PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
455 EAST 11TH STREET
TRACY, CALIFORNIA 95376

Prepared for

Tracy Unified School District
1875 West Lowell Avenue
Tracy, California 95376

Prepared by

Terraphase Engineering Inc.
1404 Franklin Street, Suite 600
Oakland, California 94612

October 31, 2018

Project Number 0243.001.009

terraphase engineering

CONTENTS

TABLES

FIGURES

APPENDIX

Acronyms and Abbreviations

µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
AAI	All Appropriate Inquiries
APN	Assessor's Parcel Number
ASTM	American Society for Testing and Materials
AST	aboveground storage tank
bgs	below ground surface
BS	blank spike
BSD	blank spike duplicate
BTEX	benzene, toluene, ethylbenzene, and xylenes
CARB	California Air Resources Board
COPCs	contaminants of potential concern
CSM	conceptual site model
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Human and Ecological Risk Office Modified Screening Levels
ECHO	EPA Enforcement and Compliance History Online
EDR	Environmental Data Resources, Inc.
ELAP	State of California Environmental Laboratory Accreditation Program
Enthalpy	Enthalpy Analytical
EPA	United States Environmental Protection Agency
EPC	exposure point concentration
ESA	Environmental Site Assessment
ESLs	Environmental Screening Levels
FINDS	Facility Index System/Facility Registry System
HAZNET	Facility and Manifest Data
HI	hazard index
HQ	hazard quotient
HERO	Human and Ecological Risk Office
ID	identification
LCS	laboratory control sample
LCDS	laboratory control duplicate sample
LQG	large quantity generator
LUST	Leaking Underground Storage Tank
mg/kg	milligrams per kilogram
mL	milliliters
MS	matrix spike

MSD	matrix spike duplicate
MTBE	methyl-tert-butyl-ether
NFA	no further action
OCPs	organochlorine pesticides
PEA	Preliminary Environmental Assessment
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PLM	polarized light microscopy
ppm	parts per million
QA/QC	quality assurance/quality control
RCRA	Resource Conservation & Recovery Act
RPD	relative percent difference
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SJCEHD	San Joaquin County Environmental Health Department
SQG	small quantity generator
SVOC	semi-volatile organic compound
TBA	tert-butyl alcohol
TEM	Transmission Electron Microscopy
TEPH	total extractable petroleum hydrocarbons
TPH	total petroleum hydrocarbons
TPH-g	total petroleum hydrocarbons quantified as gasoline
TVPH	total volatile petroleum hydrocarbons
UST	underground storage tank
VOC	volatile organic compound

EXECUTIVE SUMMARY

On behalf of Tracy Unified School District (the "District"), Terraphase Engineering Inc. (Terraphase) has prepared this Preliminary Environmental Assessment (PEA) Report (the "PEA Report") for the property located at 455 East 11th Street, Tracy, California (the Site). The District has acquired the Site to expand the parking lot for the adjacent Tracy High School; no buildings are planned for development at the Site. This Assessment was conducted under the oversight of the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC).

Purpose and Objectives

The purpose of this PEA was to identify whether a release or threatened release of hazardous substances exists at the Site and to evaluate the potential risk to human health or the environment posed by exposure to identified site-related hazardous substances and, if necessary, to recommend mitigation measures so that the DTSC can issue a "No Further Action" designation for the Site.

Site Background

The Site is comprised of one parcel located in Tracy, San Joaquin County, California. The parcel is approximately 0.6 acres in size and is identified with the Assessor's Parcel Number (APN): 233-370-07 by the San Joaquin County Office of the Assessor. The Site is located in a mixed commercial and light industrial area zoned as General Highway Commercial. The Site is currently vacant but is improved with an office building at the southern boundary, and two storage sheds and a fixed canopy structure to the north of the office building. Immediately to the north of the Site is Tracy High School. Parking lots for Tracy High School are located to the west of the Site. The District plans to demolish these structures as part of the future parking lot construction.

Prior to 1940, the Site was undeveloped and used to grow row crops. The Site was developed with the current building configuration prior to 1957. The Site was owned and operated by San Joaquin Lumber Company beginning in at least 1959 and used as a retail lumber sales yard until approximately 2005. A 550-gallon underground storage tank (UST) used for gasoline was previously located on Site, south of the eastern shed. The UST was removed from the Site in 1989. From approximately 2005 until May 2018, the Site was occupied by California Custom Audio and the office building located at the Site was used for sales of car and motorcycle stereo equipment and the two sheds and fixed canopy structure located in the rear of the Site were used for auto repair and storage. No manufacturing activities were identified as having occurred at the Site.

Terraphase reviewed the DTSSC Envirostor database, the State Water Resources Control Board Geotracker database and the files of the San Joaquin Environmental Health Department. Several former leaking UST cases were identified in close proximity to the Site including the Former Tracy Motel (located at 417 East Eleventh Street, immediately west of the Site) and Ed's Muffler (located at 595 East Eleventh Street, immediately east of the Site). Both of these cases have been granted regulatory closure by the Regional Water Quality Control Board.

Terraphase completed a Phase I Environmental Site Assessment (ESA) and a Limited Phase II investigation for the Site in late 2017/early 2018. Based on the findings and in consultation with the DTSC, the following list of chemicals of potential concern (COPCs) were identified at the Site:

- Soil
    - *Organochlorine pesticides (OCPs) and arsenic*: in shallow soil from historical agricultural use of the Site. OCPs as termiticides in shallow soil due to the potential application of insecticides around the building and sheds at the Site.
    - *Lead*: in shallow soil near buildings due to the possible chipping and flaking of the lead-based paint coatings on the building and sheds at the Site and the resultant impact to shallow soil. Also, in deeper soil beneath the former UST location because of the historical use of lead in gasoline.
    - *Polychlorinated biphenyls (PCBs)*: in shallow soil in the vicinity of the large store-front window due to possible weathering of PCB containing caulking or glazing and resultant impact to shallow soil.
    - *Petroleum hydrocarbons (TPH-g, TPH-d, and TPH-mo), VOCs, SVOCs, and metals*: in shallow soil due to potential leaks and spills from equipment and improper container handling/storage during the current automobile repair operations conducted at the Site, as well as during historical use of the Site as a lumber yard.
    - *TPH-g and VOCs (including BTEX and methyl-tert-butyl-ether [MTBE])*: in deeper soil at the Site in the vicinity of the former gasoline UST at the Site.
    - The source of the backfill material used for the UST removal/excavation conducted in 1989 is unknown. Based on the lack of information regarding the source of the backfill material, the following chemicals are identified as COPCs for the soil located in the former tank excavation: *OCPs, VOCs, CAM 17 metals, TPH, semi-volatile organic compounds (SVOCs), and asbestos*.

- Groundwater
    - *TPH-g, lead, and VOCs (including older fuel oxygenates such as MTBE and tert-butyl alcohol [TBA])*: for groundwater at the Site due to potential leaks from the former gasoline UST removed from the Site in 1989.
    - *Metals*: for groundwater at the Site due to potential leaching from the UST backfill material.
- Soil-gas
    - *TPH-g and VOCs (full VOC list, including BTEX and MBTE)*: in soil-gas at the Site in the vicinity of historical surface releases and in the vicinity of the former gasoline UST. Soil-gas impacts can occur when volatile components of petroleum hydrocarbons in the soil volatilize into the vadose zone. VOC-impacted soil-gas can migrate into buildings under the influences of advective flow or diffusion through cracks and other penetrations in the building slab.

Investigation Activities and Screening Results

Terraphase prepared a PEA Work Plan for the Site and conducted site investigation activities on July 10 and July 11, 2018. Additional soil sampling was conducted at the Site on October 3, 2018 to collect step-out soil samples for lead analysis in the vicinity of one location (i.e., HA9) which exhibited an elevated lead concentration. The following summarizes the sampling results of the site investigation:

- OCPs, metals (except lead and arsenic), PCBs, TPH-g, TPH-d, TPH-mo, VOCs, SVOCs, and asbestos were not detected at or above their respective reporting limits in the soil samples collected at the Site.
- Arsenic was not detected in soil at a concentration above the background concentration of 9.24 mg/kg presented in the PEA Work Plan.
- Lead was detected in one soil sample above the generic default residential screening level of 80 mg/kg.
- Arsenic and several metals were detected in the unfiltered grab groundwater samples above their respective generic screening levels. Only arsenic was detected in the filtered grab groundwater samples at concentrations above generic screening level.
- TPH-d was detected in the grab groundwater samples above the generic screening level.

- TPH-g and VOCs (specifically benzene, ethylbenzene, xylenes, bromodichloromethane, chloroform and tetrachloroethene) were detected in the soil-gas samples above their respective generic screening levels.

Cumulative Cancer and Noncancer Risk Characterization

The estimated total upper-bound cumulative cancer risk for all of the COPC detected at the Site in all environmental media is $4x10^{-3}$, which is greater than the cumulative risk management goal of one-in-a-million ($1x10^{-6}$) for supporting no further action (NFA) decisions for PEA. The estimated total upper-bound noncancer hazard index (HI) for all of the COPC detected at the Site in all environmental media is 600, which is greater than the noncancer HI risk management goal of 1 for supporting NFA decisions for PEA.

These cumulative risk estimates are driven primarily by concentrations of COPCs observed in groundwater (under the assumption that residents are exposed to chemicals in groundwater used as a potable source) and soil-gas (under the assumption residents are exposed to COPCs in soil-gas that migrates through the slab and into the indoor space of a hypothetical residential home). Exposures to COPCs in these media via these exposure scenarios do not represent current or reasonably expected future exposure scenarios given that the future use of the Site will be as a parking lot.

When considering hypothetical residential direct contact exposure to COPCs in soil at the Site, the estimated upper-bound cumulative cancer risk is $2x10^{-7}$, below cumulative risk management goal. Also, the estimated upper-bound noncancer HI for this exposure scenario is 1, which is equal to the noncancer HI risk management goal.

Conclusions and Recommendations

Based on the results of the PEA investigation and associated preliminary human health screening, COPCs have not been detected in soil at the Site at levels exceeding conservative generic risk-based screening values for residential land use. Past activities conducted at the Site or in close proximity at the Site have resulted in the presence of TPH and metals in the groundwater at the Site at levels exceeding conservative generic risk-based screening values for residential drinking water exposure. Low levels of VOCs have also been detected in the soil-gas at the Site at concentrations exceeding conservative generic risk-based residential screening values for protection of indoor air with an attenuation factor of 0.03 applied. For this PEA, based upon the results of this preliminary screening, chemicals exhibiting concentrations in excess of these generic screening levels are considered COPCs in the risk/hazard characterization with the exception of arsenic which is not site-related based upon a comparison with naturally occurring background soil concentrations.

In accordance with DTSC guidance (DTSC 2015b), the risk/hazard characterization assumes potential human exposure under an unrestricted use scenario. The upper-bound risk and HI

estimates indicate that groundwater and soil-gas concentrations may pose an unacceptable risk to human health under an unrestricted use scenario (i.e., potable use of groundwater, vapor intrusion into a hypothetical residential home). The upper-bound risk and HI estimates for residential exposure to soil would not pose an unacceptable risk to human health.

Based upon the results of the risk/hazard characterization, in order to ensure no potential for future unacceptable risks from exposure to groundwater or soil-gas at the Site, Terraphase recommends the following:

- Implement land use restrictions recorded on the deed to prevent any future use of shallow groundwater at the Site for potable or non-potable purposes.
- Implement land use restrictions recorded on the deed to prohibit buildings from being constructed at the Site in the absence of additional assessment(s) demonstrating that potential vapor intrusion exposure from COPCs in soil-gas at the Site will not pose an unacceptable risk to human health.

1.0 INTRODUCTION

On behalf of Tracy Unified School District (the "District"), Terraphase Engineering Inc. (Terraphase) has prepared this Preliminary Environmental Assessment (PEA) Report (the "PEA Report") for the property located at 455 East 11th Street, Tracy, California (the Site). The District has acquired the Site to expand the parking lot for the adjacent Tracy High School; no buildings are planned for development at the Site. The Site is comprised of one parcel located in Tracy, San Joaquin County, California. The property is approximately 0.57 acres in size and is identified with the Assessor's Parcel Number (APN): 233-370-07 by the San Joaquin County Office of the Assessor (a parcel map is included in Appendix A). A Site Location Map is included as Figure 1; a map showing the vicinity features is shown on Figure 2.

Potable water service for the existing Tracy High School is provided by City of Tracy Municipal Water Supply. The City of Tracy Municipal Water Supply would also be used for irrigation of any future landscaped areas at the Site following redevelopment as a parking lot.

This PEA Report was prepared by Terraphase for submittal to the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). This PEA Report was prepared in general accordance with the PEA Work Plan prepared for the Site (Terraphase 2018b) and the guidelines of the DTSC, as detailed in the PEA Guidance Manual (DTSC 2015b).

1.1 Purpose and Objectives

The PEA is intended to identify whether a release or threatened release of hazardous substances exists at the Site and to evaluate the potential risk to human health or the environment before the DTSC issues a "No Further Action" designation.

The overall objectives of the PEA include the following:

- evaluate historical information regarding the past use, storage, disposal, or release of hazardous wastes/substances at the Site;
- conduct a field sampling and analysis program to characterize the nature, concentration, and extent of hazardous wastes/substances present in soil, groundwater and soil-gas at the Site; and
- estimate the potential threat to public health and/or the environment posed by known hazardous constituents at the Site using a residential land use scenario.

The ultimate objective of this is PEA is to provide the DTSC with sufficient site information and the results of a screening human risk evaluation conducted in accordance with DTSC's PEA Guidance Manual (DTSC 2015b) so that the DTSC can make an informed decision regarding potential risks, if any, posed by the Site. Based on this PEA, DTSC may:

- require further assessment through the remedial investigation/feasibility study process if the Site is found to be significantly affected by hazardous substances;
- require a removal action for areas where localized impacts by hazardous substances release(s) are found;
- issue a "No Further Action" finding if the Site is found not to be affected or if risks to human health and the environment are found to be within acceptable levels based on the conservative screening-level risk assessment; or
- close the site by capping affected soil in place in accordance with a Site Management and Monitoring plan, if the District elects to limit long term use of the site as a parking lot under a Land Use Covenant Agreement (DTSC 2000).

1.2 Scope of Work

To meet the PEA objectives, Terraphase performed the following work:

- Terraphase prepared a Phase I Environmental Site Assessment (ESA; Terraphase 2018a) in accordance with the methodology of American Society for Testing and Materials (ASTM) Standard Practice E 1527-13. The Site reconnaissance was conducted by Wendy Bellah, Senior Associate Engineer with Terraphase. An interview with a representative of the previous landowner (San Joaquin Lumber Company) was completed and the information included in Section 3.7 of this report.
- Terraphase conducted a field sampling and analysis program to characterize the nature, concentration, and extent of hazardous wastes/substances present in soil at the Site.
- Terraphase estimated the potential threat to public health and/or the environment posed by known hazardous constituents at the Site using a conservative unrestricted land use scenario.

1.3 Significant Assumptions

This report provides appropriate inquiry into the previous ownership and use of the Site consistent with good commercial and customary practice in an effort to minimize liability. Terraphase also assumes that the information provided by the District, previous landowners, the regulatory database provider, and regulatory agencies is true and reliable.

1.4 Modifications or Deviations

No significant deviation from ASTM 1527-13 guidelines, for the Phase I Environmental Site Assessment portion of the work, or the DTSC PEA Guidance manual occurred.

1.5 Information Provided by the Landowner

Dr. Casey Goodall, Associate Superintendent of Business Services for the Tracy Unified School District was provided with a Phase I ESA Questionnaire to complete. A completed copy is included in Appendix B.

1.6 Other Site Information

An Environmental Data Resources, Inc. (EDR) report was obtained for the Site which is attached as Appendix C to this PEA.

2.0 SITE DESCRIPTION

This section describes the location and ownership of the site as well as other pertinent details required by DTSC regarding the specifics of the site description.

2.1 Site Identification

The Site is approximately 0.57-acres in size and is addressed 455 East 11th Street, Tracy, California 95376. The property is identified with the APN: 233-370-07 by the San Joaquin County Office of the Assessor. A copy of the assessor's map is included in Appendix A. The Site elevation is approximately 52 feet above sea level (NAVD88). The approximate latitude and longitude (NAD83) of the Site are identified as:

- Latitude (North) 37° 44' 24"
- Longitude (West) -121° 25' 4"

2.1.1 Site Name

The Site is currently vacant. From approximately 2005 until May 2018, the Site was occupied by *California Custom Audio* and the office building located at the Site was used for sales of car and motorcycle stereo equipment and the two sheds and fixed canopy structure located in the rear of the Site were used for auto repair and storage. Prior to *California Custom Audio*, the Site had been the location of the *San Joaquin Lumber Company* beginning in at least 1959 and used as a retail lumber sales yard.

2.1.2 Contact Person

The contact person for the School District is:

Bonny Carter
Director of Facilities & Planning
Tracy Unified School District
1875 W. Lowell Avenue, Tracy, CA 95376
Office: (209) 830-3245

2.1.3 Site Description

The Site is located in a mixed commercial and light industrial area zoned as General Highway Commercial. The Site is currently vacant but is improved with an office building at the southern boundary, and two storage sheds and a fixed canopy structure to the north of the office building as shown on Figure 2. Immediately to the north of the Site is Tracy High School. Parking lots for Tracy High School are located to the west of the Site. On the east side of the property is a driveway beyond which is the Cox Brothers Firestone, a retail tire store. Further to the east, adjacent to the Cox Bothers Firestone is Honest Auto Sales, a

used automobile sales lot. Railroad tracks are located immediately adjacent to the east of Honest Auto Sales. Across East 11th Street, to the south, is Aquiles Auto Body and Repair, an automobile repair shop.

2.2 Site Geology and Hydrogeology

According to information obtained in the Phase I ESA report (Terraphase 2018a), the topography of the Site is relatively flat with a slight downward slope to the north. The elevation of the Site is approximately 52 feet above mean sea level. Based on groundwater monitoring conducted on nearby properties in the area, the first encountered groundwater is between 10 and 15 feet below ground surface (bgs) and the flow direction is generally to the north/northwest (The San Joaquin Company 2000; Wright Environmental Services 2005; Wright Environmental Services 2007).

According to the Limited Phase II Environmental Investigation Report (Terraphase 2017), soil from 0 to 0.5 feet bgs consists asphalt underlain by dry, loose, sandy gravel. The soil from 0.5 feet to about 7.5 feet bgs mostly consists of low plasticity fines (silts and clays) with some very fine sand. Below 7.5 feet, the lithology transitions to a loose to medium dense fine sand and silty sand, with little to no plasticity. From 0.5 feet to 12.5 feet bgs the soil is damp. The soil is saturated between 12.5 and 14 feet bgs and consists of a fine to medium sand with some fine rounded gravel. The underlying soils at the Site are fine-grained silty-clay materials, which is characteristic of very slow infiltration.

The Site is located in the Tracy Subbasin within the San Joaquin River Hydrologic Region (DWR 2006). The Tracy Subbasin is comprised of continental deposits of Late Tertiary to Quaternary age. These deposits include the Tulare Formation, Older Alluvium, Flood Basin Deposits, and Younger Alluvium. The cumulative thickness of these deposits increases from a few hundred feet near the Coast Range foothills on the west to about 3,000 feet along the eastern margin of the basin (DWR 2006).

3.0 BACKGROUND

3.1 Site Status/Historical Site Information

Prior to 1940, the Site was undeveloped and used to grow row crops. The Site was developed with the current building configuration prior to 1957. The Site was owned and operated by San Joaquin Lumber Company beginning in at least 1959 and used as a retail lumber sales yard. A 550-gallon underground storage tank (UST) used for gasoline was previously located on Site, south of the eastern shed (Figure 2). The UST was removed from the Site in 1989. At the time of UST removal, one soil sample was collected and analyzed for total petroleum hydrocarbons (TPH) quantified as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylenes (BTEX), which were not detected above the laboratory reporting limits. On February 17, 1994, the San Joaquin County Environmental Health Department (SJCEHD) issued a letter confirming the completion of the tank removal, and stating no further action was required. A copy of the UST removal letter from SJCEHD and the sampling results is included in Appendix D. The lumber yard activities ceased at the Site sometime in the mid- to late-2000s, after which the site was leased to *California Custom Audio* which operated at the Site until May 2018. In August 2018, the Tracy Unified School District purchased the Site.

3.1.1 Owner, Property Manager and Occupant Information

The current Site owner information is as follows:

Tracy Unified School District
1875 West Lowell Avenue
Tracy, California 95376

3.2 Hazardous Material/Substance/Waste Management Information

No manufacturing activities were identified as having historically occurred at the Site. The Site is not currently, nor has it been in the past, subject to any federal, state or local permits. Prior car repair activities conducted at the Site generated used oil and used oil filters which were disposed of off-Site. Other than activities documented in this PEA Report, Terraphase is not aware of any prior assessments, sampling, or cleanup activities that have been conducted at the property.

3.3 Current and Historical Uses of Surrounding Properties

The Site is located in a commercial/industrial area of downtown Tracy, along East 11th Street. East 11th Street is identified as the business loop of Interstate 205. Based on a review of historical aerial photographs (included in Appendix E), the properties located in the vicinity of the Site were predominantly used for agricultural purposes in the 1930s and

1940s. By 1957, significant development is observed in the vicinity of the Site and the predominant use of the vicinity was for commercial and light industrial purposes.

Immediately to the north and west of the Site is Tracy High School. The Tracy High School has been located to the west of the Site since the early 1900s, although the campus was expanded sometime in the 1950s to include property to the north of the Site.

A parking lot for Tracy High School is located adjacent to the western boundary of the Site. This Site was the location of the former Shell Station (prior to 1957) and the Tracy Motel (until the late 1990s). Four USTs were removed from this property in the late 1950s.

3.4 All Appropriate Inquiries Information

3.4.1 Specialized Knowledge

As part of the Phase I ESA, a questionnaire was completed by a representative of the District. The District indicated that they are aware the Site has previously been used as a lumber yard and for the sales of auto stereo equipment. No other indication of specialized knowledge (as defined in the All Appropriate Inquiries [AAI] rule) regarding the Site was indicated.

3.4.2 Commonly Known or Reasonably Ascertainable Information

The Districted indicated that they are aware of a previous Phase I ESA conducted for the Site which identified a UST removed from the Site in 1989 and the presence of heavy oil staining on the pavement and concrete in the vicinity of the former car repair activities. In addition, the District indicated that a heating oil tank was removed from the adjacent (to the west) property in 2007 and that diesel contamination was present in soil and groundwater on the adjacent property.

3.4.3 Valuation Reduction for Environmental Liens

The District indicated that the purchase price was slightly above the appraisal value. No environmental liens have been found for the property.

3.5 Records Review Information

The following sections summarize the results of the findings from the records review for the Site. Sanborn® fire insurance maps covering the Site and neighboring properties were not identified (EDR 2018c).

3.5.1 Land Records

The Site is located in Section 21, Township 2 South, Range 5 East in the Mount Diablo meridian. The approximate latitude and longitude of the Site are identified to be:

- Latitude (North) 37° 44’ 24”
- Longitude (West) -121° 25’ 4”

3.5.1.1 Title Record

Terraphase reviewed the preliminary title report for the Site (Fidelity National Title Company 2017). The Preliminary Report is included as Appendix F. The Site is described as follows:

> PARCEL ONE:
>
> That portion of the Southeast Quarter of Section 21, Township 2 South, Range 5 East, Mount Diablo Base and Meridian, described as follows:
>
> Beginning at a point on the North line of East Eleventh Street, in the City of Tracy, 400 feet East of the East line of the Tracy Union School Property; thence East, along the North line of Eleventh Street, 175 feet; thence North parallel to the Tracy Union School property, 200 feet; thence West parallel to the North line of Eleventh Street, 175 feet; thence South parallel to said Tracy Union School property, 200 feet to the point of beginning.
>
> EXCEPTING THEREFROM the Westerly 50 feet therefore conveyed to Tracy Union School District.
>
> PARCEL TWO:
>
> The right to use that portion of the afore described property heretofore conveyed to Tracy Union School District as mentioned in the above exception, jointly with said Tracy Union School District as specified in Deed of conveyance thereof to said District.
>
> APN: 233-370-07

The Preliminary Report identifies an oil and gas lease with certain covenants, conditions and provisions, together with easements dated February 1, 1977 between San Joaquin Lumber Company and Mariposa Petroleum Company with a recording date of May 27, 1977.

The Site is included in a project area of the Tracy Community Development Agency (Recording dates July 18, 1990 and July 9, 2010). Public records do not show any water rights, claim or title to water.

3.5.1.2 Environmental Liens and Activity and Use Limitations

Public records do not show any lien or right to a lien for services, labor or material (Fidelity National Title Company 2017). The EDR Environmental Lien and AUL Report did not identify any environmental liens or Activity and Use Limitations (EDR 2018f).

3.5.2 Aerial Photograph Review

Terraphase reviewed aerial photographs, provided by EDR, dated 1937, 1940, 1957, 1963, 1968, 1975, 1982, 1993, 2005, 2006, 2009, 2010, and 2012 (EDR 2018e). A copy of the historical aerial photographs are included in Appendix E.

On the 1937 aerial photograph, the Site appears to be undeveloped and used for row crops. To the east of the Site, the aerial photograph depicts agricultural land with a railroad and agricultural land beyond. A road, consistent in location to East Eleventh Street, is depicted south of the Site with one property to the southwest including buildings, as well as undeveloped properties, unimproved roads, and a rail road beyond. West of the Site, a property containing several structures is visible, and to the north of the Site are agricultural properties.

The 1940 aerial photograph depicts the Site as cleared of vegetation. The neighboring properties to the east, north, and south have also been cleared of vegetation and appear to be undergoing construction. The neighboring property to the west is depicted with an extension to the existing structures from the 1937 aerial photograph.

The 1957 aerial photograph depicts the Site as developed with three rectangular structures. The neighboring properties appear developed with structures to the north, east, and south. A large building structure is visible to the east beyond the railroad. No significant changes to the Site or neighboring properties appear in the aerial photographs dated 1963 through 1993, with the exception of a paved parking area north of the Site in the 1968 aerial photograph. No significant changes to the Site are depicted in the 2005 aerial photograph, however, the neighboring property to the west appears to have been cleared of building structures and paved for parking.

No significant changes to the Site or the neighboring properties appear in the aerial photographs dated 2006 through 2012, with the exception of the addition of the covered canopy area at the north end of the Site.

3.5.3 Historical USGS Topographic Map

Terraphase reviewed topographic maps, Carbona 15-Minute Quadrangles, dated 1922, 1942, and 1947, Union Island 7.5-Minute Quadrangles, dated 1914, 1916, 1952, 1954, 1968, 1978, 1981, and 2012, and Tracy 7.5-Minute Quadrangles, dated 1914, 1916, 1952, 1954, 1968, 1978, 1981, and 2012 (EDR 2018b). A copy of the topographic maps are included in Appendix G.

The 7.5-minute topographic map dated 1914 and 1916 depicts the Site as undeveloped with a road, consistent in location to East Eleventh Street, to the south. The neighboring properties are depicted as undeveloped with the exception of two buildings south of East Eleventh Road. No significant changes to the Site or neighboring properties are depicted in the 1922 topographic map.

On the 15-minute 1942 and 1947 topographic maps, no significant changes to the Site or the neighboring properties are visible, with the exception of several structures visible to the west of the Site. The 1952 and 1954 7.5-minute topographic maps depict Union High School in the vicinity of the Site. To the east, a road labelled Macarthur Drive and a large building with a water tank are visible. On the 1968 7.5-minute topographic map, several structures are visible north of the Site, in the vicinity of Union High School. Several small structures and an addition to the building to the east are visible on the 1968 topographic map. No significant changes to the Site or neighboring properties, with the exception of the addition of several buildings north of the Site, appear on the 1978 and 1981 topographic maps.

The 2012 7.5-minute topographic map does not depict any structures.

3.5.4 City Directories

Terraphase reviewed city directories, provided by EDR, dated 1959, 1965, 1970, 1975, 1981, 1986, 1992, 1995, 2000, 2005, 2010, and 2014 (EDR 2018d)**.** A copy of the city directory report is included in Appendix H. The Site was identified in the city directories as follows:

- Cal Custom Audio & San Joaquin Lumber Company (2005, 2014)
- San Joaquin Lumber Company (1959, 1965, 1970, 1975, 1981, 1986, 1992, 1995, 2000, 2010)

Nearby listings that may indicate the potential use, storage, or disposal of hazardous materials or petroleum products include:

- 480 East Eleventh Street: A Metro Auto Glass (2010, 2014), AAA Metro (2014), Best Auto Repair (2014), Costa Automotive (1992, 2000, 2005), Chuck's Automotive Auto Repair (1981), Collins Tune Up & Garage Auto Repair (1965, 1970, 1975)
- 507 East Eleventh Street (discussed in Section 3.5.2): Cox Bros Tire Service (1965, 1970, 1975, 1981, 1986)
- 508 East Eleventh Street: Sterling Auto Body (1995)
- 570 East Eleventh Street: Geringer's Dodge & Plymouth (1959)

- 595 East Eleventh Street (discussed in Section 3.5.2): Central Valley Auto (2005, 2010, 2014), Honest Auto Sales (2010, 2014), Mr. Eds Muffler & Brake Repair Service (1992, 1995, 2005, 2010, 2014), Tracy Auto Sales Inc. (2010, 2014), Cox Brothers Shell Service (1959, 1965, 1970, 1981), Tracy Shell Service (1975)

- 599 East Eleventh Street: Expert Hi-Tech Auto Repair (2010), Auto Liquidation (2005), Precious Auto Service Center (2005), Collins Tune Up (1965)

Based on a review of the EDR city directory report, with the exception of 507 and 595 East Eleventh Street which are discussed in Section 3.5.2, none of the above listed addresses were associated with a release that is within ¼ mile of the Site.

3.5.5 Standard Environmental Record Sources

EDR provided the regulatory agency database report discussed in this section. Terraphase reviewed the EDR report for information regarding reported releases of hazardous substances and petroleum products on or near the property. The complete EDR Report, including a description of all regulatory databases and associated acronyms, is included in Appendix C.

Terraphase reviewed applicable and reasonably ascertainable federal, state, and local environmental-related databases as part of this Phase I ESA. Terraphase reviewed the EDR report for information regarding reported releases of hazardous substances and petroleum products on or near the property. Specific records and search distances (measured from the approximate property boundary of the Site) for the environmental databases were reported by EDR to be consistent with ASTM Practice E 1527-13 and are discussed in the EDR report, dated January 9, 2018. The EDR Radius Map™ Report is presented as Appendix C and the listings are summarized in Table 1.

3.5.1 Site

The Site was listed in the following databases/systems:

- State Water Resources Control Board (SWRCB) Active UST Facilities (CA UST) listing for a pre-1984 single wall 550-gallon tank containing regular unleaded gasoline.

- SWRCB Statewide Environmental Evaluation and Planning System UST (CA SWEEPS UST) listing for a 550-gallon tank containing leaded motor vehicle fuel.

- California Environmental Protection Agency Facility Inventory Database (CA FID UST) listing for an unknown inactive tank.

- SWRCB Hazardous Substance Storage Container Database (CA HIST UST) listing for a 550-gallon tank containing regular motor vehicle fuel.

Based on Terraphase's review of the EDR Report, these listings appear to be associated with the former 550-gallon UST removed from the Site in 1989.

3.5.2 Nearby Listed Properties

The complete list of properties, including a brief environmental discussion of each property, identified in the environmental databases within the specified search radii is included in Table 1. Due to the number of sites identified within the specified search radii, a detailed analysis of each property is not provided in the text of this Report. Instead the following text provides summaries of the sites identified in close proximity to the Site with the greatest potential to impact the Site.

507 East Eleventh Street
Cox Brothers Tire Service
Approximate Distance from the Property: immediately adjacent to the eastern boundary of the Site
Assumed Groundwater Gradient: Crossgradient from the Site
Regulatory Data Summary: Cox Bros Tire Service, also referred to as Cox Elroy J & Claude, located adjacent to the eastern property boundary of the Site at 507 East Eleventh Street, and presumed crossgradient of the Site. The nearby property is listed the following databases:

- Resource Conservation and Recovery Act (RCRA) Small Quantity Generator (SQG; RCRA-SQG);
- Facility Index System/Facility Registry System (FINDS);
- Enforcement & Compliance History Information (ECHO);
- Facility and Manifest Data (HAZNET); and
- EDR Hist Auto with use as a gasoline station in 1969 to 1971.

The RCRA-SQG, FINDS, ECHO, and HAZNET databases identify the facility as a generator of hazardous waste, including as a Large Quantity Generator (LQG) of hazardous waste in 1987. No violations are listed in the database records. The site is associated with EPA ID CAD982061079. Given the regulatory status and the crossgradient location of this property, there is a low likelihood that this property would have a negative environmental impact on the Site.

595 East Eleventh Street
Honest Auto Sales
Approximate Distance from the Property: 250 feet east of the Site
Assumed Groundwater Gradient: Crossgradient from the Site
Regulatory Data Summary: The property located at 595 East Eleventh Street is approximately 250 feet east of the Site, and generally crossgradient from the Site. This

property is currently operated as Honest Auto Sales, also referred to as Honest Auto Sale and Repair, which is listed in the following databases:

- HIST UST database as a gas station with one 500-gallon UST (fuel type unknown), one 8,000-gallon UST (regular fuel), one 4,000-gallon UST (regular fuel), one 4,000-gallon UST (unleaded fuel), and one 7,500-gallon UST (premium fuel).
- HAZNET as a hazardous waste generator (EPA ID CAL000345565).
- CA UST database with one closed 8,000-gallon existing (pre-1984) single-wall tank UST (regular unleaded fuel), one closed 4,000-gallon existing (pre-1984) single-wall tank UST (regular unleaded fuel), one closed 4,000-gallon existing (pre-1984) single-wall tank UST (regular unleaded fuel), one closed 2,380-gallon existing (pre-1984) single-wall tank UST (regular unleaded fuel), and one closed 500-gallon existing (pre-1984) single-wall tank UST (regular unleaded fuel).

This address is also associated with Ed's Muffler, also referred to as Ed's Muffler Shop and Mr. Ed's Muffler and Brake Service, which is listed in the following databases:

- SWRCB Leaking Underground Storage Tank (LUST) as a completed closed case as of October 16, 2009 for a release of gasoline potentially impacting an aquifer used for drinking water supply. As documented in the EDR, the property was used as a gas station from approximately 1938 through 1990 under multiple owners/operators. In 1990, five USTs were removed along with the soil from the tank pit. Following the removal, multiple site investigations were performed based on evidence that a fuel release has occurred. The investigations included the southern commercial portion of the property, the northern mobile home park portion of the property, as well as the school property to the north (downgradient) and the Heinz property to the east. Nine monitoring wells were installed from 1992 through 1997. According to groundwater monitoring maps from fourth quarter 2007 included in the previous Phase I for the Site, groundwater flow direction was generally to the north (AGE 2017). In 2004, remediation activities were performed including the removal of approximately 900 cubic yards of impacted soil, and approximately 240,000 gallons of impacted groundwater. In 2007, soil-gas sampling was conducted, and results were below the residential Region 2 Environmental Screening Levels (ESLs). Based on 48 quarters of groundwater monitoring showing a stable plume with declining concentrations, the limited extent of contamination remaining in soil and groundwater, no foreseeable changes in land use, and no applicable ESLs exceeded, the site was granted a no further action (NFA)

letter from the SJCDEH and Regional Water Quality Control Board (RWQCB) on October 13, 2009.

- DTSC Historical Hazardous Waste & Substance Site List (CA HIST CORTESE) with Registration ID 390479.
- SWEEPS UST with one 8,000-gallon UST (leaded motor vehicle fuel), two 4,000-gallon USTs (leaded motor vehicle fuel), one 7,500-gallon UST (leaded motor vehicle fuel), and one 1,000-gallon UST (waste oil).
- CA FID UST for an unknown inactive facility.
- RCRA-SQG, FINDS, and ECHO as a generator of ignitable hazardous waste and benzene hazardous waste (EPA ID CAR000089029). No violations are listed in the database records.
- EDR Hist Auto with uses as a gasoline station, auto repair shop, and used car dealer between 1974 and 2014.

This address is also associated with Dennis Cox, also known referred to as Cox & Cox Property, which is listed in the following databases:

- HIST UST with one 500-gallon UST (fuel type unknown), one 8,000-gallon UST (regular motor vehicle fuel), one 4,000-gallon UST (regular motor vehicle fuel), one 4,000-gallon UST (unleaded motor vehicle fuel), and one 7,500-gallon UST (premium motor vehicle fuel).
- HAZNET as a generator of 0.231 tons of hazardous waste aqueous solution with total organic residue of less than 10% (EPA ID CAC002645508).
- United States Environmental Protection Agency (EPA) Superfund Enterprise Management System Archive (SEMS-ARCHIVE) identifying the site with EPA ID CAD983649294, and that a preliminary assessment was performed in 1993. Based on the findings of the Preliminary Assessment, there is no further remedial action planned and the site does not qualify for the National Priority List.

Given the regulatory status and the crossgradient location of this property, there is a low likelihood that this property would have a negative environmental impact on the Site.

417 East Eleventh Street
Former Tracy Motel
Approximate Distance from the Property: immediately adjacent to the west of the Site
Assumed Groundwater Gradient: Crossgradient from the Site
Regulatory Data Summary: The property located at 417 East Eleventh Street is located

west of the Site and is associated with the former Tracy Motel and Shell Station. This property is currently developed as a parking lot used by the Tracy High School. This property is listed in the following databases:

- SWRCB LUST as a completed closed case as of May 23, 2000 for a release of gasoline potentially impacting an aquifer used for drinking water supply. As documented in the No Further Action Required Concurrence letter (Central Valley Regional Water Quality Control Board [RWQCB] 2000), prior to 1957, the site was operated as a Shell Service Station, and in 1957 four underground storage tanks were reportedly removed. In July 1999, five shallow soil borings were completed at the site, and identified low concentrations of TPH-g in the upper five feet of soil. In March 2000, three additional borings were completed to 20 feet bgs, and soil and groundwater samples were collected. The Site Characterization Report identified the groundwater flow direction as towards the northwest and groundwater was generally encountered at a depth of 10 feet bgs (The San Joaquin Company 2000). TPH and fuel oxygenates were not detected in any of the samples. Based on the results of the investigation, the RWQCB issued the NFA letter and closed the case.

- CA HIST CORTESE with Registration ID 391075.

Given the location of this property, there is potential that this property would have a negative environmental impact on the Site through groundwater contaminant migration.

503 East Tenth Street
San Joaquin County Commissioners of Agriculture
Approximate Distance from the Property: 500 feet south-southeast of the Site
Assumed Groundwater Gradient: Upgradient from the Site
Regulatory Data Summary: The property located at 503 East Tenth Street is approximately 500 feet south-southeast of the Site, and generally upgradient from the Site. The property is associated with the San Joaquin County Commissioners of Agriculture, also referred to as San Joaquin Ag Commission, SJ Co Ag Commissioner/Tracy, and Agricultural Commission, which is listed in the following databases:

- HIST UST with one 1,000-gallon UST (unleaded motor vehicle fuel), one 1,000-gallon UST (weed oil/weed killer), and one 1,000-gallon UST (unknown contents).

- SWEEPS UST with one 1,000-gallon UST (regular unleaded motor vehicle fuel), one 1,000-gallon UST (weed oil), and one 1,000-gallon UST (waste oil).
- CA FID UST for an unknown inactive facility.
- CA UST with three closed 1,000-gallon existing (pre-1984) single-wall tanks (regular unleaded).
- SWRCB LUST as a completed closed case as of December 10, 2008 for a release of diesel potentially impacting an aquifer used for drinking water supply. In 1988, three 1,000-gallon USTs, associated piping, and dispenser island equipment, were removed from the property by Tilford & Hall. During the UST Removal, the presence of holes in both weed oil USTs and "extensive contamination" within the limits of the excavation were noted. Soil samples were collected from beneath each of the three USTs (at approximately 9-10 feet bgs) and were analyzed for total extractable petroleum hydrocarbons (TEPH), total volatile petroleum hydrocarbons (TVPH), BTEX, ethylene dibromide and total lead. Concentrations of petroleum hydrocarbons included 760 parts per million (ppm) TVPH beneath the center UST (Tank 2), 4,700 ppm TEPH from beneath the northern weed oil UST (Tank 1), and 4,800 ppm TEPH from beneath the southern weed oil UST (Tank 3). In 1998, Ramage Environmental conducted soil and groundwater sampling, and concluded that diesel and gasoline hydrocarbons had impacted soil and groundwater beneath the site, and in the City of Tracy right-of-way in Hamilton Alley. In 1999, three groundwater monitoring wells were installed and sampled in January and resampled in February. Petroleum hydrocarbons were not detected in the February 1999 groundwater samples, and environmental corrective actions were discontinued. In January 2006, Ramage Environmental resumed quarterly groundwater monitoring. Groundwater flow direction is documented as generally to the north. In August 2008, a Human Health Risk Assessment Report documented the results of a soil vapor survey and risk assessment model and concluded that the residual contamination at the property poses no unacceptable risk to human health or the environment. On December 10, 2008, the SJCEHD issued a case closure letter.

Given the regulatory status of this property and the findings of the Human Health Risk Assessment Report, there is a low likelihood that this property would have a negative environmental impact on the Site.

Orphan Listings

In addition to reviewing the regulatory databases listings in accordance with the ATSM Practice E1527-13, there were nine "unmappable" (or "orphan") listings within the

database report. Unmappable sites are listings that could not be plotted with confidence but are potentially in the general area of the property based on the partial street address, city, or zip code. Six of the unmappable listings are outside of the one-mile search radius or are not located at the Site or adjoining properties. Three of the unmappable listings appear to be potentially located in close proximity the Site, and include:

- City of Tracy (East Eleventh Street Construction Pro): Identified in the SLIC database as a spill reported in 1993. No other information is provided.
- Tracy High School Bus Facility (315 East Eleventh Street): This is mappable and is discussed with the facility located at 315 East Eleventh Street in Table 1.
- Civic Center, East Eleventh: The Civic Center is located across Eleventh Street from the Site. The listing identifies an illegal drug lab reported in 2000. It is unlikely that the lab was located at the Civic Center.

Based on the information provided by EDR and the distance and/or closed case status, the orphan listings are not indicative of significant environmental concern to the Site.

3.6 Site Reconnaissance

On October 6, 2017, Wendy Bellah, Senior Associate Engineer for Terraphase, conducted a reconnaissance visit of the Site to assess current land-use activities and environmental conditions. The site reconnaissance was documented with notes and photographs. Observations made during the reconnaissance are discussed below and selected photographs are provided in Appendix I. The focus of the reconnaissance was to identify conditions that have the potential to cause adverse environmental impacts.

During the site reconnaissance, Terraphase was provided access to the interiors of the Site building and exterior areas of the Site. As part of the reconnaissance, Terraphase observed for evidence of the presence of hazardous substances used, stored, or discarded and reviewed the Site for areas of disturbed or discolored soil, suspect equipment and/or building materials which may contain hazardous substances, areas of distressed vegetation, wastewater discharge areas, evidence of storage tanks/septic systems, waste management/disposal areas, lagoons, pits, sumps, surface water management areas, stained surfaces, etc.

At the time of the Site reconnaissance, the Site was improved with a one-story, wood-frame commercial building located along the southern property boundary, fronting E 11th Street and was occupied by California Custom Audio, a car and motorcycle stereo equipment store. A paved driveway on the east side of the building provides access to parking along the building and the rear of the Site. Another paved driveway is located on

the west side of the building which leads to a gated paved parking area used for automobile storage. Based on the condition of the automobiles observed being stored in this area during the site reconnaissance, it appears some of the cars had not been moved for a long time. In the area behind the building (the northern and central portions of the Site) are two wooden sheds with corrugated metal roofs (referred to as the eastern shed and the western shed in this report). There is also a fixed, metal canopy at the southern end of the property. At the time of the site reconnaissance, the two storage sheds and canopy area were being used for automobile storage, and automobile and parts repair. The ground surface in the northern and central portions of the Site beneath and surrounding the sheds was a combination of asphalt and concrete. The asphalt was observed in poor condition in several areas on the western side of the property. In general, the housekeeping observed in the vicinity of the automobile repair activities was poor. Evidence of oil spills (stained concrete and absorbent) were observed in several areas, particularly at the southern end of the property beneath the canopy area. At least three cars were being worked on at the time of the site reconnaissance, with additional cars parked beneath the sheds. A pan of oil was observed beneath one of the cars. Discarded empty oil containers were observed on the ground. An engine block was sitting on a pallet underneath the canopy at the southern end of the property.

Terraphase observed the interior of the main retail are of the building and exterior areas. In accordance with the ASTM Practice E1527-13, Terraphase did not observe under floors, above ceilings, or behind walls. Terraphase also observed the exterior areas of the Site for elements indicative of current and historical usage of hazardous substances, accessing and observing the Site and areas accessible by public roads adjacent to the Site.

Specific observations for elements indicative of current and historical usage of hazardous substances are provided below.

Element	**Observation**
Current or former USTs	Terraphase identified no evidence of current USTs at the Site during the Site visit. A patch in the asphalt in the vicinity of the former UST location was observed.
Current or former aboveground storage tanks (ASTs) and silos	Terraphase did not observe any ASTs on the Site at the time of the Site reconnaissance.

Element	Observation
Polychlorinated biphenyl (PCB)-containing equipment	Terraphase did not observe any pad-mounted or pole-mounted transformers within the boundaries of the Site. Pole-mounted transformers were observed on two utility poles located on the sidewalk in front of the Site at the southeastern and southwestern corners of the Site. No evidence of a release of transformer or hydraulic oil (e.g., staining) was observed on or in the vicinity of the pole-mounted transformers. A newer external hydraulic lift was noted at the Site in the western shed for use to lift up cars during automobile repair. Given the age of the lift, it is unlikely the hydraulic oil used in this lift contains PCBs.
Hazardous materials, Hazardous waste, and/or petroleum product use/storage	Three 55-gallon steel drums located on the north side of the western lumber shed observed at the time of the Site reconnaissance were not labeled. It is believed that the drums contained used oil, although the contents were not confirmed. Additionally, various pans and small buckets containing oil, antifreeze, and unidentified substances were observed in the vicinity of the automobile repair activities. Since the Site reconnaissance was completed, these drums, pans and buckets have been removed from the Site.
Drums or other containers	Three 55-gallon drums were observed beneath the north end of the western shed at the time of the Site reconnaissance. The drums were not labeled. Used oil filters were being stored on top of one of the drums at the time of the Site reconnaissance. Several smaller oil containers were observed throughout the Site. Since the Site reconnaissance was completed, these drums, pans and buckets have been removed from the Site.
Non-hazardous solid waste	Non-hazardous solid waste was observed in several waste containers throughout the property. Since the Site reconnaissance was completed, the non-hazardous solid waste has been removed from the Site.
Wastewater	Wastewater generation (other than sanitary wastewater) was not observed at the Site during the Site reconnaissance.
Floor drains, sumps, and drywells	Floor drains, sumps, and drywells were not observed at the Site during the Site reconnaissance.
Odors	No significant odors were observed during the site reconnaissance.
Stains, pitting, or corrosion (interior areas)	Terraphase did not observe stains, pitting, or corrosion within the Site building.

Element	Observation
Stained or corroded exterior surfaces	Terraphase identified numerous heavily stained areas of pavement on the exterior areas during the Site reconnaissance in the automobile storage area on the west side of the property and in the areas of car repair in the northern and central areas of the Site. Minor petroleum stains were also noted in the parking area located on the east side of the building.
Pools of liquid	Standing surface water and other pooled liquids were not observed at the time of the Site reconnaissance. Oil saturated kitty litter was noted near the drum storage area. The previous Phase I ESA identified pooling of oil near the drum storage area located to the north of the western lumber shed.
Pits, ponds, or lagoons	Terraphase did not identify pits, ponds or lagoons at the Site during the Site reconnaissance.
Stressed vegetation	Vegetation was not observed at the Site during the Site reconnaissance. Stressed vegetation was not observed on the adjacent Tracy High School property.
Stormwater	Stormwater flows were not observed at the time of the Site reconnaissance. It is assumed storm water flows via sheet flow to storm drains observed on the Site and in East 11th Street.
On-Site wells	On-site wells were not identified on the Site during the Site reconnaissance.
Septic systems	No evidence of septic systems at the Site were observed during the Site reconnaissance. Sanitary wastewater services are provided to the Site by the City of Tracy.
Other petroleum product transmission/storage	No petroleum pipelines or other petroleum storage were observed or identified at the Site during the Site reconnaissance.

3.7 Interviews

Mr. Jeff French, a representative of San Joaquin Lumber Company, the previous owner of the Site, completed an owner questionnaire in March 2018. According to information provided by Mr. French, the Site was used as a lumber yard from 1946 to 2002 and has been used as an automobile and motorcycle audio retail and installation center since 2002. Mr. French indicated that forklifts have previously been operated at the Site. Mr. French indicated he is not aware of any USTs, ASTs, or other hazardous material releases at the Site.

4.0 APPARENT PROBLEM

The following potential environmental concerns were identified and are addressed in this PEA Report:

- Soil

  - *Organochlorine pesticides (OCPs) and arsenic*: in shallow soil from historical agricultural use of the Site. Agricultural properties are lands where pesticides were uniformly applied for agricultural purposes consistent with normal application practices. Each field of the same crop is assumed to have been watered, fertilized, treated with agricultural chemicals, and tilled to the same degree across the field. Because of this homogeneous application and the stable nature of OCPs in soil, contaminant levels are expected to be similar across the field and limited to the shallow depth of tilling.

  - *Lead*: in shallow soil near buildings due to the possible chipping and flaking of the lead-based paint coatings on the building and sheds at the Site and the resultant impact to shallow soils. In addition, because of the historical use of lead in gasoline, lead is identified as a potential COPC in deeper soil beneath the former UST location.

  - *OCPs as termiticides*: in shallow soil due to the potential application of insecticides around the wooden building and sheds at the Site.

  - *PCBs*: in shallow soil in the vicinity of the large store-front window due to possible weathering of PCB containing caulking or glazing and resultant impact to shallow soils.

  - *Petroleum hydrocarbons (TPH-g, TPH-d, and TPH-mo), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals*: in shallow soil due to potential leaks and spills from equipment and improper container handling/storage during the current automobile repair operations conducted at the Site, as well as during historical use of the Site as a lumber yard.

  - *TPH-g and VOCs (including BTEX and methyl-tert-butyl-ether [MTBE])*: in deeper soil at the Site in the vicinity of the former gasoline UST at the Site.

  - The source of the backfill material used for the UST removal/excavation conducted in 1989 is unknown. Based on the lack of information regarding the source of the backfill material, the following COPCs are identified for

the soil located in the former tank excavation: OCPs, VOCs, CAM 17 metals, TPH, SVOCs, and asbestos.

- Groundwater
    - *TPH-g, lead, and VOCs (including older fuel oxygenates such as MTBE and tert-butyl alcohol [TBA])*: for groundwater at the Site due to potential leaks from the former gasoline UST removed from the Site in 1989.
    - *Metals*: for groundwater at the Site due to potential leaching from the UST backfill material.
- Soil-gas
    - *TPH-g and VOCs (full VOC list, including BTEX and MBTE)*: in soil-gas at the Site in the vicinity of historical surface releases and in the vicinity of the former gasoline UST. Soil-gas impacts can occur when volatile components of petroleum hydrocarbons in the soil volatilize into the vadose zone. VOC-impacted soil-gas can migrate into buildings under the influences of advective flow or diffusion through cracks and other penetrations in the building slab.

5.0 ENVIRONMENTAL SETTING

5.1 Conceptual Site Model

A Conceptual Site Model (CSM) depicting the potential sources of contamination, transport mechanisms, exposure routes and receptors is depicted on Figure 3. The model identifies the potential sources of contamination identified at the Site. The CSM also illustrates possible contaminant transport mechanisms and exposure pathways from various media that may be affected: soil, groundwater, and soil-gas.

5.2 Factors Related to Soil Pathways

5.2.1 Site Topography

The Site is relatively flat. The Site is situated approximately 52 feet above sea level. The local topography shows a gradual downward incline to the north.

5.2.2 Site Geology and Soil Types

The Site is located in the Great Valley geomorphic province of California, a large, elongate, northwest-trending structural trough, generally constrained to the west by the Coast Ranges and to the east by the foothills of the Sierra Nevada Range (Norris and Webb 1990). The Great Valley consists of two valleys lying end-to-end, with the Sacramento Valley to the north and the San Joaquin Valley to the south.

The Sacramento and San Joaquin Valleys have been filled to their present elevations with thick sequences of sediment derived from both marine and continental sources. The sedimentary deposits range in thickness from relatively thin deposits along the eastern valley edge to more than 25,000 feet in the south central portion of the Great Valley (Norris and Webb 1990). The sedimentary geologic formations of the Great Valley province vary in age from Jurassic to Quaternary, with the older deposits being primarily marine in origin. Younger sediments are continentally derived and were typically deposited in lacustrine, fluvial, and alluvial environments with their main source being the Sierra Nevada Range.

The 1991 USGS Geologic Map of the San Francisco-San Jose Quadrangle, California, shows the Site to be underlain by alluvial fan deposits. The USGS maps the site as underlain by Holocene and Pleistocene fan and terrace deposits (Sowers et al 1993). Based on recent soil investigations performed at the Site, the underlying soils at the Site are fine-grained silty-clay materials, which is characteristic of very slow infiltration.

5.2.3 Site Accessibility

The Site is currently fenced and entirely covered with buildings, concrete pads, or paved parking areas.

5.2.4 Proximity to Nearby Receptors

The nearest current sensitive receptors to the Site is the Tracy High School located immediately adjacent to the northern boundary of the Site. The nearest residences include a small mobile home community approximately 200 feet east-northeast of the Site and single-family residences located approximately 1000 feet northwest of the Site, beyond the High School.

5.3 Factors Related to Water Pathways

Factors related to water pathways include the local hydrogeology, which defines the movement of contaminants within groundwater and nearby surface waters which can be impacted by runoff or flooding from the Site.

5.3.1 Hydrogeology

The Tracy Subbasin is comprised of continental deposits of Late Tertiary to Quaternary age. These deposits include the Tulare Formation, Older Alluvium, Flood Basin Deposits, and Younger Alluvium. The cumulative thickness of these deposits increases from a few hundred feet near the Coast Range foothills on the west to about 3,000 feet along the eastern margin of the basin (DWR 2006). Within the City of Tracy in the vicinity of the Site, the shallow soils are composed of alluvial materials consisting of interbedded clays, silts and sands (CGS 2010).

Beneath the alluvial sediments are the poorly sorted clays, silts, sands and gravels of the Tulare Formation. The Tulare Formation is exposed in the Coast Range foothills along the western margin of the basin and dips eastward toward the axis of the valley. It consists of semi-consolidated, poorly sorted, discontinuous deposits of clay, silt, and gravel (DWR 2006). The Tulare Formation is separated into two members, the Upper Tulare Formation and the Lower Tulare Formation. The Upper Tulare Formation is separated from the Lower Tulare Formation by the low-permeability Corcoran Clay which acts as a confining bed within the regional groundwater basin. The total thickness of the Tulare Formation is about 1,400 feet. Specific yield values for water bearing deposits in the San Joaquin Valley and Delta area range from about 7 to 10 percent.

In the vicinity of the Site, the top of the Corcoran Clay is estimated to be at a depth of approximately 230 ft. beneath the ground surface and to be some 100 ft. thick (San Joaquin Co. Inc. 2007).

5.3.2 Groundwater Impacts at the Site

Shallow groundwater impacts could have occurred from releases at the Site or from nearby leaking USTs located in close proximity to the Site. During site investigations, groundwater was encountered at depths between 11 and 15 feet below ground surface. Groundwater

monitoring conducted on properties located in close proximity to the Site the groundwater flow direction is generally to the north/northwest.

5.3.3 Groundwater Use

The Site is located within the limits of the City of Tracy and is serviced through municipal water supply. The City of Tracy provides water service to all water users within the city limits, plus approximately 377 residents of the Larch-Clover County Services District (EKI 2011). As of 2010, the City of Tracy served over 23,000 metered service connections (EKI 2011).

The City of Tracy obtains most of its water from multiple surface water sources through contracts with the federal government and surrounding irrigation and water districts. The remainder of Tracy's water supply comes from groundwater extracted from the local Tracy Groundwater Basin, management of which is coordinated by multiple overlying and appropriative groundwater users (EKI 2011). The amount of water that Tracy uses from each of its water supply sources to make up its total water use varies from year to year based on contractual agreements, annual precipitation, and City policy about how to expand, utilize and manage its water resources (EKI 2011). The maximum annual groundwater extraction rate is 9,000 acre-feet per year, although Tracy has maintained groundwater production rates well below the estimated yield (EKI 2011).

The primary groundwater source for Tracy is the lower water-bearing zones of the Tulare Formation, which is part of a regional aquifer system in the San Joaquin subregion of the Central Valley groundwater basin. These water bearing zones occur at depths of 300 to 700 feet below ground surface and are confined by the Corcoran Clay (EKI 2011). Groundwater above the Corcoran Clay, which would include the shallow groundwater at the Site, is not used for groundwater production by the City of Tracy and water quality is not considered suitable for direct use due to concentrations of total dissolved solids, sulfate, and chloride that exceed recommended drinking water MCLs (West Yost & Associates 2012). The closest drinking water well is the Lincoln extraction well located approximately 1,500 feet northwest of the Site. According to information obtained from the DWR, the well is screened from approximately 490 to 980 feet below ground surface.

5.3.4 Surface Water

Surface water features were not observed at the Site. The nearest surface water body is the Tom Paine Slough located approximately 2 miles northeast of the Site. Stormwater flows via sheet flow to storm water catch basins where it is carried to the City of Tracy stormwater system.

5.4 Factors Related to Air Pathways

According to the National Climatic Data Center (closest reporting station is Stockton, California), average monthly wind velocities range from 6 to 9 miles per hour. Prevailing wind directions are from the west or northwest from March to October and from the southeast from December to February.

According to the Western Regional Climate Center (nearest reporting station in Stockton, California), the mean annual precipitation is 13.66 inches, with most of the precipitation occurring during the months of November through March. The mean annual temperature is listed at 61.7°F.

The COPCs include volatile and semi-volatile organic compounds. In areas with subsurface soil and/or groundwater VOC contamination, there is a possibility that vapors from these areas could migrate though building foundations and into indoor air.

6.0 SAMPLING ACTIVITIES AND RESULTS

6.1 Summary of Activities

The following subsections describe sampling completed at the Site as part of the Limited Phase II conducted in 2017, as well as the additional samples collected at the Site during the PEA investigation conducted on July 10 and 11, 2018 and the PEA Addendum investigation conducted on October 3, 2018. The samples were collected using the sampling procedures identified in the PEA Work Plan (Terraphase 2018b). The sampling locations are shown on Figure 4. During the Limited Phase II, samples were submitted to ESC Laboratory (now Pace Analytical) in Sacramento, California. During the PEA and PEA Addendum, samples were submitted to Enthalpy Analytical (Enthalpy; formerly Curtis & Tompkins Laboratories) in Berkeley, California, except for the soil samples which were analyzed for asbestos. The soil samples analyzed for asbestos were submitted to Asbestos TEM Laboratories located in Berkeley, California for asbestos analysis using the California Air Resources Board (CARB) 435 polarized light microscopy (PLM) 400 PC Method and EPA Test Method for the Determination of Asbestos in Bulk Building Materials – Transmission Electron Microscopy (TEM) method (EPA 600/R-93/116) modified for quantitative bulk soil sample analysis.

The District provided notification to residents and businesses in the immediate area of the Site prior to the commencement of PEA field activities. The immediate area is defined as in the line of sight of the Site. The notices were submitted on District letterhead and mailed via U.S. mail on June 28, 2018. Additionally, a copy of the notification letter was posted at the Site prior to and during field sampling activities. A copy of the draft notification letter was presented in the PEA Work Plan.

6.1.1 Soil Sampling

Soil samples were collected using either a hand auger or a direct push rig. Samples for non-volatile components were placed in laboratory-supplied glass jars. Samples for volatile components were collected using a TerraCore™ sampling device. At each sample location, three 5-gram plugs of soil were collected and placed into vials. Two of the vials contained 5 milliliters (mL) of deionized water and a stir bar, and one vial contained 5 mL of methanol.

6.1.1.1 Former Agricultural Use

During the Limited Phase II investigation, five borings (SB-1 through SB-5) were advanced at the northern end of the property. Samples from the first encountered soil, approximately 0.5 to 1.0 feet below the asphalt surface (samples were collected from soil below the existing asphalt and road base which is approximately 0.5 to 1 foot below the existing ground surface) were analyzed for OCPs and arsenic. In addition, samples from 2.5 to 3 feet

bgs were analyzed for arsenic. OCPs were not detected above the laboratory detection limits. Arsenic was detected at concentrations ranging from 4.78 milligrams per kilogram (mg/kg) to 6.55 mg/kg. It is assumed that the application of pesticides during the historical agricultural use would have been uniform in nature and that the variation of detections across the site will be relatively small, consistent with the DTSC guidance document for sampling agricultural properties (DTSC 2008). However, because the Site has been redeveloped since the agricultural use of the Site occurred, discrete samples at depths of 0 to 0.5 feet below the asphalt materials and 2.5 to 3 feet bgs were collected from an additional boring located in the approximate center of the Site (HA11) to further characterize shallow soil at the Site. The soil samples from HA11 were analyzed for OCPs and arsenic.

6.1.1.2 Lead Based Paint and Application of Termiticides

During the PEA, a total of fourteen soil borings were advanced around the building and two sheds at the Site (identified as HA1 through HA14 on Figure 4). The borings were located within approximately 2 feet of the drip-lines of the building and sheds within the Site project boundary (samples were not collected from soil located outside the project boundary). The soil borings were advanced to a depth of 3 feet bgs with soil samples collected from soil located below the existing pavement section (0 to 0.5 feet beneath the existing asphalt and road base) and from 2.5 to 3 feet bgs. The discrete samples collected from the 0 to 0.5 feet interval were submitted for lead analysis to assess for potential lead-affected soil around the perimeter of the structures. The discrete deeper samples collected from 2.5 to 3 feet in each boring were initially placed on hold with the analytical laboratory. At one sample location (HA9), the lead result in the shallow sample exceeded the screening level of 80 mg/kg. The deeper sample at this location was taken off-hold and analyzed for lead. In addition, Terraphase re-mobilized to the Site in October 2018 and conducted step-out sampling in the vicinity of sample location HA9 to estimate the extent of potential lead in soil. A total of nine soil borings were advanced to a depth of 3 feet bgs with soil samples collected from soil located below the existing pavement section (0 to 0.5 feet beneath the existing asphalt and road base) and from 2.5 to 3 feet bgs. The discrete samples collected from the 0 to 0.5 feet interval from the closest step-out sample locations were submitted for lead analysis. The remainder of the samples collected during the step-out investigation were placed on hold with the analytical laboratory.

In addition, a portion of soil from the same depth interval in up to three adjacent borings around the building and sheds were composited. The composited samples from each depth interval (0 to 0.5 feet and 2.5 to 3 feet bgs) were submitted for analysis of OCPs including technical chlordane.

6.1.1.3 Polychlorinated Biphenyls in Soil from Window Glazing Weathering

Two soil borings were advanced immediately below the large show room window located on the front of the building at the Site (identified as PCB1 and PCB2 on Figure 4). The PEA Work Plan described that the soil borings would be advanced to a depth of 3 feet bgs with discrete samples collected from soil located below the existing concrete section (0 to 0.5 feet beneath the existing concrete) and from 2.5 to 3 feet bgs. However, at one location (PCB1), refusal was encountered at approximately 1.5 feet bgs and a deeper sample (from 2.5 to 3 feet bgs) was not collected. The discrete samples collected from the 0 to 0.5 feet interval from both borings were submitted for PCB analysis to assess for potential impacts due to weathering of PCBs from the window glazing. The deeper samples collected from 2.5 to 3 feet in boring PCB2 was placed on hold with the analytical laboratory.

6.1.1.4 Use of the Site for Auto Repair

During the Phase I ESA conducted at the Site, the asphalt was observed in poor condition in several areas on the western side of the property. Evidence of oil spills (stained concrete and absorbent) were observed in several areas, particularly at the northern end of the property on the concrete pad beneath the canopy area; cracks were not observed in the concrete pad. Floor drains, sumps, and drywells were not observed at the Site during the Phase I ESA, although a storm drain was observed in the area of the automobile activities. During the Limited Phase II investigation, five soil borings (SB1 through SB5) were advanced at the northern end of the property in the vicinity of oil staining observed on the asphalt surface of the Site. Samples collected from each boring at depths of 0 to 0.5 feet bgs (collected from soil below the existing asphalt and road base) and 2.5 to 3 feet bgs were analyzed for TPH-d, TPH-mo, TPH-lube oil, and CAM 17 metals to assess shallow soil impacts from potential surface releases. Low levels of TPH-d, TPH-mo, and metals were detected in the shallow soil. TPH-lube oil was not detected above the laboratory reporting limits. As part of the PEA, a boring was installed immediately adjacent to the Limited Phase II sampling locations (and labeled SB1A through SB5A). Samples at these locations were collected at depths of 0 to 0.5 feet bgs and 2.5 to 3 feet bgs and analyzed for TPH-g, VOCs and SVOCs. In addition, soil samples were collected at depths of 0 to 0.5 feet bgs and 2.5 to 3 feet bgs from an additional boring located in the approximate center of the Site (HA11). The soil samples from HA11 were s analyzed for VOCs, SVOCs, TPH-g, TPH-d, TPH-mo, and CAM-17 metals.

6.1.1.5 Former Use of the Site as a Lumber Yard

As described in the previous section, samples for TPH-d, TPH-mo, and CAM 17 metals were collected from five locations (SB1 through SB5) during the Limited Phase II conducted at the Site. Samples collected from each boring at depths of 0 to 0.5 feet bgs (collected from soil below the existing asphalt and road base) and 2.5 to 3 feet bgs were analyzed for TPH-d,

TPH-mo, TPH-lube oil, and CAM 17 metals to assess shallow soil impacts from potential surface releases. During the PEA, soil samples were collected at depths of 0 to 0.5 feet bgs and 2.5 to 3 feet bgs from an additional boring located in the approximate center of the Site (HA11). The soil samples were analyzed for TPH-g, TPH-d, TPH-mo, and CAM-17 metals.

6.1.1.6 Former UST Location

During the PEA, one boring was advanced in the approximate center of the former UST location (identified as SB6 on Figure 4). The boring extended to a depth of 20 feet bgs and was used to collect soil samples, as well as a grab groundwater sample (discussed in Section 6.1.2). Soil samples were collected at depths of 3.5 to 4 feet bgs and 8.5 to 9 feet bgs to assess the material used as backfill for the UST excavation when the tank was removed in 1989. The samples collected from these depths were analyzed for OCPs, VOCs, CAM 17 metals, TPH-d, TPH-mo, SVOCs, and asbestos in accordance with DTSC's Guidance on Imported Fill Material (DTSC 2001). An additional soil sample was collected from the boring at a depth of approximately 12.5 to 13 feet bgs to assess deeper soil impacts from potential leaks from the former UST. The soil sample was analyzed for TPH-g, VOCs, and lead.

6.1.2 Ground Water Sampling

Groundwater samples were collected by placing a temporary PVC casing in each groundwater sampling location borehole. During the Limited Phase II investigation, the grab groundwater sample was collected using a disposable bailer. During the PEA, groundwater grab samples were collected from each temporary casing using a peristaltic pump.

During the Limited Phase II investigation, one grab groundwater sample (GW1) was collected at the Site in a presumed downgradient location. The groundwater sample was analyzed for VOCs, TPH-g, TPH-d, TPH-mo, and TPH-lube oil. To assess potential impacts to groundwater from the former gasoline UST at the Site, grab groundwater samples were collected from three locations: in the immediate vicinity of the former UST (GW2), downgradient of the former UST (GW3), and adjacent to the previous soil-gas sample location with elevated VOCs detected (GW4). The groundwater samples were analyzed for CAM 17 metals (total and dissolved), TPH-g, VOCs, TPH-d and TPH-mo.

6.1.3 Soil-Gas Sampling

Temporary soil vapor probes at two depths were installed at each sampling location. Each soil vapor probe consisted of a soil vapor sampling probe tip, constructed of either a ceramic air-stone connected to ¼-inch Teflon tubing.

During the Limited Phase II investigation, soil-gas samples were collected from three locations at the Site (SG1 through SG3). Samples were collected at depths of approximately 5 and 7 feet bgs from SG1. Samples were collected from a depth of approximately 10 feet

bgs at locations SG2 and SG3. Attempts were made to collect a sample at 5-feet bgs at locations SG2 and SG3 but were unsuccessful. Soil-gas samples were analyzed for TPH-g and VOCs. During the PEA, soil-gas samples were collected from probes installed to depths of 5 feet bgs located immediately adjacent to locations SG2 and SG3 (referred to as SG2A and SG3A) and at depths of 5 feet bgs and 10 feet bgs in the immediate vicinity of the former UST at location SG4. The soil-gas samples were analyzed for VOCs and TPH-g.

Soil-gas samples were collected in accordance with the procedures described in DTSC's "Advisory: Active Soil Gas Investigations," dated July 2015 (DTSC 2015a), including procedures for collecting samples in low flow, high vacuum conditions.

6.1.4 Surveying

Terraphase located each sampling location using a handheld global positioning system unit during the field activities.

6.1.5 Decontamination Procedures

Equipment that came into contact with potentially contaminated soil was decontaminated. Disposable equipment intended for one-time use was not decontaminated but packaged for appropriate disposal. Decontamination occurred prior to and after each use of a piece of equipment. All non-disposable sampling devices used were decontaminated using the following procedures:

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

At the completion of sampling activities, the wash water was placed in the drum with the drilling cuttings. The wash water consisted of water, nonphosphate detergent, and a small amount of surface soil.

6.1.6 Quality Analysis/Quality Control Samples

For quality assurance/quality control (QA/QC), a minimum of 10% of the samples for each media were collected as field duplicates and analyzed as duplicate samples. Although the PEA Work Plan indicated that field duplicate soil samples would be collected and analyzed for the composited pesticide samples, duplicate samples were not collected in the field. A summary of the field duplicate samples collected by media is provided below:

Media	Total No. of Samples Collected and Analyzed	No. of Field Duplicate Samples Collected and Analyzed
Soil	51	6
Groundwater	4	1
Soil-gas	4	1

One tripblank sample for groundwater was submitted with the cooler that contained groundwater samples submitted for VOC analysis. Similarly, one tripblank sample for soil was submitted with the cooler that contained soil samples submitted for VOC analysis.

One equipment rinsate blank sample per sampling day was collected (one on July 10, 2018, one on July 11, 2018, and one on October 3, 2018) and analyzed for the same analytes as the samples collected during the day. The equipment blank collected on July 10, 2018 consisted of pouring laboratory-provided deionized water over the drilling rod used during sampling that day. The equipment blanks collected on July 11 and October 3, 2018 consisted of pouring laboratory-provided deionized water over the hand auger used during sampling.

The source of the water for the equipment blank samples collected on July 10 and July 11, 2018 was the same for both days. Additional deionized water was used for the equipment blank sample collected on October 3, 2018. The PEA Work Plan identified that a field blank sample would also be collected for each sampling day; however, due to a limited volume of deionized water during the July sampling event, a field blank sample was only collected on the first day of sampling (July 10, 2018). An additional field blank sample was collected during the October 3, 2018 sampling event.

6.1.7 Sample Handling

After sample collection, sample labels were affixed to each sample container. Each sample was placed in a resealable plastic bag to keep the sample container and the label dry. All glass sample containers were protected with foam cushioning material and bubble wrap to prevent breakage.

Samples were packed in a sample cooler. A temperature blank was placed in the cooler with samples. Wet ice (double-bagged in resealable bags) was added to the cooler in sufficient quantity to keep the samples cooled to 4°C, plus or minus 2°C, for the duration of the shipment to the laboratory.

A chain-of-custody record accompanied the sample shipment for analyses. Forms were completed and sent with the samples for each laboratory. The chain-of-custody recorded the contents of each shipment and maintained the custodial integrity of the samples. Information contained on the chain-of-custody record included the sampler's name; date and project number of the sampling event; sample number; date and time of sample

collection; sample type; number of containers associated with each sample; analyses requested; and the names, dates, and times of custody.

6.2 Presentation of Data and Discussion of Results

The following sections describe the results of the Limited Phase II and PEA field investigation activities performed by Terraphase at the Site. Certified analytical laboratory reports and chain-of-custody documentation are provided in Appendix J.

6.2.1 Soil Sampling Results

6.2.1.1 OCPs

At twenty locations distributed throughout the Site, primarily located around the existing Site structures, discrete surface soil samples (0 to 0.5 feet bgs) and deeper soil samples (2.5 to 3 feet bgs) were collected. Samples from fourteen of the discrete sample locations were composited into either 3-point or 4-point composite soil samples and analyzed for OCPs by U.S. EPA Method 8081A. Results of the laboratory analyses are presented in Table 2. As shown on Table 2, OCPs were not detected at or above their respective reporting limits in the soil samples collected at the Site.

6.2.1.2 Lead

At twenty locations distributed throughout the Site, primarily located around the existing structures, discrete surface soil samples (0 to 0.5 feet bgs) were collected and analyzed for lead by U.S. EPA Method 6010. Results of the laboratory analyses are presented in Table 3. As shown on Table 3, lead was generally detected at concentrations below the generic residential screening level of 80 mg/kg, except in one soil sample (location HA9). At this location, the deeper sample (2.5 to 3 feet bgs) was taken off hold and analyzed for lead. The result of the deeper sample was below the generic residential screening level, as shown on Table 3.

In addition, step-out sampling was conducted as part of a PEA Addendum (Terraphase 2018c) conducted at the Site on October 3, 2018. Discrete soil samples (0 to 0.5 feet bgs) from three step-out borings located approximately 5 feet to the east, north, and west of HA9 were collected and analyzed for lead by U.S. EPA Method 6010. The results of the step-out samples were below the generic residential screening level, as shown on Table 3.

6.2.1.3 Metals (Excluding Lead)

At seven locations distributed throughout the Site, discrete soil samples were collected and analyzed for CAM 17 Metals by U.S. EPA Method 6010. Results of the laboratory analyses are presented in Table 3. As shown on Table 3, arsenic was detected at concentrations ranging from 4.78 mg/kg to 6.6 mg/kg. Although the detected arsenic concentrations were

above the generic residential screening level, the concentrations were below the background concentration of 9.24 mg/kg presented in the PEA Work Plan (Terraphase 2018b). The other metals were not detected in the soil samples above their respective screening levels.

6.2.1.4 PCBs

At seven locations, discrete soil samples were collected and analyzed for PCBs by U.S. EPA Method 8082. Five of the locations were distributed at the southern end of the Site and two of the locations were located beneath the large store front window. Results of the laboratory analyses are presented in Table 4. PCBs were not detected at or above their respective reporting limits in the five samples collected from the southern end of the Site. Aroclor-1260 was detected in the two samples collected beneath the store front window at concentrations of 0.017 mg/kg (duplicate 0.026 mg/kg) and 0.014 mg/kg, below the screening level of 0.24 mg/kg.

6.2.1.5 TPH

At seven locations distributed throughout the Site, discrete soil samples were collected and analyzed for TPH-g, TPH-d, and TPH-mo by U.S. EPA Method 8015. Results of the laboratory analyses are presented in Table 5. The following is a summary of the results:

- TPH-g was detected in one soil sample above the laboratory reporting limit collected at a depth of 8.5 to 9 feet bgs from SB6 (within the former UST location). TPH-g was detected at an estimated concentration of 0.019J mg/kg, below the screening level of 100 mg/kg. TPH-g was not detected in the deeper soil sample collected at a depth of 12.5 to 13 feet bgs at SB6.

- TPH-d was detected at concentrations ranging from 0.48JY mg/kg to 3.8Y mg/kg, below the screening level of 230 mg/kg.

- TPH-mo was detected at concentrations ranging from 4 mg/kg to 130 mg/kg, below the screening level of 5,100 mg/kg.

6.2.1.6 VOCs

At seven locations distributed throughout the Site, discrete soil samples were collected and analyzed for VOCs by U.S. EPA Method 8260. Results of the laboratory analyses are presented in Table 6. As shown on Table 6, VOCs were generally not detected at or above their respective reporting limits, except as follows:

- Acetone was detected in all soil samples collected at concentrations ranging from 0.0031 mg/kg to 0.011 mg/kg, below the screening level of 61,000 mg/kg.

- Dichloromethane was detected in one soil sample collected at a depth of 12.5 to 13 feet bgs (from location SB6) at an estimated concentration of 0.00085J mg/kg, below the screening level of 1.9 mg/kg. Dichloromethane was not detected in a duplicate sample collected from this location above the laboratory reporting limit of 0.00081 mg/kg.

6.2.1.7 SVOCs

At seven locations distributed throughout the Site, discrete soil samples were collected and analyzed for SVOCs by U.S. EPA Method 8270. Results of the laboratory analyses are presented in Table 7. As shown on Table 7, SVOCs were generally not detected at or above their respective reporting limits, except as follows:

- Pyrene was detected in one soil sample collected at a depth of 0 to 0.5 feet bgs (from location HA11) at an estimated concentration of 0.0011J mg/kg, below the screening level of 1,800 mg/kg.

- Chrysene and Fluoranthene were detected in one soil sample collected at a depth of 2.5 to 3 feet bgs (from location SB3A) at estimated concentrations of 0.001J mg/kg and 0.0014J, mg/kg, respectively. The concentrations are below the screening level of 110 mg/kg for chrysene and 2,400 mg/kg for fluoranthene.

6.2.1.8 Asbestos

Two discrete soil samples were collected from the backfill of the former UST excavation and analyzed for asbestos using PLM by point count and TEM Method EPA 600/R‐93/116 with California Air Resource Board (CARB) 435 preparation. Results of the analyses are presented in Table 8. As shown on Table 8, asbestos was not detected at or above the reporting limits.

6.2.2 Groundwater Sampling Results

6.2.2.1 Metals

Grab groundwater samples were collected from three locations at the Site and analyzed for both total and dissolved CAM 17 metals by U.S. EPA Method 6010. Results of the laboratory analyses are presented in Table 9. As shown on Table 9, metals were detected in all four of the groundwater samples (plus the field duplicate) collected from the Site. In general, the detected metals concentrations were higher in the unfiltered groundwater samples. This is likely due to the nature of grab sampling and entrained sediment in the grab samples. With the exception of arsenic, the detected metals concentrations in the filtered groundwater samples were below the screening levels.

6.2.2.2 TPH

Grab groundwater samples were collected from four locations at the Site and analyzed for TPH-d and TPH-mo by U.S. EPA Method 8015 and TPH-g by U.S. EPA Method 8260. Results of the laboratory analyses are presented in Table 10.

TPH-d was detected in the four grab groundwater samples collected at the Site (plus the field duplicate) at concentrations ranging from 35J µg/L (estimated) to 2,850 µg/L. Of these detections two sample results exceeded the screening level of 50 µg/L. The highest detected concentrations of TPH-d (exceeding screening level) were detected in samples GW1 and GW4 at concentrations of 2,850 u/L and 260Y µg/L, respectively. GW1 and GW4 are located at the southern (presumed downgradient) end of the Site.

TPH-mo was detected in three of the four grab groundwater samples at concentrations ranging from 110 µg/L to 650 µg/L.

TPH-g was detected in one of the samples (GW2 collected from beneath the former UST location) at an estimated concentration of 5.6 µg/L, below the screening level of 100 µg/L. TPH-g was not detected in any of the other grab groundwater samples collected above the laboratory reporting limit.

6.2.2.3 VOCs

Grab groundwater samples from four locations at the Site were collected and analyzed for VOCs by U.S. EPA Method 8260. Results of the laboratory analyses are presented in Table 11. VOCs were not detected in the grab groundwater samples at or above their respective reporting limits.

6.2.3 Soil-Gas Sampling Results

Soil-gas samples from four locations at the Site were collected and analyzed for TPH-g and VOCs by U.S. EPA Method TO-3 and TO-15, respectively. Results of the laboratory analyses are presented in Table 12. The following VOCs were detected above screening levels in the soil-gas samples:

- TPH-g was detected in all of the soil-gas samples (plus one field duplicate) collected from the Site at concentrations ranging from 400 J micrograms per cubic meter (µg/m^3) to 34,300 µg/m^3 in the soil-gas sample collected at 10 feet bgs at location SG-3. Of these detections, two of the sample results (SG2-10 and SG3-10, plus one duplicate) exceeded the screening level of 3,333 µg/m^3.

- Benzene was detected in all of the soil-gas samples collected at the Site at concentrations ranging from 2.8 µg/m^3 to 45.1 µg/m^3 (lowest screening level for benzene is 3 µg/m^3).

- Ethylbenzene was detected in all of the soil-gas samples (plus one field duplicate) collected from the Site at concentrations ranging from 1 J µg/m^3 to 1,260 ug/m3. Of these detections, two of the sample results (SG2-10 and SG3-10, plus one duplicate) exceeded the screening level of 37 µg/m^3.

- M,p-Xylene was detected in all of the soil-gas samples (plus one field duplicate) collected from the Site at concentrations ranging from 3.6 J µg/m^3 to 4,870 µg/m^3. Of these detections, one of the sample results (SG3-10) exceeded the screening level of 3,333 µg/m^3.

- Bromodichloromethane was detected in soil-gas sample SG4-5 at an estimated concentration of 6.9 J µg/m^3 (field duplicate results of 8.1 µg/m^3), above the screening level of 3 µg/m^3.

- Chloroform was detected in four soil-gas samples collected at the Site at concentrations ranging from 0.6 J µg/m^3 to 22 µg/m^3, above screening level in soil-gas sample SG2A-5.

- Tetrachloroethene (PCE) was detected in all of the soil-gas samples collected from the Site at concentrations ranging from 3.1 µg/m^3 to 24.5 µg/m^3. Of these detections, two of the sample results (SG3-10 and SG-4-5, plus one duplicate) exceeded the screening level of 15 µg/m^3.

6.2.4 Quality Assurance/Quality Control

A QA/QC Program was implemented as part of the PEA process. The primary quality control features of the program included the collection and analysis of field quality control samples and the validation of data. ESC Laboratory (now Pace Analytical) located in Sacramento, California and Enthalpy located in Berkeley, California provided the required chemical analyses for soil, water, and soil-gas samples collected at the Site. Pace Analytical is certified (No. 2932) by the State of California Environmental Laboratory Accreditation Program (ELAP) Branch to provide the required chemical analyses. Enthalpy is certified (No. 2896) by the State of California ELAP Branch to provide the required chemical analyses. TEM located in Berkeley, California provided the required asbestos analyses for soil samples collected at the Site. TEM is certified (No. 1866) by the State of California ELAP Branch and is accredited by the National Voluntary Accreditation Program for asbestos fiber analysis.

6.2.4.1 Sample Handling

Completed chain-of-custody forms were provided with the samples. Copies of the chain-of-custody forms were included in the final analytical reports. No discrepancies were noted by the analytical laboratory. The sample identification (ID) numbers listed on the chain-of-

custody records were consistent with the sample IDs reported in the laboratory data reports.

Samples were received within the acceptable temperature range upon arrival at the laboratory. Samples were received properly preserved and in good condition and were analyzed within the proper holding times for the analyses requested. Bubbles were noted in several vials for the VOC analyses on the sample log-in forms for the groundwater samples, as follows:

- Samples GW2, GW4 and SB071018: two out of three vials for VOC analysis arrived with bubbles.
- Samples GW3, EB071018, and TB-W-071018: three out of three vials for VOC analysis arrived with bubbles.

Three VOA vials per sample are submitted to the laboratory. If one or more of the vials arrives at the laboratory with bubbles, a vial with bubbles is used for screening and a vial without bubbles is used for analysis. It is the laboratory's professional opinion that the presence of bubbles in the vials does not significantly affect the integrity of the sample (Nadim 2001) and therefore, data qualifiers were not applied to the samples where the three vials contained bubbles.

6.2.4.2 Trip Blanks

VOCs were not detected above the laboratory reporting limits in the groundwater trip blank sample (TB-071018). Methylene chloride and acetone were detected at concentrations of 1.9 ug/kg and 8.5 ug/kg in the soil trip blank sample (TB-S-071018). Methylene chloride and acetone were not detected above the laboratory reporting limits in the soil samples collected and analyzed for VOCs from the Site. Therefore, data qualifiers were not applied.

6.2.4.3 Equipment Blanks

The equipment blank sample collected on July 10, 2018 (EB-071018) was analyzed for TPH-g, TPH-d, TPH-mo, VOCs, SVOC, OCPs, and title 22 metals. TPH-d, chromium, and molybdenum were detected above the laboratory reporting limit in the equipment blank sample at concentrations of 36 µg/L, 0.8 µg/L, and 1.2 µg/L, respectively. The samples associated with this equipment blank sample are as follows: GW2, GW3, GW4, HA11, and SB6. Molybdenum and chromium were detected in the soil samples at concentrations greater than 5 times the blank hit. TPH-d was detected in the water used for the equipment blank samples (see Section 6.2.4.4). Data qualifiers were not applied.

The equipment blank sample collected on July 11, 2018 (EB-071118) was analyzed for TPH-g, TPH-d, TPH-mo, VOCs, SVOCs, OCPs, PCBs, and title 22 metals. TPH-g, TPH-d, pyrene, and

selenium were detected above the laboratory reporting limit in the equipment blank sample at concentrations of 16 µg/L, 30 µg/L, 0.02 µg/L, and 2.6 µg/L, respectively. The samples associated with this equipment blank sample are as follows: HA1, HA2, HA3, HA4, HA5, HA6, HA7, HA8, HA9, HA10, HA12, HA13, HA14, PCB1, and PCB2. TPH-g, pyrene and selenium were not detected in the samples associated with this equipment blank sample at concentrations above the laboratory reporting limit. TPH-d was detected in the water used for the equipment blank samples (see Section 6.2.4.4). Data qualifiers were not applied.

The equipment blank sample collected on October 3, 2018 (EB-100318) was analyzed for lead. Lead was detected above the laboratory reporting limit in the equipment blank sample at a concentration of 14 µg/L. The samples associated with this equipment blank sample are as follows: HA9-A1, HA9-A2, and HA9-A3. Lead was detected in the soil samples at concentrations greater than 5 times the blank hit. Data qualifiers were not applied.

6.2.4.4 Field Blank

The field blank sample SB-071018 was collected and analyzed for TPH-g, TPH-d, TPH-mo, VOCs, SVOC, OCPs, and title 22 metals. This field blank sample is associated with sampling activities conducted July 10 and 11, 2018. TPH-d was detected at a concentration of 30 µg/L. The other analytes were not detected above the laboratory reporting limits in the field blank sample.

The field blank sample SB-100318 was collected and analyzed for lead. This field blank sample is associated with sampling activities conducted October 3, 2018. Lead was not detected above the laboratory reporting limits in the field blank sample.

6.2.4.5 Reporting Limits

Method detection limits for the proposed analytical methods were presented in the PEA Workplan and approved by DTSC. These detection limits were generally met by the analytical laboratory. Dilution was required for analysis for the following samples which resulted in elevated method detection limits for the associated analytes:

- HA4/HA5-0-0.5 – OCPs
- HA6/HA7/HA8-2.5-3 - OCPs
- SB2A-0-0.5 & SB2A-0-0.5D (DF 5 and 10, respectively) - SVOCs
- SB2A-2.5-3 (DF 10) - SVOCs
- SB4A-0-0.5 (DF 5) - SVOCs
- SB4A-2.5-3 (DF 10) - SVOCs

- SB5A-0-0.5 (DF 2) - SVOCs
- SB6-4.5-5 (DF 10) – SVOCs, TPH-d, TPH-mo
- SB6-8.5-9 (DF 3) –TPH-d, TPH-mo
- SB6-12.5-13D – TPH-d, TPH-mo

Although the detection limits were elevated, they were generally still lower than the appropriate screening levels, except as further discussed in Section 7.6.

6.2.4.6 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. RPDs were calculated for duplicate sample pairs using the following formula:

$$RPD = 100\% \times \frac{|X2 - X1|}{(X2 + X1)/2}$$

Where X2 is the duplicate sample result, and X1 is the primary sample result.

An RPD value was not calculated for field duplicates when one or both results was non-detect or one or both detected results was below the estimated quantitation limit. The PEA Work Plan established an RPD acceptance criteria for field duplicate samples of 20%. In general, the calculated RPDs were within the accepted 20% limit except as follows:

- For the soil sample duplicate pairs, barium had a calculated RPD in soil of 32% and molybdenum had a calculated RPD of 24%; Aroclor-1260 had a calculated RPD of 42%; TPH-d had a calculated RPD of 47%; and TPH-mo had a calculated RPD of 30%.

For all other detected compounds, calculated RPDs were within the accepted 20% limit. Although the calculate RPDs exceeded 20% established in the PEA Work Plan, the calculated RPDs were below the USEPA Region 9 limit for soil samples of 50% for organic analyses and 35% for inorganic analyses.

- The calculated RPDs for detected dissolved metals in the groundwater duplicate sample pair were within the accepted 20% limit. In contrast, the calculated RPDs for the unfiltered groundwater samples were much greater than 20%, with RPDs ranging from 74% (chromium) to 96% (cobalt). The high variability between the primary and duplicate samples is likely due to the nature of grab sampling and entrained sediment in the sample. In addition, the calculated RPD for the TPH-mo result was 114%. This variability also may be due to the nature of grab groundwater sampling.

- The calculated RPD for carbon disulfide in the soil-gas sample duplicate pair was 35%. For all other detected compounds, calculated RPDs were within the accepted 20% limit.

Laboratory analytical precision is evaluated by laboratory QC sample RPD calculations using the MS/MSD, BS/BSD, or laboratory duplicate sample results. The results of RPD calculations for MS/MSD, BS/BSD, and laboratory duplicate sample pairs were within the laboratory's acceptable range.

6.2.4.7 Accuracy

For VOCs, the surrogate recoveries were within specified ranges. The recoveries for laboratory control sample (LCS), blank spike (BS), blank spike duplicate (BSD), matrix spike (MS), and matrix spike duplicate (MSD) samples were within acceptable ranges.

For SVOCs, the surrogate recoveries were within specified ranges except in samples SB6-4.5-5, SB2A-2.5-3, SB2A-0-0.5D, SB4A-2.5-3 where dilution was required, and surrogate recoveries were diluted out. The recoveries for BS, BSD, and LCS samples were within acceptable ranges. The recoveries for the MS and MSD samples were generally within range except for low recoveries in the MS and MSD observed for 1,4-dichlorobenzene and 1,2,4-trichlorobenzene. The RPDs were within acceptable range limits.

For pesticides, the surrogate recoveries were within specified ranges except in samples HA4/HA5-0-0.5 and SB6-8.5-9 where dilution was required, and surrogate recoveries were diluted out. The recoveries for MS and MSD and LCS samples were within acceptable ranges.

For PCBs, the surrogate recoveries were within specified ranges. The recoveries for MS, MSD, and LCS samples were within acceptable ranges.

For metals analytical results, the recoveries for BS/BSD and MS/MSD samples were within acceptable ranges except for low recoveries for antimony observed in the MS/MSD samples. The RPDs were within acceptable range limits.

6.2.4.8 Representativeness

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

6.2.4.9 Completeness

Completeness is the amount of valid data obtained compared to the amount that was expected under ideal conditions. The number of valid results divided by the number of possible results, expressed as a percentage, determines the completeness of the data set. The objective for completeness is to recover at least 90 percent of the planned data to support field efforts. No data were rejected as a result of the data validation conducted and therefore, the analytical data for the soil, soil-gas, and groundwater samples is 100% complete.

6.2.4.10 Comparability

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

7.0 HUMAN HEALTH SCREENING EVALUATION

7.1 Exposure Pathways and Media of Concern

As discussed in the preceding sections, the planned use of the Site is as a parking lot for the adjacent Tracy High School. Existing structures at the Site will be demolished as part of the Site redevelopment. The receptor population for this future use would include school children, faculty, staff, and the general public. No buildings are planned for the Site and drinking water will be provided by the City of Tracy. However, as required by DTSC, for the PEA, potential future land use of the Site was assumed to be residential regardless of the actual proposed use and shallow groundwater was assumed to be used for drinking water. It should be noted that the Site is not currently used for residential purposes and shallow groundwater is not used for drinking water purposes and the District does not intend at any time for the property to be used for residential purposes and nor are there plans to use shallow groundwater as a potable or non-potable water source at the Site.

7.1.1 Soil Exposure Pathways

Chemicals detected in soil at the Site include specific metals, VOCs, SVOCs, PCBs, and TPH. Under the hypothetical future unrestricted use scenario, the potential would exist for humans to come into contact these chemicals in soil through direct contact (i.e., incidental ingestion of and dermal contact with surface soil, inhalation of soil-derived windborne particulates, and inhalation of soil-derived volatiles). For the purposes of the PEA, these exposure routes were considered complete and evaluated in the human health screening evaluation and risk/hazard characterization.

7.1.2 Water Exposure Pathways

The potable water supply for the school will be obtained from the City of Tracy municipal system. As a result, potential human exposure to groundwater via drinking water use is not a reasonably anticipated future exposure scenario for the Site. However, at the request of the DTSC, groundwater samples were collected as part of the PEA so as to evaluate hypothetical potable use exposure to groundwater at the Site for the purposes of the PEA.

7.1.3 Air Exposure Pathways

Under the hypothetical future unrestricted use scenario and if buildings were to be constructed over areas with soil or groundwater VOC contamination, potential human exposure would be possible via the migration of soil- or groundwater-derived volatile chemicals through building foundations and into indoor spaces (vapor intrusion).

Also, under the hypothetical future unrestricted use scenario and in contaminated areas that are uncovered, potential human inhalation exposure to soil-derived windborne particulates or volatiles while outdoors would be possible.

No buildings are planned for the Site as its intended to be redeveloped as a parking lot. However, for the purposes of the PEA, hypothetical residential exposure to subsurface volatile contamination via vapor intrusion was evaluated in the human health screening evaluation and risk/hazard characterization.

7.2 Exposure Concentrations and Chemicals

7.2.1 Soil

The COPCs in soil considered for the human health screening evaluation and risk/hazard characterization conservatively included any chemical detected in at least one soil sample collected from the Site with the exception of arsenic. Arsenic was not included as a COPC because the maximum detected concentration was below the background concentration of 9.24 mg/kg established in the PEA Work Plan (Terraphase 2018b).

Table 13 presents the list of chemicals detected in on-site soil and identifies which of those chemicals were included as COPCs for the human health screening evaluation and risk/hazard characterization.

With the exception of lead, the maximum detected concentration of each COPC was conservatively used as the exposure point concentration (EPC). For lead, the EPC was calculated as the 95% upper confidence level (UCL) on the mean using EPA's ProUCL software Version 5.1.002. To evaluate the exposures from lead in soil at the Site due to lead-based paint, the 95% UCL was calculated using the subset of data collected to assess for lead from the western shed (samples HA6, HA7, HA8, HA9, HA9-A1, HA9-A2, HA9-A3, HA10, and HA11). This data subset was selected since it represents the highest detected lead concentrations at the Site. Using this data subset, the 95% UCL on the mean for lead in soil is calculated as 75 mg/kg. A copy of the ProUCL calculation results is provided in Appendix K.

7.2.2 Groundwater

The COPCs in groundwater considered for the human health screening evaluation and risk/hazard conservatively included chemicals detected in at least one groundwater sample collected from the Site. Table 14 presents the list of chemicals detected in on-site groundwater. In accordance with DTSC guidance, the maximum detected concentration of each chemical detected at least once was conservatively used as the EPC.

7.2.3 Soil-Gas

The COPCs in soil-gas considered for the human health screening evaluation and risk/hazard characterization conservatively included chemicals detected in at least one soil-gas sample collected from the Site. Table 15 presents the list of chemicals detected in on-site soil-gas. In accordance with DTSC guidance, the maximum detected concentration of each chemical was conservatively used as the EPC.

7.3 Human Health Screening Levels

The human health screening levels used for the screening evaluation were established in the PEA Work Plan. In general, the screening levels in soil were identified as the DTSC's Human and Ecological Risk Office (HERO) Modified Screening Levels (DTSC-SLs) provided in the DTSC HERO Note 3 for residential soil (DTSC 2018) or the EPA's Regional Screening Levels (RSLs) for residential soil developed by the U.S. EPA for COPCs that do not have a DTSC-SL developed (EPA 2017). Consistent with the PEA Guidance Manual, the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Tier 1 ESLs for residential soil were used as screening levels for TPH-g, TPH-d, and TPH-mo (SFRWQCB 2016). Human health risks from lead in soil at the Site were evaluated using default residential soil screening levels derived by DTSC using the DTSC's Lead Risk Assessment Spreadsheet.

The screening levels for groundwater were identified as the DTSC-SLs provided in the DTSC HERO Note 3 for tap water (DTSC 2018) or the RSLs for tap water developed by the U.S. EPA for COPCs that do not have a DTSC-SL developed (EPA 2017). Consistent with the PEA Guidance Manual, the SFRWQCB Tier 1 ESLs for groundwater were used as screening levels for TPH-g, TPH-d, and TPH-mo (SFRWQCB 2016).

The screening levels identified for soil-gas were the DTSC-SLs provided in the DTSC HERO Note 3 for residential air and the RSLs for residential indoor air for COPCs that do not have a DTSC-SL developed (EPA 2017) with an attenuation factor of 0.03 applied (the attenuation factor of 0.03 was requested by the DTSC).

7.4 Toxicity Values

The screening levels described in Section 7.3 were utilized to perform the human health screening evaluation and risk/hazard characterization for COPCs; therefore, the selection and compilation of specific toxicity values was not necessary to support the PEA.

7.5 Risk/Hazard Characterization Summary

In accordance with DTSC guidance (DTSC 2015b), a risk/hazard screening evaluation was performed for the Site. In doing so, estimated cumulative cancer risks associated with potential human exposure to COPCs in media at the Site were compared to the cumulative

risk management goal of 1 in 1 million (i.e., $1x10^{-6}$) for supporting NFA decisions for PEA. Similarly, the estimated noncancer HI associated with potential human exposure to COPCs in media at the Site were compared to the noncancer HI risk management goal of 1. In order to evaluate potential human exposures to lead in soil, concentrations detected were compared to the DTSC generic residential screening level of 80 mg/kg.

Overall, the risks from COPCs were evaluated for each media and then combined to obtain an upper-bound estimate of cumulative cancer risk and noncancer HI for the Site. To streamline the risk calculations, single-chemical cancer risks and noncancer hazard quotients (HQs) were calculated by comparing the EPC to the carcinogenic and non-carcinogenic-based screening levels for each COPC as follows:

For a carcinogenic chemical:

$$\frac{EPC}{Cancer - Based\ Screening\ Level} x\ 10^{-6} = Chemical\ Cancer\ Risk$$

For a non-carcinogenic chemical:

$$\frac{ECP}{Noncancer - Based\ Screening\ Level} = Hazard\ Quotient$$

The single-chemical cancer risks and noncancer HQs were then summed to obtain cumulative cancer risks and noncancer HIs, respectively.

Per DTSC guidance, lead in soil was evaluated separately by comparing to the DTSC generic default screening level as discussed below.

7.5.1 Soil Risk Screening Summary

As shown on Table 16, the estimated upper-bound cumulative cancer risk for exposure to COPCs in soil at the Site is $2x10^{-7}$, below the cumulative cancer risk management goal. The estimated upper-bound noncancer HI for exposure to COPCs in soil is 1 which is equal to the noncancer HI risk management goal.

7.5.2 Groundwater Risk Screening Summary

As shown on Table 17, the estimated upper-bound cumulative cancer risk for exposure to COPCs detected in the groundwater at the Site is $4x10^{-3}$, which is above the cumulative cancer risk management goal. The estimated upper-bound noncancer HI for exposure to COPCs in groundwater is 600 which is greater than the noncancer HI risk management goal
.

7.5.3 Soil-Gas Risk Screening Summary

As shown on Table 18, the estimated upper-bound cumulative cancer risk for exposure to COPCs detected in soil-gas at the Site is $6x10^{-5}$, which is greater than the cumulative cancer risk management goal. The estimated upper-bound noncancer HI for exposure to COPCs in soil-gas is 10 which is greater than the noncancer HI risk management goal.

7.5.4 Cumulative Risk Screening Summary

As shown on Table 19, the estimated total upper-bound cumulative cancer risk for exposure to all of the COPCs detected at the Site in all environmental media is $4x10^{-3}$, which is greater than the cumulative risk management goal of $1x10^{-6}$.

As shown on Table 19, the estimated total upper-bound noncancer HI for exposure to all of the COPCs detected in all environmental media at the Site is 600, which is greater than the noncancer HI risk management goal of 1.

These cumulative risks are driven by the upper-bound estimates of risk and HI from hypothetical exposure to COPCs in groundwater and soil-gas. In the case of groundwater, the risk and HI estimates are based upon the assumption that groundwater is used for potable purposes at the Site. In the case of soil-gas, the risk and HI estimates are based upon the assumption that residential vapor intrusion exposure occurs. In both cases, the exposure scenarios in question are not consistent with the proposed future land use of this Site (which will be used as a parking lot). As a result, these risk estimates represent those that are based upon a hypothetical worst case scenario.

7.5.5 Lead in Soil Risk Screening Summary

As discussed in Section 7.2.1, the EPC for lead was conservatively calculated to be 75 mg/kg. This EPC is below the screening level of 80 mg/kg.

7.6 Uncertainty Analysis

As required by DTSC, potential future land use of the Site was assumed to be residential regardless of the actual proposed use and shallow groundwater was assumed to be used for drinking water for the PEA. Since the planned future use of the Site is for a parking lot, no buildings are planned for the Site, and drinking water will be provided by the City of Tracy, the assumption of an unrestricted land use greatly overestimates the risks for the intended future use of the Site.

Due to limitation of available scientific data and in the amount and type of site investigation data collected, every risk assessment will have some degree of uncertainty. Uncertainties in exposure parameter assumptions are related to the general lack of quantitative studies describing important aspects of human behavior such as incidental soil

ingestion rates (particularly adults), length of time spent at one residence, time spent outdoors, etc. In general, this uncertainty has been dealt with by erring on the conservative side and using upper-bound exposure assumptions that will tend to overestimate the exposure occurring to most individuals. Incorporating different exposure parameters into the assessment could change the predicted carcinogenic risk considerably. In addition, the predicted risks and hazards are based on the maximum COPC concentrations detected in the soil, groundwater, and soil gas samples that were collected during this PEA. This will also tend to result in an overestimation of health risks.

In some cases screening levels are below the method detection limits that existing equipment and analytical methods are capable of achieving. These chemicals and media are identified below:

- *Soil*: N-Nitrosodimethylamine
- *Groundwater*: thallium, 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, 1,2-dibromoethane, hexachlorobutadiene, naphthalene, tetrachloroethene, and vinyl chloride

This may result in an underestimation of risks.

Important uncertainties in toxicity criteria include: 1) the complete absence of RfDs or CSFs for some chemicals, 2) the lack of an adequate toxicological basis for some toxicity criteria, 3) the uncertainty associated with applying oral route toxicity criteria to the inhalation route or dermal route, and 4) the complete lack of toxicity criteria for the dermal route. The general lack of toxicity criteria based on a solid database of underlying toxicological data results in a reduced ability to accurately quantify both non-cancer and cancer risks. This may result in both under- and over-estimation of health risks.

8.0 ECOLOGICAL SCREENING EVALUATION

8.1 Biological Characterization

The Site is proposed for development of use as a parking lot for the adjacent Tracy High School. Proposed development activities would not maintain any potential wildlife habitat on the Site.

8.2 Ecological Pathway Assessment

Because the Site would not have significant numbers of wildlife based on proposed development activities, no assessment of potential exposure to sensitive ecological receptors is necessary.

8.3 Ecological Screening Evaluation Summary

An ecological screening evaluation was not conducted for the Site because the Site is scheduled to be developed and highly disturbed and will not support wildlife habitat.

9.0 COMMUNITY PROFILE

According to the City of Tracy's Fact Sheet from 2016, the population of the City of Tracy is 86,985. The median household income is $79,483 and the median age of residents is 32.9. The fact sheet indicates the following ethnic composition: 51.4% white (alone); 39.4% Hispanic origin; Black (alone): 6.9%; Asian (alone): 14.6%; American Indian 0.9%; Pacific Islander (alone): 0.9%; Other (alone): 17%; Two or more races: 8.2%. In addition, the median home value was $403,300 (www.city-data.com).

In accordance with Education Code§ 17213.1, subd. (a)(6)(A) the District will post a notice in the local newspaper providing details on the 30-day public comment period for this PEA report, the public hearing, and the locations of repositories for Site documents. The DTSC will review the Draft PEA Report concurrently with the public comment period.

10.0 OPINION OF ENVIRONMENTAL PROFESSIONAL

Terraphase conducted the assessment for the Site according to the scope and limitations of ASTM Practice E1527-13 for a Phase I Environmental Site Assessment. Because recognized environmental conditions were identified early on, the findings of the background investigation were incorporated into this PEA. The environmental professionals who prepared this PEA Report, Wendy Bellah (P.E. C75247) and Andrew Lojo (P.G. 6034), are of the opinion that this PEA sufficiently identifies environmental conditions at the Site.

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 Summary and Conclusions

Based on the results of the PEA investigation and associated preliminary human health screening, COPCs have not been detected in soil at the Site at levels exceeding conservative generic risk-based screening values for residential land use. Past activities conducted at the Site or in close proximity at the Site have resulted in the presence of TPH and metals in the groundwater at the Site at levels exceeding conservative generic risk-based screening values for residential drinking water exposure. Low levels of VOCs have also been detected in the soil-gas at the Site at concentrations exceeding conservative generic risk-based residential screening values for protection of indoor air with an attenuation factor of 0.03 applied. For this PEA, based upon the results of this preliminary screening, chemicals exhibiting concentrations in excess of these generic screening levels are considered COPCs in the risk/hazard characterization with the exception of arsenic which is not site-related based upon a comparison with naturally occurring background soil concentrations.

In accordance with DTSC guidance (DTSC 2015b), the risk/hazard characterization assumes potential human exposure under an unrestricted use scenario. The upper-bound risk and HI estimates indicate that groundwater and soil-gas concentrations may pose an unacceptable risk to human health under an unrestricted use scenario (i.e., potable use of groundwater, vapor intrusion into a hypothetical residential home). The upper-bound risk and HI estimates for residential exposure to soil would not pose an unacceptable risk to human health.

11.2 Recommendations

No further action is recommended to address soil at the Site. Based upon the results of the risk/hazard characterization, in order to ensure no potential for future unacceptable risks from exposure to groundwater or soil-gas at the Site, Terraphase recommends the following:

- Implement land use restrictions recorded on the deed to prevent any future use of shallow groundwater at the Site for potable or non-potable purposes.
- Implement land use restrictions recorded on the deed to prohibit buildings from being constructed at the Site in the absence of additional assessment(s) demonstrating that potential vapor intrusion exposure from COPCs in soil-gas at the Site will not pose an unacceptable risk to human health.

11.3 Data Gaps

A data gap is a lack or inability to obtain information required despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required. No significant data gaps were identified.

11.4 Preliminary Scoping Recommendations

Further investigation is not required. As land use restrictions are accepted remedial actions, a feasibility study is not required.

12.0 REFERENCES

American Society for Testing and Materials International (ASTM) E1527. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

California Department of Water Resources (DWR). 2006. California's Groundwater Bulletin 118, San Joaquin River Hydrologic Region, San Joaquin Valley Groundwater Basin Tracy Subasin. January 20.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2000, Fact Sheet, Land Use Covenant Agreements. October

_____. 2006. Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers. June 9. Revised September 12.

_____. 2008. Interim Guidance for Sampling Agricultural Properties (Third Revision). August 7.

_____. 2015a. Active Soil Gas Investigation Advisory. July.

_____. 2015b. Preliminary Environmental Assessment Guidance Manual. January 1994. Revised October 2015.

_____. 2018. Human Health Risk Assessment Note 3 Tables. February.

California Geological Survey (CGS). 2010. Geologic Map of California. http://maps.conservation.ca.gov/cgs/gmc/. July.

Environmental Data Resources (EDR). 2018a. EDR Radius Map Report. #5154130.2. January 9.

_____. 2018b. EDR Historical Topo Map Report. #5154130.4. January 9.

_____. 2018c. Certified Sanborn® Map Report. #5154130.3. January 9.

_____. 2018d. The EDR-City Directory Image Report. #5154130.12. January 9.

_____. 2018e. EDR Aerial Photo Decade Package. #5154130.12. January 10.

_____. 2018f. EDR Aerial Photo Decade Package. #5154130.7S. January 16.

Erler & Kalinowski Inc. (EKI). 2011. City of Tracy 2010 Urban Water Management Plan. May.

Nadim, F. , Liu, S. and Hoag, G. E. (2001), The Effect of Air Bubbles and Headspace on the Aqueous Concentrations of Volatile Organic Compounds in Sampling Vials. Groundwater Monitoring & Remediation, 21: 89-96. doi:10.1111/j.1745-6592.2001.tb00634.x

Norris and Webb. 1990. Geology of California. John Wiley & Sons, Incorporated.

San Francisco Bay Regional Water Quality Board (SFRWQCB). 2016. Environmental Screening Levels Summary Tables. February.

The San Joaquin Company. 2000. Site Characterization Report for The Tracy Motel, 417 East Eleventh Street, Tracy, California. April.

_____. 2007. Corrective Action Plan for Former Fueling Station, 7500 West Eleventh Street, Tracy, California. July.

Sowers, Janet M.; Noller, Jay S.; and Lettis, W.R. 1993. Preliminary maps showing Quaternary geology of the Tracy and Midway 7.5-minute quadrangles, California.

Terraphase Engineering Inc. (Terraphase). 2017. Limited Phase II Environmental Investigation, 455 E. 11th Street, Tracy, California 95376. November.

_____. 2018a. Phase I Environmental Site Assessment 455 East 11th Street, Tracy, California. April.

_____. 2018b. Preliminary Environmental Assessment Work Plan, 455 East 11th Street, Tracy, California 95376. July 9.

_____. 2018c. Preliminary Environmental Assessment Work Plan Addendum, 455 East 11th Street, Tracy, California 95376. September 17.

United States Environmental Protection Agency, Region 9 (EPA). 2004. National Functional Guidelines for Inorganic Laboratory Data Review.

_____. 2006. Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semi volatile Data Packages. March 30.

_____. 2008. National Functional Guidelines for Organic Laboratory Data Review

_____. 2018. Regional Screening Levels (RSLs) – Generic Tables. May.

West Yost & Associates. 2012. City of Tracy Citywide Water System Master Plan. December.

Wright Environmental Services. 2005. Cox & Cox, Quarterly Monitoring Well Sampling Report, Fourth Quarter 2005, Site at 595 East 11th Street, Tracy, CA.

_____. 2007. Cox & Cox, Quarterly Monitoring Well Sampling Report, Third Quarter 2007, Site at 595 East 11th Street, Tracy, CA.

13.0 SIGNATURES AND ENVIRONMENTAL PROFESSIONALS STATEMENT

Information, conclusions, and recommendations in this document have been prepared by a California Professional Geologist and a California Professional Engineer. The environmental assessment described herein was conducted by the undersigned employees of Terraphase. The assessment consisted solely of the activities described in the Introduction of this report, and was performed in accordance with the ASTM Designation E 1527-13 guidelines for Phase I Environmental Site Assessments and the Terms and Conditions of the Standard Consulting Services Agreement signed prior to initiation of the assessment, as applicable. The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by professional engineers, professional geologists and environmental scientists.

We declare that, to the best of our professional knowledge and belief, we meet the definition of environmental professional as defined in §312.10 of 40 Code of Federal Regulations (CFR) 312, and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Andrew M. Lojo — Date
Professional Geologist (6034)

Wendy Bellah — Date
Professional Engineer (C75247)