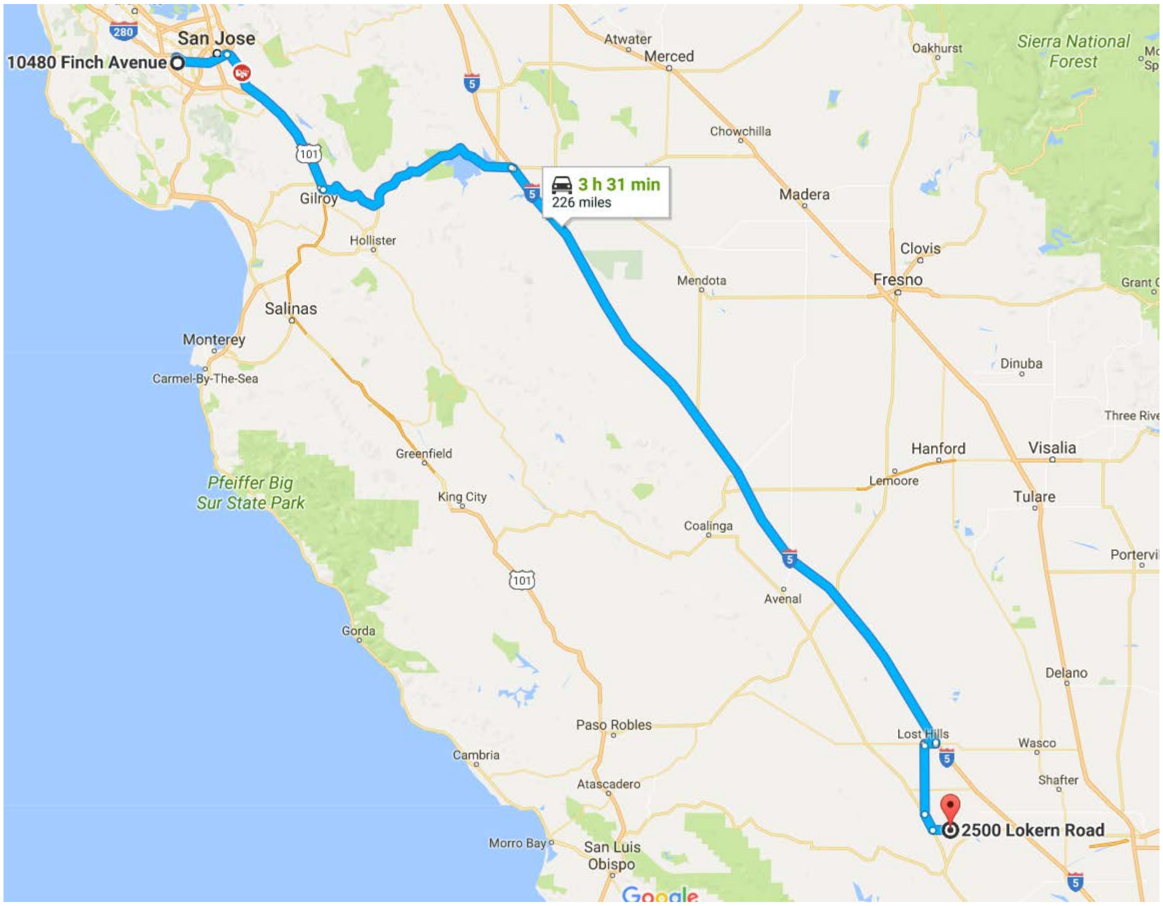
A highway route has been identified for transportation of soil from the Project Site to the Clean Harbors Buttonwillow Hazardous Waste Facility located in McKittrick, California. The selected route is the most direct and will provide the least risk of exposure to surrounding communities. None of the 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 Clean Harbors Buttonwillow Facility, 2500 West Lokern Road, McKittrick, California (Class I hazardous waste facility):

1. Loaded trucks will exit from the Project Site's northeast gate and turn left on Phil Lane;
2. Head west of Phil Lane (0.2 mi);
3. Turn right onto Miller Avenue (0.5 mi);
4. Continue onto North Wolfe Road (0.4 mi.);
5. Use right lane to take Interstate I-280 S onramp (0.2 mi);
6. Merge onto I-280 N (9.2 mi);
7. Use the right 2 lanes to merge onto US-101 S toward Los Angeles (29.1 mi);
8. Use the 2nd from the right lane to take exit 356 for 10th Street/CA-152 E (0.3 mi);
9. Use the left 2 lanes to turn sharply left onto CA-152 E/E 10th Street/E Pacheco Pass Road (40.7 mi);
10. Use the right lane to merge onto I-5 S via the ramp to Los Angeles (0.5 mi);
11. Merge onto I-5 S (124 mi);
12. Take exit 278 for CA-46 toward Lost Hills/Wasco (0.3 mi);
13. Turn right onto CA-46 W (1.9 mi);
14. Turn left onto Woodward Street (0.3 mi);
15. Continue onto Lost Hills Road (12.1 mi);
16. Turn left onto CA-33 S (3.1 mi);
17. Turn left on Lokern Road; and
18. Arrive at Clean Harbors Buttonwillow, 2500 W Lokern Rd., McKittrick, CA. (On the left)

Total trip approximately 226 miles; 3 hrs, 31 min.

Route Map to U.S. Ecology Nevada Inc.



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.).

APPENDIX J

DTSC ADVISORY ON IMPORTED FILL 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.

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.