APPENDIX A
AIR QUALITY IMPACT ASSESSMENT

SMALL PROJECT ANALYSIS LEVEL ASSESSMENT

New Zephyr Elementary School
Bakersfield, CA

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. EXECUTIVE SUMMARY

1.1 Executive Summary

Trinity Consultants (Trinity) has completed a limited air quality assessment for the New Zephyr Elementary School located at the intersection of Zephyr Lane and S. Oswell Street about 0.30 miles south of Highway 58 in Bakersfield, California. The Project includes the construction of an early childhood education program totaling 150,000 square feet of new building construction, 700 students, and 70 staff.

This limited air quality assessment uses the San Joaquin Valley Air Pollution Control District's (SJVAPCD) screening tool, Small Project Analysis Level (SPAL)[1]. This SPAL assessment was prepared pursuant to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)[2], the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21189) and the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

1.2 Statement of Finding

Based on the SPAL established by the SJVAPCD's GAMAQI, the emissions estimates prepared pursuant to this SPAL assessment do not exceed the SJVAPCD's established emissions thresholds and significance thresholds for all CEQA air quality determinations; this Project would therefore not pose a significant impact to the San Joaquin Valley Air Basin and would have a less than significant air quality impact.

[1] SJVAPCD, 2020, http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF.

[2] SJVAPCD, 2015, https://www.valleyair.org/transportation/GAMAQI.pdf.

2. PROJECT INFORMATION

2.1 Introduction

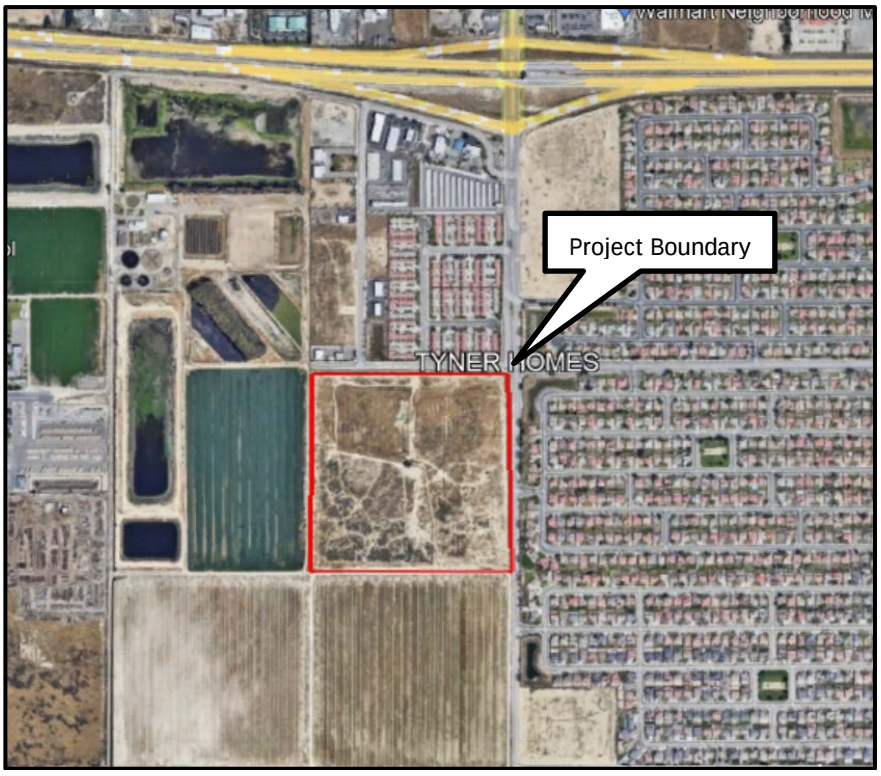
The Project site is located in the City of Bakersfield on the intersection of Zephyr Lane and S. Oswell Street about 0.30 miles south of Highway 58 in Bakersfield, California (APN 173-191-01). The Project includes the construction of an early childhood education program totaling 150,000 square feet of new building construction, 700 students, and 70 staff.

The Project was modeled using 700 students and adjusted the building size to 150,000 sq.ft. Also, the Project was assessed as if it would be developed in one phase. This assessment examines the projected gross impact to air quality posed by this Project to the San Joaquin Valley Air Basin to determine whether or not the Project remains below established air quality thresholds of significance.

2.2 Project Location

The Project is located on the at the intersection of Zephyr Lane and S. Oswell Street about 0.30 miles south of Highway 58. **Figure 2-1** depicts the Project location within the City of Bakersfield.

Figure 2-1. Project Location



3. SMALL PROJECT ANALYSIS LEVEL QUALIFICATION

This assessment was prepared pursuant to the SJVAPCD's GAMAQI (SJVAPCD 2015), the CEQA (Public Resources Code 21000 to 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387). The SJVAPCD created the SPAL screening tool to streamline air quality assessments of commonly encountered projects. According to GAMAQI, the SJVAPCD "pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds"[3].

The SJVAPCD SPAL process established review parameters to determine whether a project qualifies as a "small project." A project that is found to be "less than" the established parameters has "no possibility of exceeding criteria pollutant emissions thresholds." **Table 3-1** presents the SPAL size parameters for educational projects.

Table 3-1. Small Project Analysis Level in Units for Educational

Land Use Category - Educational	Project Size (square feet)*	Unit	ADT One-Way for all Fleet Types (except HHDT)	ADT One-Way for HHDT Trips Only
Elementary School	1,880	Student	1,000	15
Elementary School	156,000	Square Feet		
Junior High School	1,440	Student		
Junior High School	168,800	Square Feet		
High School	1,160	Student		
High School	153,600	Square Feet		
Junior College (2 year)	1,720	Student		
Junior College (2 year)	74,400	Square Feet		
University/College (4 year)	1,120	Student		
Library	38,400	Square Feet		
Place of Worship	141,000	Square Feet		
Day Care Center	40,000	Square Feet	1,500	25
*Project size based on SPAL Table 5, as posted on SJVAPCD webpage: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF				

As shown in **Table 3-1**, the proposed Project would not exceed the established square footage or students SPAL limits for a "Elementary School" educational project. The Project has 700 students and would construct 150,000 square feet compared to the allowable project size for an Elementary School project, which is 1,880 students and 156,000 square feet. Based on the above information, this Project qualifies for a limited air quality analysis applying the SPAL guidance to determine air quality impacts.

[3] SJVAPCD GAMAQI, Section 8.3.4, Page 85.

4. AIR QUALITY IMPACTS THRESHOLDS AND EVALUATION METHODOLOGY

Significance thresholds are based on the CEQA Appendix G Environmental Checklist Form (not included herein) and SJVAPCD air quality thresholds[4]. A potentially significant impact to air quality, as defined by the CEQA Checklist, would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SJVAPCD has identified quantitative emission thresholds to determine whether the potential air quality impacts of a project require analysis in the form of an Environmental Impact Report. The SJVAPCD air quality thresholds from the GAMAQI are presented in **Table 4-1**[4]. The SJVAPCD separates construction emissions from operational emissions, and further separates permitted operational emissions from non-permitted operational emissions, for determining significance thresholds for air pollutant emissions.

Table 4-1. SJVAPCD Air Quality Thresholds of Significance - Criteria Pollutants

Pollutant / Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015

Criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0[5]. This project would generate short-term construction emissions and long-term operational emissions.

An air quality evaluation also considers: 1) exposure of sensitive receptors to substantial pollutant concentrations; and 2) the creation of other emissions (such as those leading to odors) adversely affecting a substantial number of people. The criteria for this evaluation are based on the Lead Agency's determination of the proximity of the proposed Project to sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air

[4] SJVAPCD, 2015, 0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf (valleyair.org).

[5] California Air Pollution Control Officers Association (CAPCOA), 2020.

quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

5. PROJECT-RELATED EMISSIONS

This document was prepared pursuant to the SJVAPCD's GAMAQI and SPAL guidelines and provides a cursory review of the Project emissions to demonstrate that it would not exceed established air quality emissions thresholds.

5.1 Short-Term Emissions

Table 5-1 shows the construction emission levels using default CalEEMod factors for the construction of an early childhood education program totaling 150,000 square feet of new building construction, 700 students, and 70 staff (see Attachment A).

Construction emission estimates also included the following SJVAPCD's required measures for all projects:

- Water exposed area 3 times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Based on these anticipated activity levels, the Project construction activities would not exceed construction thresholds (**Table 4-1**). Therefore, construction emissions were found to be less than significant, and no further evaluation is required.

Table 5-1. Construction Emissions

Emissions Source	Pollutant					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	(tons/year)					
2023 Construction Emissions	0.24	2.05	2.36	0.005	0.223	0.129
2024 Construction Emissions	1.05	0.02	0.03	0.000	0.002	0.001
SJVAPCD Construction Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

5.2 Long-Term Emissions

Table 5-2 presents the Project's long-term operations emissions generated from mobile, energy, and area sources as well as from water use and waste generation emissions. The following changes to default values were incorporated during the CalEEMod analysis:

- Daily trip rate was updated to 2.27 according to the traffic study for this Project; and

Operational emission estimates also included the following mitigation measures even though the project was less than significant before mitigation:

- Use electric lawnmower, leaf blower, and chainsaw (3% per SJVAPCD).

Table 5-2. Total Project Operational Emissions

Emissions Source	Pollutant					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	(tons/year)					
Operational Emissions	1.24	1.16	4.71	0.01	0.97	0.28
SJVAPCD Operational Emissions Thresholds – non-permitted sources	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As calculated (see **Attachment A**), the long-term operational emissions associated with the proposed Project would be less than SJVAPCD significance threshold levels and would, therefore, not pose a significant impact to criteria air pollutants. This finding is consistent with the SPAL screening thresholds.

5.3 Greenhouse Gas Emissions

The Project's greenhouse gas (GHG) emissions are primarily from mobile source activities. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified as carbon dioxide equivalents (CO_2e) (**see Attachment A**). The proposed Project's operational CO_2e emissions were estimated using CalEEMod. These emissions are summarized in **Table 5-3**.

Table 5-3. Estimated Annual Greenhouse Gas Emissions

	CO2 Emissions metric tons	CH_4 Emissions metric tons	N_2O Emissions metric tons	CO_2e Emissions metric tons
2023 Project Construction	431.82	0.08	0.01	437.31
2024 Project Construction	4.10	0.00	0.00	4.12
2024 Project Operations	1,316.3	1.66	0.07	1,378.6

In the decade after SJVAPCD adopted their Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40% less than 1990 levels by 2030. More drastic still, Senate Bill 100 which was signed by the Governor recently requires 100% zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18 which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2009 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards which propose a grand vision that, if achieved, would fundamentally change how business is conducted and citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, objectives of the Scoping Plan affect entire sectors of the economy and it no longer makes sense to evaluate GHG emissions on a project-level.

For these reasons, Project GHG emissions levels presented in Table 5-3 are primarily for disclosure purposes. The Project's largest contributors to GHG emissions are from electricity and exhaust from transportation fuels. Electricity and transportation fuels are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other Programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan.

The Project would generate GHGs from electricity use and combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply-chain. As such, each citizen of California (including those creating emissions of this Project) will have no choice but to purchase electricity and fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because energy purchases are from the California market. Thus, consumers of electricity and transportation fuels are in effect regulated by higher level emissions restrictions on the producers of these energy sources. Therefore, the Project would have a less than significant impact on applicable GHG reduction plans and the Project's contribution to cumulative global climate change impacts would not be cumulatively considerable.

5.4 Potential Impact on Sensitive Receptors

The proposed Project is located at the intersection of on the intersection of Zephyr Lane and S. Oswell Street about 0.30 miles south of Highway 58 in Bakersfield, California (APN 173-191-01). Sensitive receptors are defined as areas where young children, chronically ill individuals, the elderly or people who are more sensitive than the general population reside. Schools, hospitals, nursing homes and daycare centers are locations where sensitive receptors would likely reside. **Table 5-4** below shows the nearest sensitive receptors. There are no other known schools, hospitals, or nursing homes within a one-mile radius of the Project.

Based on the predicted operational emissions and activity types, the proposed Project is not expected to affect any on-site or off-site sensitive receptors and is not expected to have any adverse impacts on any known sensitive receptor.

Table 5-4. Sensitive Receptors Located <1 Mile from Project

Receptor	Facility Type	Distance from Project in Miles	Direction from Project
Tierra Del Sol Continuation High	9-12	0.35	W
Bakersfield Adult School Children's Center	Daycare	0.64	NW
Valley Children's Learning Center	K-8	0.96	NW
Mira Monte High School	9-12	0.80	SE
Fairfax Junior High School	7-8	0.82	E
Zepher Lane Elementary School	K-6	0.85	E
Virginia Avenue Elementary School	K-6	0.89	N
Shirley Lane Elementary School	K-6	1.00	E

5.5 Potential Impacts to Visibility to Nearby Class 1 Areas

It should be noted that visibility impact analyses are not usually conducted for area sources. The recommended analysis methodology was initially intended for stationary sources of emissions which were subject to the Prevention of Significant Deterioration (PSD) requirements in 40 CFR Part 60. Since the Project's emissions are predicted to be significantly less than the PSD threshold levels, an impact any Class 1 areas is extremely unlikely. Therefore, based on the Project's predicted emissions, the Project is not expected to have any adverse impact to visibility at any Class 1 Area.

5.6 Potential Odor Impacts

The proposed Project is a new Elementary School, surrounded by residential neighborhoods and open land. Expected uses are not known to be a source of nuisance odors and are not listed in Table 6 of the SJVAPCD's GAMAQI[6]. The Project is therefore not anticipated to have substantial odor impacts. The Project is therefore anticipated to have a less than significant odor impact.

5.7 Ambient Air Quality Impacts

As stated in the of GAMAQI[7], SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As shown above in **Table 5-1** and **Table 5-2**, average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Project.

5.8 Toxic Air Contaminant (TAC) Impacts

TACs, as defined by the California Health & Safety Code (CH&SC) §44321, are listed in Appendices AI and AII in AB 2588 Air Toxic "Hot Spots" and Assessment Act's Emissions Inventory Criteria and Guideline Regulation document. SJVAPCD's risk management objectives for permitting and CEQA are as follows[8]:

- Minimize health risks from new and modified sources of air pollution.
- Health risks from new and modified sources shall not be significant relative to the background risk levels and other risk levels that are typically accepted throughout the community.
- Avoid unreasonable restrictions on permitting.

To predict the potential health risk to the population attributable to emissions of diesel particulate matter from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 1-year construction timeline. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risk is the identification of sources with increased TACs.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP2) software distributed by the CARB; HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source[9]. Assumptions used to calculate the emission rates for the proposed Project are outlined below.

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[6] SJVAPCD GAMAQI, Section 8.6, Table 6, Page 103.

[7] SJVAPCD GAMAQI, Section 8.4.4, Page 96-97.

[8] SJVAPCD GAMAQI, Section 8.5.2, Page 100.

[9] CARB, 2015, https://ww2.arb.ca.gov/sites/default/files/classic/toxics/harp/docs2/harp2admrtuserguide.pdf

The most recent version of EPA's AMS/EPA Regulatory Model - AERMOD was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

For construction health impacts, diesel combustion emissions from diesel on-site construction equipment was modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for on-site construction equipment. A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for the area source.

Discrete receptors were placed on scattered agricultural houses and businesses within close proximity of the Project site. Receptor grids were placed over the more densely populated areas surrounding the Project site. A total of 3,328 discrete off-site receptors analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area.

SJVAPCD-provided, AERMET UStar processed meteorological datasets for the Bakersfield monitoring station, calendar years 2013 through 2017 was input to AERMOD[10]. This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method (Auer 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2)[11]. ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). HARP2 site parameters were set for the mandatory minimum pathways of inhalation, soil ingestion, dermal, and mother's milk. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor. A hazard index for acute non-cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of one million people. The level of significance for chronic and acute non-cancer risk is a hazard index of 1.0. All receptors were modeled as residential receptors.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of twenty in one million (20 x 10-6) and 1.0, respectively for the proposed Project. The PMIs, are identified by receptor location and risk, and are provided in **Table 5-5**. The electronic AERMOD and HARP2 output files are provided in Appendix B.

Table 5-5. Potential Maximum Impacts Predicted by HARP

	Value	UTM East	UTM North
Excess Cancer Risk	9.18E-06	322847.9	3912992.6
Chronic Hazard Index	1.03E-02	322847.9	3912992.6

[10] SJVAPCD, http://www.valleyair.org/busind/pto/Tox_Resources/Modeling-Sites/bakersfield.htm

[11] CARB, 2015, https://ww2.arb.ca.gov/sites/default/files/classic/toxics/harp/docs2/harp2admrtuserguide.pdf

As shown above in **Table 5-5**, the maximum predicted cancer risk for the proposed Project is 9.18E-06. The maximum chronic non-cancer hazard index for the proposed Project is 1.03E-02. Since the PMI remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be less than significant based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors; and
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of TACs from the proposed Project would be less than significant.

5.9 Cumulative Impacts

Cumulative impacts were also evaluated; however, cumulative emissions were not quantified because no other tentative projects were found within a one-mile radius of the Proposed Project that provided enough project detail information to accurately estimate emissions. Owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is currently based on whether the proposed Project would exceed established project-level thresholds. As such, a qualitative evaluation of the cumulative projects supports a finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions increase would be less than significant.

6. CONCLUSIONS

Based on the criteria established by the SJVAPCD's GAMAQI and SPAL guidelines, the proposed Project does not meet the minimum standards to require a full Air Quality Impact Analysis. Furthermore, the Project as proposed would not exceed the SJVAPCD's criteria air pollutant emission levels and would generate *less than significant air quality impacts*.

7. REFERENCES

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APPENDIX A. CALEEMOD EMISSIONS ESTIMATES OUTPUT FILES

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

New Zephyr Elementary School - SPAL

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	700.00	Student	3.44	150,000.00	0
Parking Lot	105.00	Space	0.95	42,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage provided by applicant.

Construction Phase -

Vehicle Trips - Per Traffic Study

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblLandUse	LandUseSquareFeet	58,522.36	150,000.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	1.34	3.44
tblVehicleTrips	WD_TR	1.89	2.27

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2355	2.0468	2.3568	4.8800e-003	0.1786	0.0919	0.2704	0.0664	0.0863	0.1526	0.0000	431.8251	431.8251	0.0760	0.0120	437.3117
2024	1.0542	0.0154	0.0258	5.0000e-005	1.2400e-003	7.5000e-004	1.9900e-003	3.3000e-004	7.4000e-004	1.0700e-003	0.0000	4.1040	4.1040	4.1000e-004	3.0000e-005	4.1222
Maximum	**1.0542**	**2.0468**	**2.3568**	**4.8800e-003**	**0.1786**	**0.0919**	**0.2704**	**0.0664**	**0.0863**	**0.1526**	**0.0000**	**431.8251**	**431.8251**	**0.0760**	**0.0120**	**437.3117**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2355	2.0468	2.3568	4.8800e-003	0.1313	0.0919	0.2232	0.0426	0.0863	0.1289	0.0000	431.8247	431.8247	0.0760	0.0120	437.3113
2024	1.0542	0.0154	0.0258	5.0000e-005	1.2400e-003	7.5000e-004	1.9900e-003	3.3000e-004	7.4000e-004	1.0700e-003	0.0000	4.1040	4.1040	4.1000e-004	3.0000e-005	4.1222
Maximum	**1.0542**	**2.0468**	**2.3568**	**4.8800e-003**	**0.1313**	**0.0919**	**0.2232**	**0.0426**	**0.0863**	**0.1289**	**0.0000**	**431.8247**	**431.8247**	**0.0760**	**0.0120**	**437.3113**

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.29**	**0.00**	**17.35**	**35.63**	**0.00**	**15.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-2-2023**	**4-1-2023**	0.6030	0.6030
2	**4-2-2023**	**7-1-2023**	0.5764	0.5764
3	**7-2-2023**	**10-1-2023**	0.5828	0.5828
4	**10-2-2023**	**1-1-2024**	0.5121	0.5121
5	**1-2-2024**	**4-1-2024**	1.0142	1.0142
		Highest	1.0142	1.0142

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6944	7.0000e-005	7.3900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0144	0.0144	4.0000e-005	0.0000	0.0153
Energy	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	294.8881	294.8881	0.0193	5.5300e-003	297.0182
Mobile	0.5256	0.9768	4.5455	0.0106	0.9491	0.0103	0.9595	0.2541	9.7300e-003	0.2639	0.0000	992.7036	992.7036	0.0557	0.0624	1,012.6888
Waste						0.0000	0.0000		0.0000	0.0000	25.9321	0.0000	25.9321	1.5325	0.0000	64.2457
Water						0.0000	0.0000		0.0000	0.0000	0.5384	2.2627	2.8010	0.0557	1.3500e-003	4.5949
Total	**1.2402**	**1.1598**	**4.7065**	**0.0117**	**0.9491**	**0.0243**	**0.9734**	**0.2541**	**0.0237**	**0.2778**	**26.4705**	**1,289.8687**	**1,316.3392**	**1.6632**	**0.0693**	**1,378.5629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6944	7.0000e-005	7.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0142	0.0142	4.0000e-005	0.0000	0.0151
Energy	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	294.8881	294.8881	0.0193	5.5300e-003	297.0182
Mobile	0.5256	0.9768	4.5455	0.0106	0.9491	0.0103	0.9595	0.2541	9.7300e-003	0.2639	0.0000	992.7036	992.7036	0.0557	0.0624	1,012.6888
Waste						0.0000	0.0000		0.0000	0.0000	25.9321	0.0000	25.9321	1.5325	0.0000	64.2457
Water						0.0000	0.0000		0.0000	0.0000	0.5384	2.2627	2.8010	0.0557	1.3500e-003	4.5949
Total	**1.2401**	**1.1598**	**4.7064**	**0.0117**	**0.9491**	**0.0243**	**0.9734**	**0.2541**	**0.0237**	**0.2778**	**26.4705**	**1,289.8685**	**1,316.3390**	**1.6632**	**0.0693**	**1,378.5627**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/6/2023	5	5	
2	Grading	Grading	1/7/2023	1/18/2023	5	8	
3	Building Construction	Building Construction	1/19/2023	12/6/2023	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	12/7/2023	1/1/2024	5	18	
5	Architectural Coating	Architectural Coating	1/2/2024	1/25/2024	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0.95

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 225,000; Non-Residential Outdoor: 75,000; Striped Parking Area: 2,520 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	81.00	31.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0491**	**3.1700e-003**	**0.0523**	**0.0253**	**2.9100e-003**	**0.0282**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	1.0800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2958	0.2958	1.0000e-005	1.0000e-005	0.2985
Total	**1.3000e-004**	**9.0000e-005**	**1.0800e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2958**	**0.2958**	**1.0000e-005**	**1.0000e-005**	**0.2985**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0192	0.0000	0.0192	9.8500e-003	0.0000	9.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0192**	**3.1700e-003**	**0.0223**	**9.8500e-003**	**2.9100e-003**	**0.0128**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	1.0800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2958	0.2958	1.0000e-005	1.0000e-005	0.2985
Total	**1.3000e-004**	**9.0000e-005**	**1.0800e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2958**	**0.2958**	**1.0000e-005**	**1.0000e-005**	**0.2985**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0283	0.0000	0.0283	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0283**	**3.1000e-003**	**0.0314**	**0.0137**	**2.8500e-003**	**0.0166**	**0.0000**	**10.4243**	**10.4243**	**3.3700e-003**	**0.0000**	**10.5085**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.4300e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3944	0.3944	1.0000e-005	1.0000e-005	0.3980
Total	**1.8000e-004**	**1.2000e-004**	**1.4300e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3944**	**0.3944**	**1.0000e-005**	**1.0000e-005**	**0.3980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0111	0.0000	0.0111	5.3400e-003	0.0000	5.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0111**	**3.1000e-003**	**0.0142**	**5.3400e-003**	**2.8500e-003**	**8.1900e-003**	**0.0000**	**10.4242**	**10.4242**	**3.3700e-003**	**0.0000**	**10.5085**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.4300e-003	0.0000	4.8000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3944	0.3944	1.0000e-005	1.0000e-005	0.3980
Total	**1.8000e-004**	**1.2000e-004**	**1.4300e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3944**	**0.3944**	**1.0000e-005**	**1.0000e-005**	**0.3980**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5755	266.5755	0.0634	0.0000	268.1608
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5755**	**266.5755**	**0.0634**	**0.0000**	**268.1608**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1300e-003	0.1578	0.0512	7.3000e-004	0.0238	1.0300e-003	0.0248	6.8700e-003	9.9000e-004	7.8600e-003	0.0000	69.4996	69.4996	2.7000e-004	0.0103	72.5661
Worker	0.0272	0.0189	0.2228	6.6000e-004	0.0751	4.1000e-004	0.0755	0.0199	3.8000e-004	0.0203	0.0000	61.2335	61.2335	1.8100e-003	1.7200e-003	61.7906
Total	**0.0314**	**0.1767**	**0.2740**	**1.3900e-003**	**0.0989**	**1.4400e-003**	**0.1003**	**0.0268**	**1.3700e-003**	**0.0282**	**0.0000**	**130.7331**	**130.7331**	**2.0800e-003**	**0.0120**	**134.3567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1809	1.6543	1.8681	3.1000e-003		0.0805	0.0805		0.0757	0.0757	0.0000	266.5751	266.5751	0.0634	0.0000	268.1605
Total	**0.1809**	**1.6543**	**1.8681**	**3.1000e-003**		**0.0805**	**0.0805**		**0.0757**	**0.0757**	**0.0000**	**266.5751**	**266.5751**	**0.0634**	**0.0000**	**268.1605**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1300e-003	0.1578	0.0512	7.3000e-004	0.0238	1.0300e-003	0.0248	6.8700e-003	9.9000e-004	7.8600e-003	0.0000	69.4996	69.4996	2.7000e-004	0.0103	72.5661
Worker	0.0272	0.0189	0.2228	6.6000e-004	0.0751	4.1000e-004	0.0755	0.0199	3.8000e-004	0.0203	0.0000	61.2335	61.2335	1.8100e-003	1.7200e-003	61.7906
Total	**0.0314**	**0.1767**	**0.2740**	**1.3900e-003**	**0.0989**	**1.4400e-003**	**0.1003**	**0.0268**	**1.3700e-003**	**0.0282**	**0.0000**	**130.7331**	**130.7331**	**2.0800e-003**	**0.0120**	**134.3567**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.8000e-003	0.0747	0.1036	1.6000e-004		3.7000e-003	3.7000e-003		3.4200e-003	3.4200e-003	0.0000	13.9218	13.9218	4.3700e-003	0.0000	14.0312
Paving	1.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9800e-003**	**0.0747**	**0.1036**	**1.6000e-004**		**3.7000e-003**	**3.7000e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**13.9218**	**13.9218**	**4.3700e-003**	**0.0000**	**14.0312**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	4.0700e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1175	1.1175	3.0000e-005	3.0000e-005	1.1277
Total	**5.0000e-004**	**3.4000e-004**	**4.0700e-003**	**1.0000e-005**	**1.3700e-003**	**1.0000e-005**	**1.3800e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.1175**	**1.1175**	**3.0000e-005**	**3.0000e-005**	**1.1277**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.8000e-003	0.0747	0.1036	1.6000e-004		3.7000e-003	3.7000e-003		3.4200e-003	3.4200e-003	0.0000	13.9218	13.9218	4.3700e-003	0.0000	14.0311
Paving	1.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9800e-003**	**0.0747**	**0.1036**	**1.6000e-004**		**3.7000e-003**	**3.7000e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**13.9218**	**13.9218**	**4.3700e-003**	**0.0000**	**14.0311**

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	4.0700e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1175	1.1175	3.0000e-005	3.0000e-005	1.1277
Total	**5.0000e-004**	**3.4000e-004**	**4.0700e-003**	**1.0000e-005**	**1.3700e-003**	**1.0000e-005**	**1.3800e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.1175**	**1.1175**	**3.0000e-005**	**3.0000e-005**	**1.1277**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-004	4.1400e-003	6.1100e-003	1.0000e-005		2.0000e-004	2.0000e-004		1.8000e-004	1.8000e-004	0.0000	0.8190	0.8190	2.6000e-004	0.0000	0.8255
Paving	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.1000e-004**	**4.1400e-003**	**6.1100e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.8190**	**0.8190**	**2.6000e-004**	**0.0000**	**0.8255**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0641	0.0641	0.0000	0.0000	0.0647
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0641**	**0.0641**	**0.0000**	**0.0000**	**0.0647**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-004	4.1400e-003	6.1100e-003	1.0000e-005		2.0000e-004	2.0000e-004		1.8000e-004	1.8000e-004	0.0000	0.8190	0.8190	2.6000e-004	0.0000	0.8255
Paving	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.1000e-004**	**4.1400e-003**	**6.1100e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.8190**	**0.8190**	**2.6000e-004**	**0.0000**	**0.8255**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0641	0.0641	0.0000	0.0000	0.0647
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0641**	**0.0641**	**0.0000**	**0.0000**	**0.0647**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**1.0533**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	3.1900e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9230	0.9230	3.0000e-005	2.0000e-005	0.9309
Total	**3.9000e-004**	**2.6000e-004**	**3.1900e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9230**	**0.9230**	**3.0000e-005**	**2.0000e-005**	**0.9309**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0516					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**1.0533**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	3.1900e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9230	0.9230	3.0000e-005	2.0000e-005	0.9309
Total	**3.9000e-004**	**2.6000e-004**	**3.1900e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9230**	**0.9230**	**3.0000e-005**	**2.0000e-005**	**0.9309**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5256	0.9768	4.5455	0.0106	0.9491	0.0103	0.9595	0.2541	9.7300e-003	0.2639	0.0000	992.7036	992.7036	0.0557	0.0624	1,012.6888
Unmitigated	0.5256	0.9768	4.5455	0.0106	0.9491	0.0103	0.9595	0.2541	9.7300e-003	0.2639	0.0000	992.7036	992.7036	0.0557	0.0624	1,012.6888

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,589.00	0.00	0.00	2,502,606	2,502,606
Parking Lot	0.00	0.00	0.00		
Total	1,589.00	0.00	0.00	2,502,606	2,502,606

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.480055	0.053153	0.177436	0.165193	0.030848	0.009491	0.014052	0.037969	0.000584	0.000238	0.025005	0.001479	0.004498
Parking Lot	0.480055	0.053153	0.177436	0.165193	0.030848	0.009491	0.014052	0.037969	0.000584	0.000238	0.025005	0.001479	0.004498

5.0 Energy Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	95.7344	95.7344	0.0155	1.8800e-003	96.6810
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	95.7344	95.7344	0.0155	1.8800e-003	96.6810
NaturalGas Mitigated	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	199.1537	199.1537	3.8200e-003	3.6500e-003	200.3372
NaturalGas Unmitigated	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	199.1537	199.1537	3.8200e-003	3.6500e-003	200.3372

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	3.732e+006	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	199.1537	199.1537	3.8200e-003	3.6500e-003	200.3372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0201**	**0.1829**	**0.1537**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**	**0.0000**	**199.1537**	**199.1537**	**3.8200e-003**	**3.6500e-003**	**200.3372**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	3.732e+006	0.0201	0.1829	0.1537	1.1000e-003		0.0139	0.0139		0.0139	0.0139	0.0000	199.1537	199.1537	3.8200e-003	3.6500e-003	200.3372
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0201**	**0.1829**	**0.1537**	**1.1000e-003**		**0.0139**	**0.0139**		**0.0139**	**0.0139**	**0.0000**	**199.1537**	**199.1537**	**3.8200e-003**	**3.6500e-003**	**200.3372**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	1.02e +006	94.3743	0.0153	1.8500e-003	95.3074
Parking Lot	14700	1.3601	2.2000e-004	3.0000e-005	1.3736
Total		**95.7344**	**0.0155**	**1.8800e-003**	**96.6810**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	1.02e +006	94.3743	0.0153	1.8500e-003	95.3074
Parking Lot	14700	1.3601	2.2000e-004	3.0000e-005	1.3736
Total		**95.7344**	**0.0155**	**1.8800e-003**	**96.6810**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6944	7.0000e-005	7.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0142	0.0142	4.0000e-005	0.0000	0.0151
Unmitigated	0.6944	7.0000e-005	7.3900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0144	0.0144	4.0000e-005	0.0000	0.0153

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1052					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5885					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.8000e-004	7.0000e-005	7.3900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0144	0.0144	4.0000e-005	0.0000	0.0153
Total	**0.6944**	**7.0000e-005**	**7.3900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0144**	**0.0144**	**4.0000e-005**	**0.0000**	**0.0153**

New Zephyr Elementary School - SPAL - Kern-San Joaquin County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1052					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5885					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.7000e-004	7.0000e-005	7.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0142	0.0142	4.0000e-005	0.0000	0.0151
Total	**0.6944**	**7.0000e-005**	**7.2900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0142**	**0.0142**	**4.0000e-005**	**0.0000**	**0.0151**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8010	0.0557	1.3500e-003	4.5949
Unmitigated	2.8010	0.0557	1.3500e-003	4.5949

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	1.69697 / 4.36363	2.8010	0.0557	1.3500e-003	4.5949
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8010**	**0.0557**	**1.3500e-003**	**4.5949**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	1.69697 / 4.36363	2.8010	0.0557	1.3500e-003	4.5949
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8010**	**0.0557**	**1.3500e-003**	**4.5949**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	25.9321	1.5325	0.0000	64.2457
Unmitigated	25.9321	1.5325	0.0000	64.2457

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	127.75	25.9321	1.5325	0.0000	64.2457
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**25.9321**	**1.5325**	**0.0000**	**64.2457**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	127.75	25.9321	1.5325	0.0000	64.2457
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**25.9321**	**1.5325**	**0.0000**	**64.2457**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B. HEALTH RISK ASSESSMENT MODELING FILES

(Electronic Files)

APPENDIX B
CULTURAL RESOURCES

TECHNICAL MEMORANDUM

Date: November 18, 2022

Project: Cultural resources records search- Fairfax School District New Elementary School Project, City of Bakersfield, Kern County, CA

To: Jaymie Brauer, Principal Planner

From: Robert Parr, MS, RPA, Senior Archaeologist

Subject: Cultural Resources Records Search Results (RS#22-376)

Background

A cultural resources records search (#22-376) was conducted at the Southern San Joaquin Valley Information Center (IC), CSU Bakersfield for the above referenced Project in the City of Bakersfield, Kern County to determine whether the proposed project would impact cultural resources.

Project Location

The Project is located in Bakersfield, Kern County, California (Attachment A: Figures 1-4). The Project site is within the northeast ¼ of the southeast ¼ of Section 3, T.30S, R.28E (Figures 1-4).

Project Description

The Fairfax School District is proposing a new elementary school on a portion of a 20-acre undeveloped site (APN 173-191-01) located southwest of the intersection of S. Oswell Street and Zephyr Lane in the City of Bakersfield, California (Project). The site will include classrooms, administration offices, parking, and play areas, with an approximate area totaling 150,000 square feet (sq. ft.). Construction of the Project is anticipated to take approximately 9-12 months.

Results

The records search covered an area within one-half mile of the Project and included a review of the *National Register of Historic Places, California Points of Historical Interest, California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search indicated that the southern half of the subject property had been included within a cultural resources review related to a larger project (Pruett 1998), however, none of the property has been surveyed for cultural resources and it is not known if any exist on it. Five cultural resource studies have been conducted within a half mile of the project (Schiffman 1974; Pruett 2002; Brady 2003; Fleagle 2003; Kay 2018; McCarthy-Reid 2018a, 2018b).

One cultural resource has been recorded within one half mile of the project. This is the historic route of State Route 58 (P-15-017304). The Project will not impact this cultural resource. No additional cultural resources have been identified or recorded within a half mile of the project.

A Sacred Lands File request was also submitted to the Native American Heritage Commission (NAHC). A response dated November 10, 2022 indicates negative results (see Attachment C). The NAHC also provided a list of tribal groups to contact pursuant to AB 52. Letters were sent to each tribal representative listed. To date, no tribal groups have commented on the Project. Copies of the letters and a Table of Tribal Contacts is included in this memo.

Conclusions

Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a half mile radius of the proposed Project, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would be conducted within the partially developed and previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

However, there is still a possibility that historical or archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. To reduce the potential impacts of the Project on cultural resources, the following measures are recommended to be included as a note on all Construction Plans. With implementation of CUL-1 and CUL-2, the Project would have a less than significant impact related to cultural resources.

CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

CUL-2: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the county coroner.

Robert E. Parr, MS, RPA
Senior Archaeologist

Attachment A- Figures
Attachment B- Native American Heritage Commission and Tribal Contact Information

References

(all reports on file at the Southern San Joaquin Valley Information Center, California State University, Bakersfield)

Brady Jon L.
2003 Archaeological Survey Report for Site "A" and Site "B" Bakersfield, Kern County, California. (KE-02846)

Fleagle, Dorothy
2003 A Cultural Resources Assessment for 80 Acres South of Zephyr Lane, East of S. Oswell Street and West of Sterling Road in East Bakersfield, Kern County, California. (KE-02783)

Kay, Michael
2018 Kit Fox Sump Habitat Project. (KE-05038B)

McCarthy-Reid, Amy
2018a 06-KER-SR58 Centennial Corridor Project Revalidation #5 Proposed Park-and-Ride Facility and Retention Basin. (KE-05038)

2018b 06-KER-SR58 Re-validation #5 Abandonment of E&B Oil Facility and Retention Basin Redesign. (KE-05038A)

Pruett, Catherine Lewis
1998 A Cultural Resources Assessment of Old Town Kern-Pioneer Redevelopment Project and Southeast Redevelopment Project, Bakersfield, Kern County, California. (KE-02211)

2002 Cultural Resources Assessment for 27 Acres Located along Oswell Street South of Highway 58, Kern County, California. (KE-02674)

Schiffman, Robert
1974 Wastewater Treatment Plant. (KE-02007)

TECHNICAL MEMORANDUM

Attachment A-
Figures

Figure - 1
Regional Location

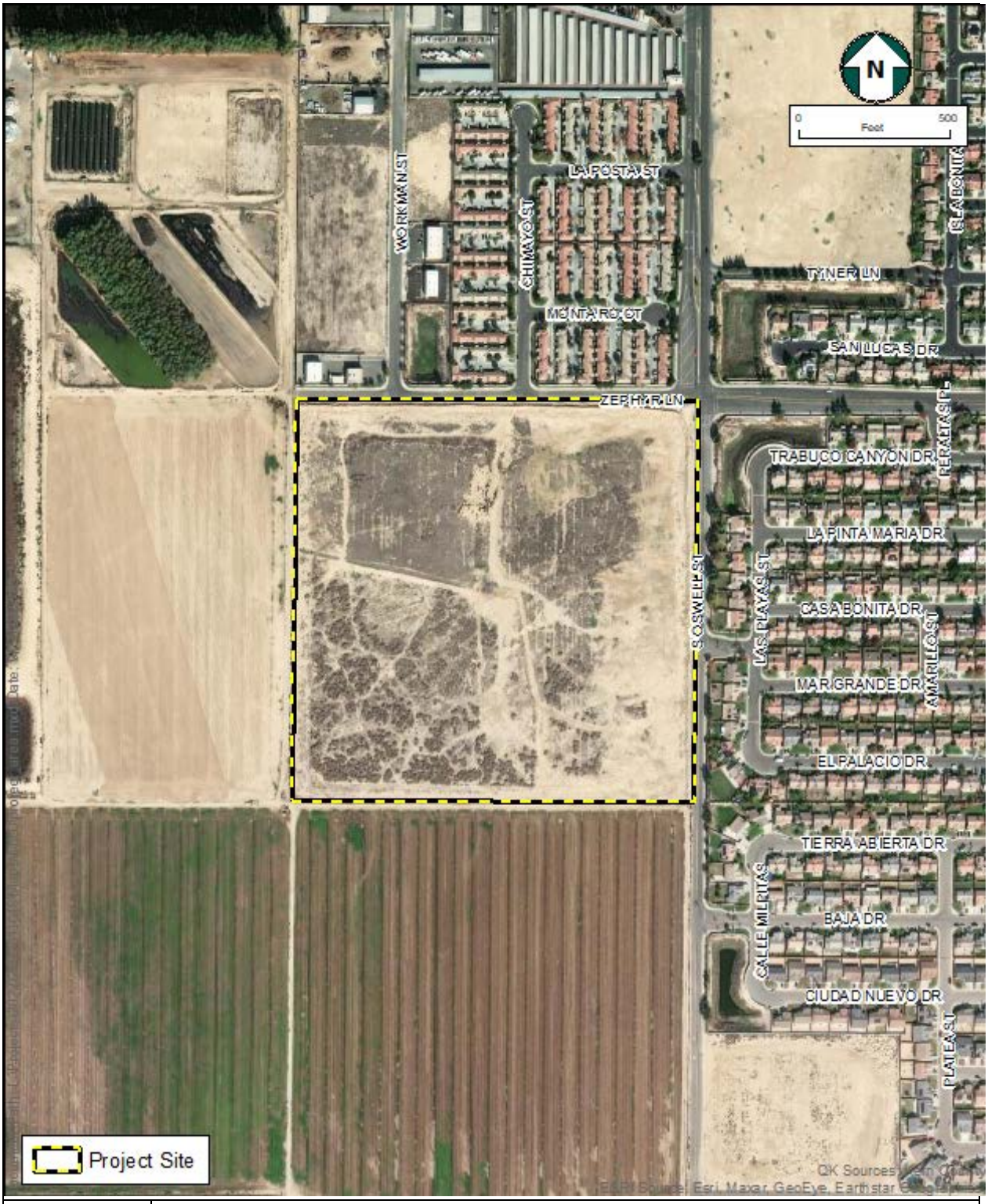


Figure - 2
Project Area

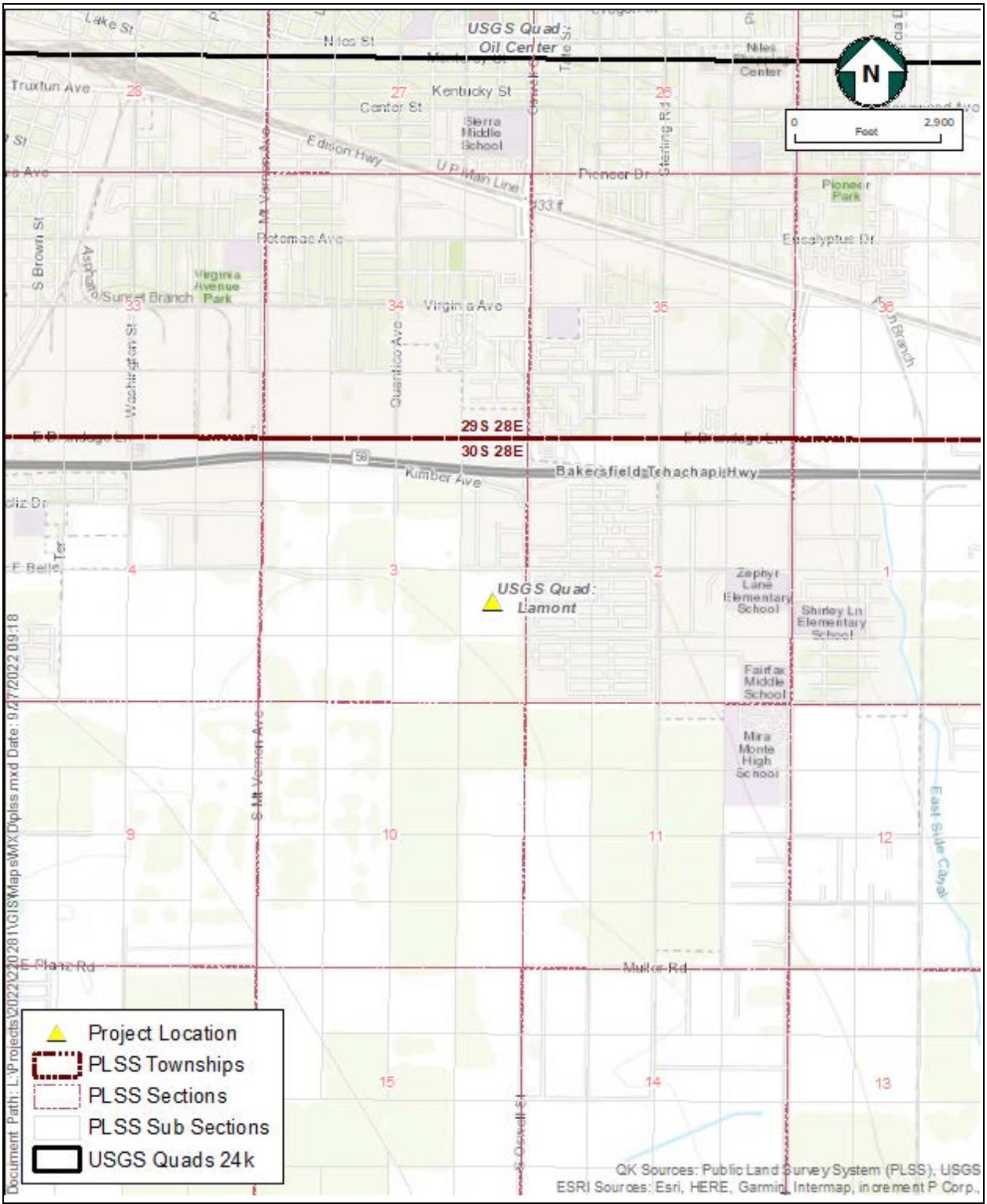


Figure - 3
PLSS/USGS Quad

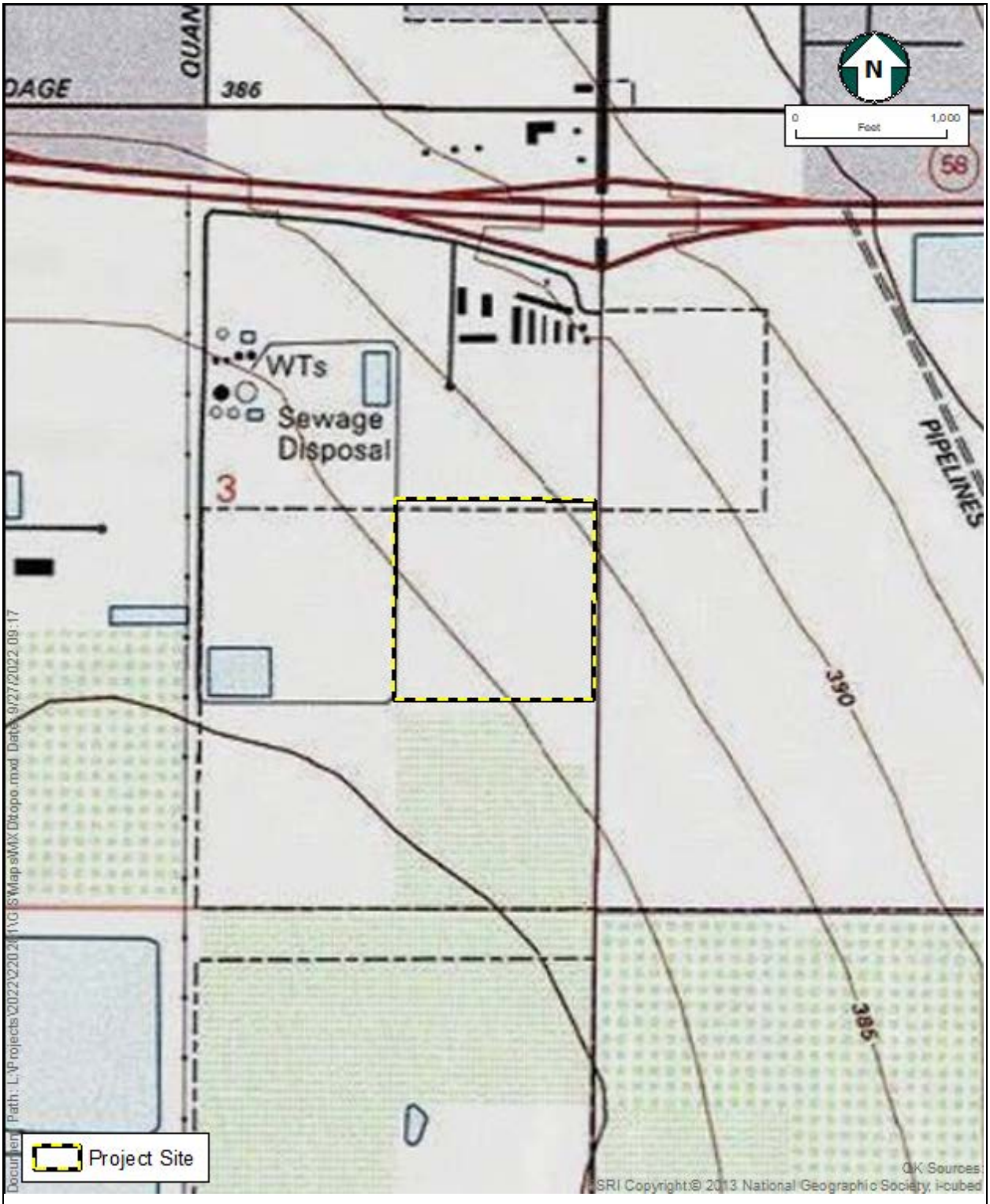


Figure - 4
Topo

TECHNICAL MEMORANDUM

Attachment B-
Native American Heritage Commission and Tribal Contact Information

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

■ **CEQA Tribal Consultation List (AB 52)** – ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☐ **General Plan (SB 18)** - ***Per Government Code § 65352.3.***

Local Action Type:

☐ **General Plan** ☐ **General Plan Element** ☐ **General Plan Amendment**

☐ **Specific Plan** ☐ **Specific Plan Amendment** ☐ **Pre-planning Outreach Activity**

Required Information

Project Title: New Elementary School Project (220281)

Local Government/Lead Agency: Fairfax School District

Contact Person: Jaymie Brauer

Street Address: 5080 California Ave, Suite 220

City: Bakersfield **Zip:** 93309

Phone: 661-616-2600 **Fax:**

Email: jaymie.brauer@qkinc.com

Specific Area Subject to Proposed Action

County: Kern **City/Community:** Bakersfield

Project Description:

The Fairfax School District is proposing a new elementary school on a portion of a 20-acre undeveloped site (APN 173-191-01) located southwest of the intersection of S. Oswell Street and Zephyr Lane in the City of Bakersfield, California (Project). The site will include classrooms, administration offices, parking, and play areas, with an approximate area totaling 150,000 square feet (sq. ft.). The school will connect to the California Water Service water system and to the Kern Sanitation Authority sanitation district sewer system. Construction of the Project is anticipated to take approximately 9-12 months.

Additional Request

■ **Sacred Lands File Search** - ***Required Information:***

USGS Quadrangle Name(s): Lamont

Township: 30S **Range:** 28 E **Section(s):** 3

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

November 10, 2022

Jaymie Brauer
QK

Via Email to: jaymie.brauer@qkinc.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, New Elementary School Project (220281), Kern County

Dear Mr. Brauer:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Kern County
11/10/2022

Big Pine Paiute Tribe of the Owens Valley
James Rambeau, Chairperson
P. O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
Fax: (760) 938-2942
j.rambeau@bigpinepaiute.org
Paiute-Shoshone

Big Pine Paiute Tribe of Owens Valley
Sally Manning, Environmental Director
P. O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
s.manning@bigpinepaiute.org
Paiute-Shoshone

Big Pine Paiute Tribe of the Owens Valley
Danelle Gutierrez, Tribal Historic Preservation Officer
P.O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
Fax: (760) 938-2942
d.gutierrez@bigpinepaiute.org
Paiute-Shoshone

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net
Chumash

Coastal Band of the Chumash Nation
Gabe Frausto, Vice Chair
P.O. Box 4464
Santa Barbara, CA, 93140
Phone: (805) 324 - 0135
cbcn22vicechair@gmail.com
Chumash

Coastal Band of the Chumash Nation
Mia Lopez, Chairperson
P. O. Box 4464
Santa Barbara, CA, 93140
Phone: (805) 324 - 0135
cbcntribalchair@gmail.com
Chumash

Kern Valley Indian Community
Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA, 93240
Phone: (760) 378 - 2915
bbutterbredt@gmail.com
Kawaiisu
Tubatulabal
Koso

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
115 Radio Street
Bakersfield, CA, 93305
Phone: (626) 339 - 6785
2deedominguez@gmail.com
Kitanemuk
Southern Valley
Yokut

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517
Santa Ynez, CA, 93460
Phone: (805) 688 - 7997
Fax: (805) 686-9578
kkahn@santaynezchumash-nsn.gov
Chumash

Tejon Indian Tribe
Colin Rambo,
P.O. Box 640
Arvin, CA, 93203
Phone: (661) 834 - 8566
colin.rambo@tejonindiantribe-nsn.gov
Kitanemuk

Tejon Indian Tribe
Octavio Escobedo, Chairperson
P.O. Box 640
Arvin, CA, 93203
Phone: (661) 834 - 8566
oescobedo@tejonindiantribe-nsn.gov
Kitanemuk

Tubatulabals of Kern Valley
Robert Gomez, Chairperson
P.O. Box 226
Lake Isabella, CA, 93240
Phone: (760) 379 - 4590
Fax: (760) 379-4592
Tubatulabal

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed New Elementary School Project (220281), Kern County.

Native American Heritage Commission
Tribal Consultation List
Kern County
11/10/2022

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed New Elementary School Project (220281), Kern County.

5080 California Avenue, Ste. 220 I Bakersfield, CA 93309

November 18, 2022

FROM: QK on behalf of Fairfax School District

RE: Tribal Cultural Resources under the California Environmental Quality Act, AB 52 (Gatto, 2014). A Formal Notification of a Decision to Undertake a Project and Notification of Consultation Opportunity, pursuant to Public Resources Code § 21080.3.1 (hereafter PRC).

Dear Chairperson:
The Fairfax School District has decided to undertake the new Zephyr Elementary School Project (Project). The Fairfax School District is designated as Lead Agency under the California Environmental Quality Act (CEQA). QK is initiating AB 52 notification and consultation on behalf of the District. We are notifying you about the referenced Project because of the possible interest of your tribe in Kern County, CA.

The Project includes a new elementary school on a portion of a 20-acre undeveloped, but heavily disturbed parcel (APN 173-191-01) located southwest of the intersection of South Oswell Street and Zephyr Lane in the City of Bakersfield, California. The site will include classrooms, administration offices, parking, and play areas, with an approximate area totaling 150,000 square feet. The site is currently vacant but has previously been used for agricultural purposes. Construction of the Project is anticipated to take approximately 9-12 months. Figure 1 is a map of the regional location and Figure 2 shows the Project's aerial location. Figure 3 shows the PLSS/USGS quadrangle and Figure 4 provides the topography of the site.

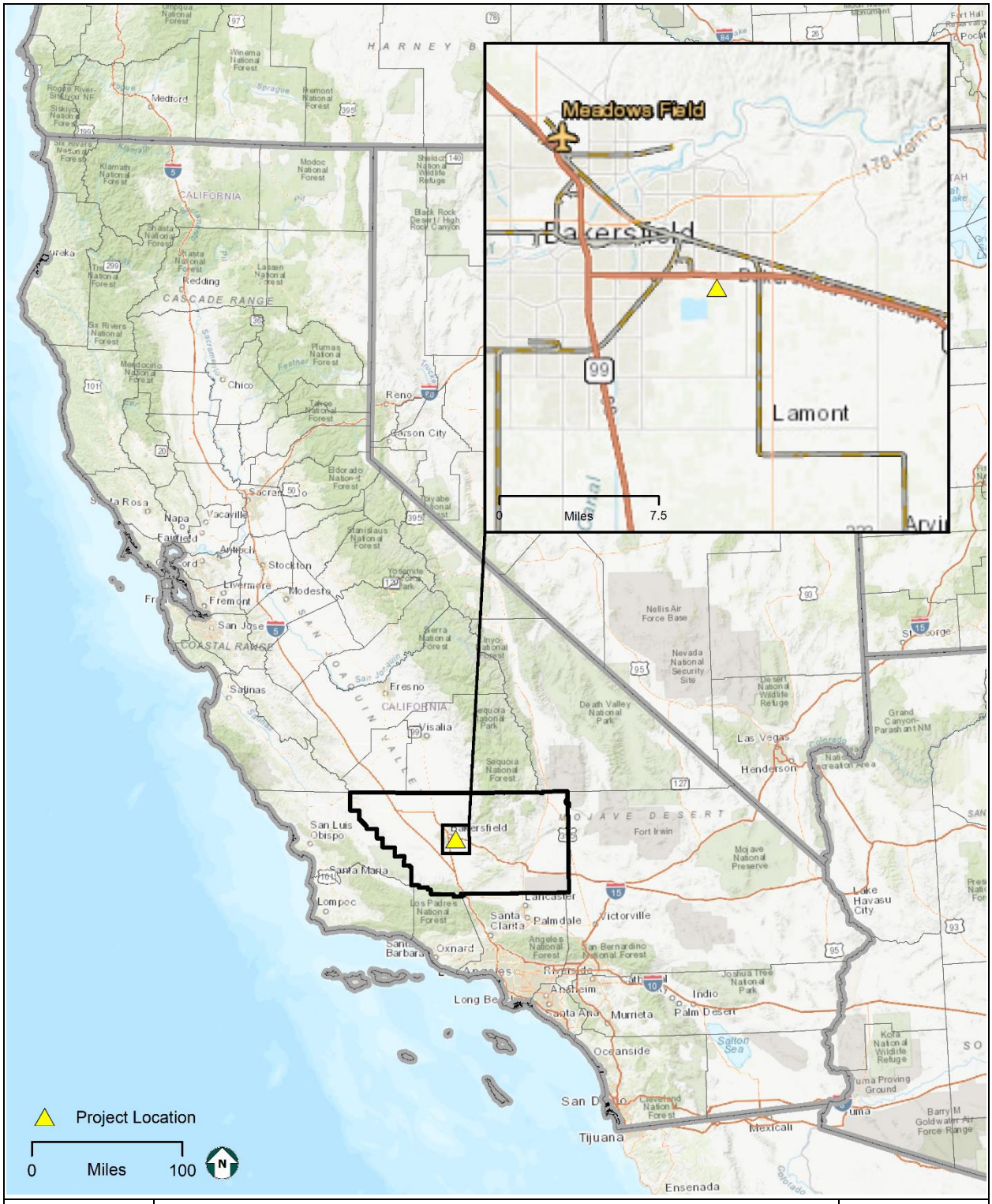
A Sacred Lands File request was submitted to the Native American Heritage Commission. A response dated November 10, 2022 indicates negative result. A records search at the Southern San Joaquin Valley Information Center- CSU Bakersfield also yieled negative results for archaeological or historical resources.

Pursuant to PRC § 21080.3.1 (b), you have 30 days from the receipt of this letter to request consultation, in writing, with the Fairfax School District. Should you have any comments or questions please contact our designated representative, Jaymie L. Brauer at (661) 616-2600 or at jaymie.brauer@QKinc.com.

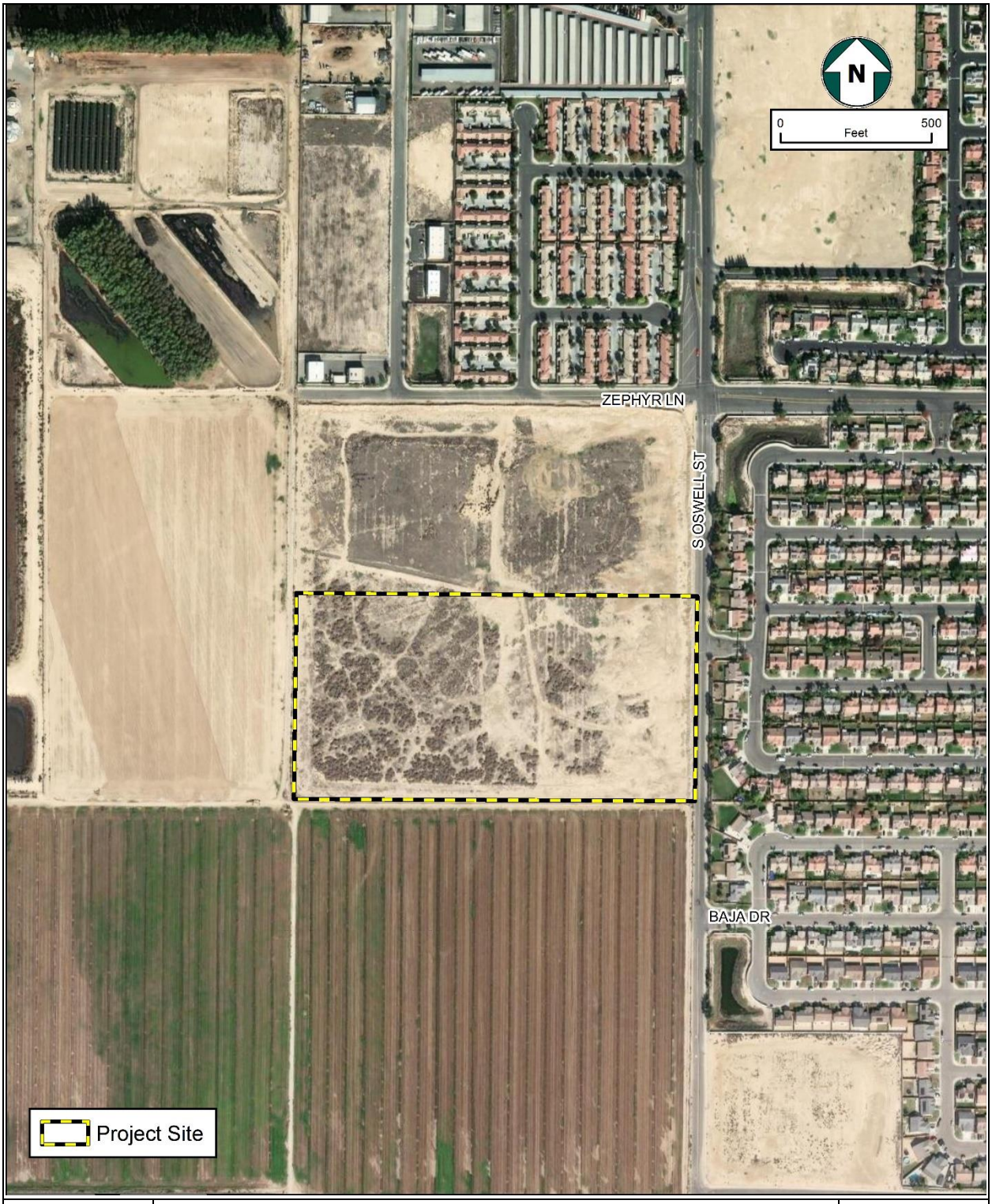
Very Respectfully,

Jaymie L. Brauer
Principal Planner/Project Manager

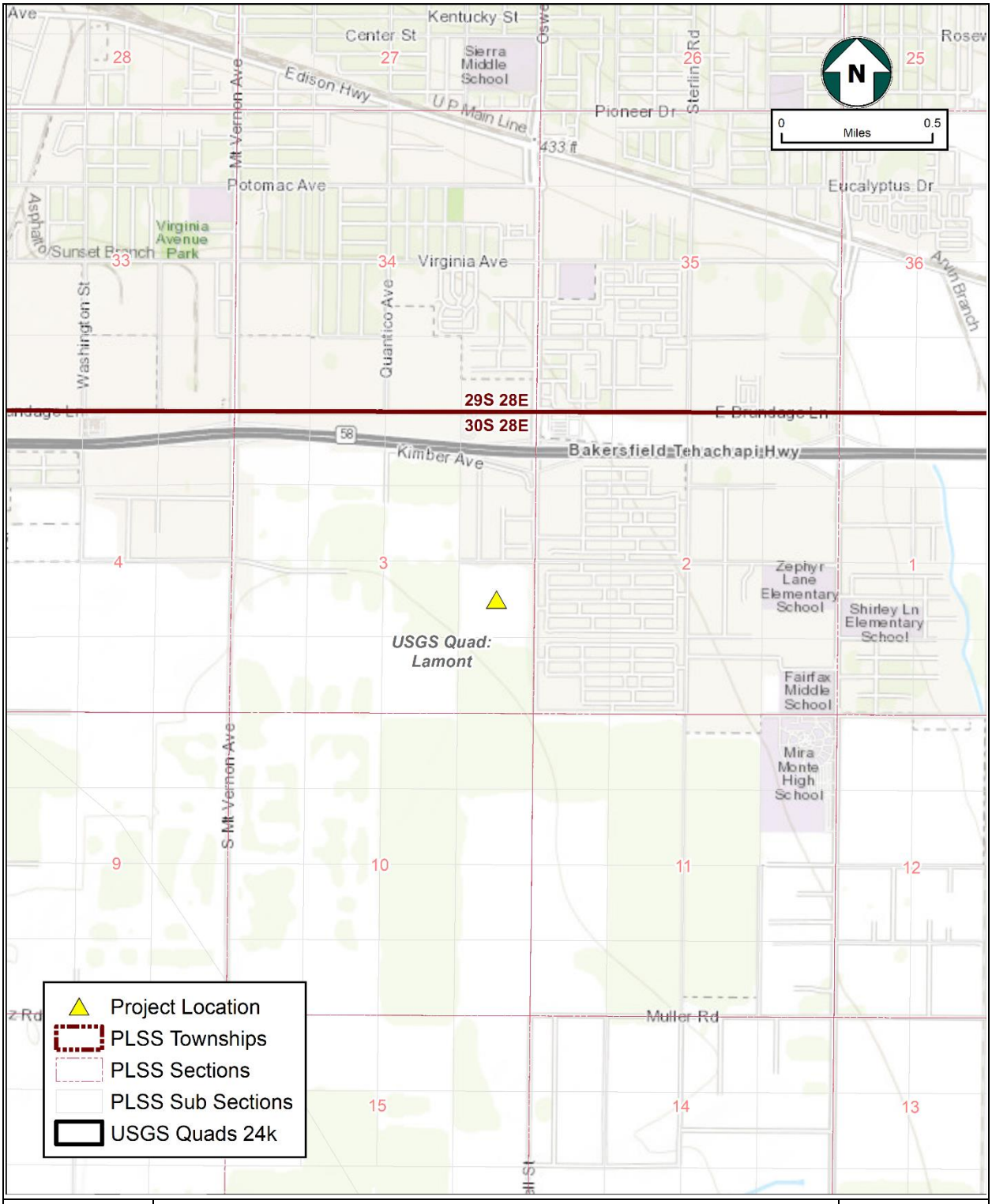
Enclosures: Figures 1-4



QK	**Regional Location**	**Figure 1**

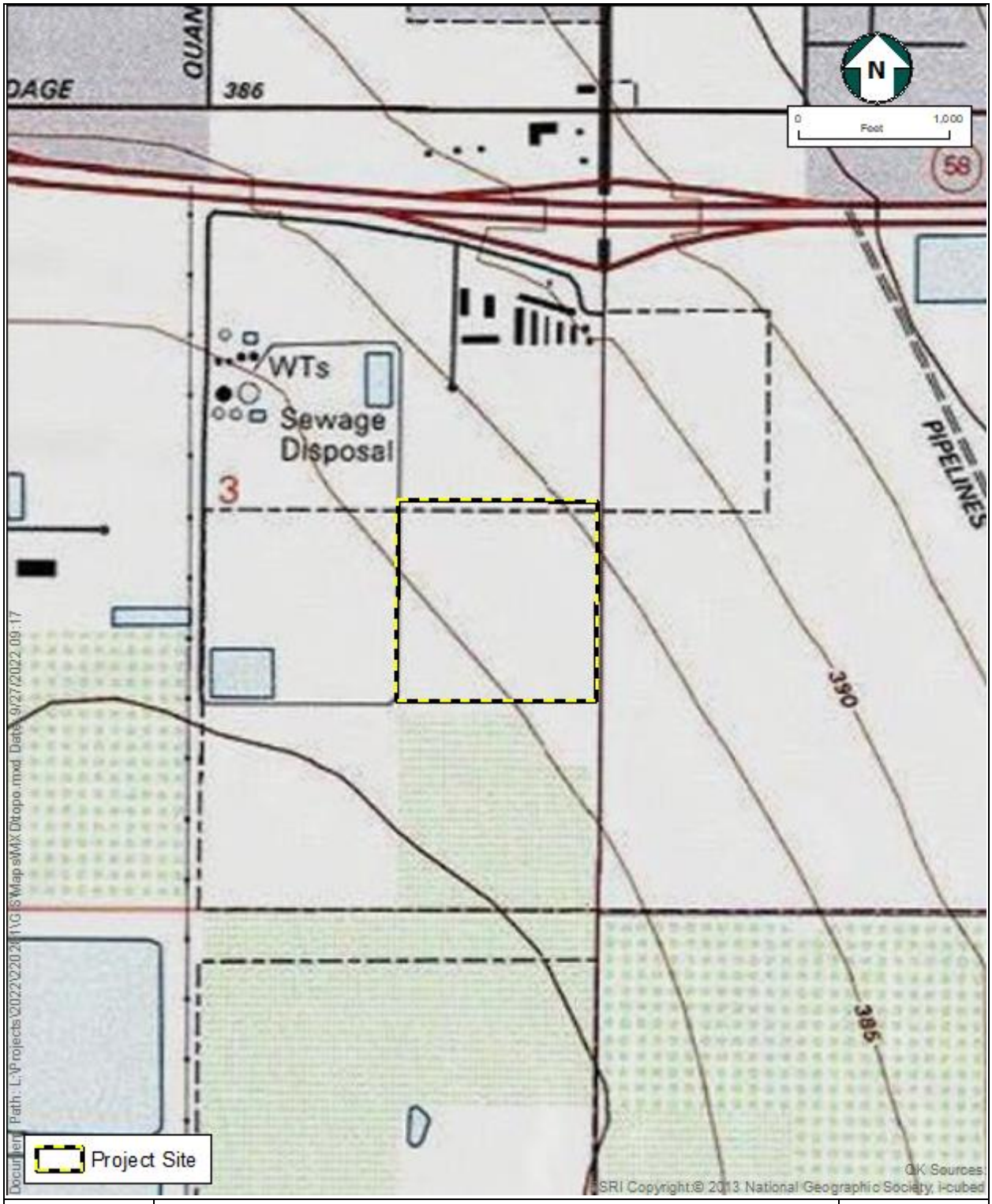


QK	**Project Area**	**Figure 2**



PLSS/USGS

Figure 3



QK	**Topography**	**Figure 4**

Tribal Consultation –
Zephyr School Project

Tribe	Contact	Comments
Paiute-Shoshone	James Rambeau, Chairperson P. O. Box 700 Big Pine, CA, 93513 Phone: (760) 938 - 2003 Fax: (760) 938-2942 j.rambeau@bigpinepaiute.org Sally Manning, Environmental Director P. O. Box 700 Big Pine, CA, 93513 Phone: (760) 938 - 2003 s.manning@bigpinepaiute.org Danelle Gutierrez, Tribal Historic Preservation Officer P.O. Box 700 Big Pine, CA, 93513 Phone: (760) 938 - 2003 Fax: (760) 938-2942 d.gutierrez@bigpinepaiute.org	Emailed letter 11/18/2022
Chumash	Julio Quair, Chairperson 729 Texas Street Bakersfield, CA, 93307 Phone: (661) 322 - 0121 chumashtribe@sbcglobal.net Gabe Frausto, Vice Chair P.O. Box 4464 Santa Barbara, CA, 93140 Phone: (805) 324 - 0135 cbcn22vicechair@gmail.com Mia Lopez, Chairperson P. O. Box 4464 Santa Barbara, CA, 93140 Phone: (805) 324 - 0135 cbcntribalchair@gmail.com Kenneth Kahn, Chairperson P.O. Box 517 Santa Ynez, CA, 93460 Phone: (805) 688 - 7997 Fax: (805) 686-9578 kkahn@santaynezchumashnsn.Gov	Emailed letter 11/18/2022

Kawaiisu Tubatulabal Koso	Robert Robinson, Chairperson P.O. Box 1010 Lake Isabella, CA, 93240 Phone: (760) 378 - 2915 bbutterbredt@gmail.com	Emailed letter 11/18/2022
Kitanemuk Southern Valley Yokut	Delia Dominguez, Chairperson 115 Radio Street Bakersfield, CA, 93305 Phone: (626) 339 - 6785 2deedominguez@gmail.com	Emailed letter 11/18/2022
Kitanemuk	Colin Rambo, P.O. Box 640 Arvin, CA, 93203 Phone: (661) 834 - 8566 colin.rambo@tejonindiantribensn.gov Octavio Escobedo, Chairperson P.O. Box 640 Arvin, CA, 93203 Phone: (661) 834 - 8566 oescobedo@tejonindiantribensn.gov	Emailed letter 11/18/2022
Tubatulabal	Robert Gomez, Chairperson P.O. Box 226 Lake Isabella, CA, 93240 Phone: (760) 379 - 4590 Fax: (760) 379-4592	Mailed out 11/23/22

APPENDIX C
HAZARDOUS MATERIALS

ENHANCED PHASE I ENVIRONMENTAL SITE ASSESSMENT (PEA EQUIVALENT REPORT)

For:

Proposed Fairfax Elementary School #5
SW of South Oswell Street & Zephyr Lane
Bakersfield, CA
(APN: 173-191-01)

Prepared For:

Fairfax School District
1500 South Fairfax Road
Bakersfield, California 93307

Prepared By:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93308

File No. 22-18503

September 2022

Soils Engineering Inc.

September 1, 2022 File No. 22-18503

Fairfax School District
1500 S. Fairfax Rd.
Bakersfield, CA 93307

Attn: Mr. David Mack

Subject: Enhanced Phase 1 Environmental Site Assessment
for Proposed Fairfax Elementary School #5
SW of S. Oswell St. & Zephyr Ln.
in Bakersfield, CA.
Southern Half Portion of APN: 173-191-01
Approximately 20 acres

Mr. Mack:

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed an Enhanced Phase 1 Environmental Site Assessment (Preliminary Environmental Assessment (PEA) Equivalent Report) in accordance with ASTM standard practice E 1527-13 for the above described subject property in Bakersfield, Kern County, California.

The proposed Fairfax School District (FSD) property is primarily vacant land with moderate weed growth. Historically the site has been mainly vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to have been used for agricultural purposes from at least 1968 to 1973. There was an active drainage/irrigation ditch from at least the 1930s to 1973. From 2017 to 2020, there were soil piles on the southeast portion of the site. Currently the site is overgrown with seasonal vegetation, debris, traces of the irrigation/drainage ditch, and multiple scattered piles of different combinations of debris/concrete/vegetation/soil/bricks.

The most salient environmental issues noted in our investigation are as follows:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

No current activities were found within a one-mile radius of the site which process, store or transport hazardous materials in sufficient quantity or in a mode, which might have measurable effect on the environmental integrity of the subject site. Multiple sites were found in our search of available or "reasonably ascertainable" State or Federal government records within the ASTM E-1527-13 search radius around the subject property for the databases shown in the Table on pages ES-1 to ES-4 and orphan summary on page 57 all within Appendix A. No sites appear to have current environmental problems that may affect the site as reported by the Kern County Environmental Services Department, the Bakersfield Fire Department and GeoTracker.

A Phase I ESA comprises a number of individual elements whose basic nature and extent are determined in accordance with the standard of care applicable to Phase I ESAs. The standard of care is commonly defined as the care applied by the ordinary practitioner at the time and in the area where the ESA was performed. We believe that we have complied with the applicable standard of care and that we have complied as well with Phase I ESA practices and service scope elements recommended by the American Society for Testing and Materials (ASTM).

I declare that to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in 312.10 of 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

The accompanying report is an instrument of service of *Soils Engineering, Inc.* The report summarizes our findings and relates our opinions with respect to the potential for hazardous materials to exist at the site at levels likely to warrant mitigation pursuant to current guidelines

regulated by the California EPA and California Water Quality Control Board and defined in Titles 22 and 23 of CCR in the state of California. Note that our findings and opinions are based on information that we obtained on given dates, through records review, site review, and related

activities. It is possible that other information exists or subsequently has become known, just as it is possible for conditions we observed to have changed after our observation. For these and associated reason, Soils Engineering, Inc. and many of its peers routinely advise clients for ESA services that it would be a mistake to place unmerited faith in findings and opinions conveyed via ESA reports. *Soils Engineering, Inc.* cannot under any circumstances warrant or guarantee that not finding indicators of hazardous materials means that hazardous materials do not exist on the site. Additional research, including invasive testing, can reduce the risks to you, but no techniques

now commonly employed can eliminate these risks altogether. Soils Engineering, Inc. will be pleased to provide more information in this regard.

Please call (661) 831-5100 for assistance or any questions concerning this report.

Sincerely,
SOILS ENGINEERING, INC.

Robert J. Becker, PG., CEG, QSD/QSP
Expires 2/28/23

Carlos Enriquez-Villegas
Staff Geologist

Table of Contents

APPENDICES

I. **LIST OF ILLUSTRATIONS**

ENHANCED PHASE I - ENVIRONMENTAL SITE ASSESSMENT
For

Proposed Fairfax Elementary School #5
SW of South Oswell Street & Zephyr Lane

in
Bakersfield, California
(Southern 1/2 of APN#: 173-191-01)

September 2022

1.0 Executive Summary

Soils Engineering, Inc. (SEI) has conducted an Enhanced Phase I Environmental Site Assessment (ESA) of the Proposed Fairfax Elementary School #5 located SW of South Oswell Street & Zephyr Lane in Bakersfield, California (see Assessor's Map, Appendix B, and Location Map, Plate 1). The following is an Executive Summary of the investigation conducted between July 20, 2022 and September 1, 2022.

1.1 Property Use – The proposed Fairfax School District (FSD) property is primarily vacant land with moderate weed growth. Historically the site has been mainly vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to have been used for agricultural purposes from at least 1968 to 1973. There was an active drainage/irrigation ditch from at least the 1930s to 1973. From 2017 to 2020, there were soil piles on the southeast portion of the site. Currently the site is overgrown with seasonal vegetation, debris, traces of the irrigation/drainage ditch, and multiple scattered piles of different combinations of debris/concrete/vegetation/soil/bricks.

1.2 Building Permits - were reviewed for the County of Kern and the City of Bakersfield with the following permits listed for the site.

- No permits for the site addresses or parcel numbers were found at the that would indicate an environmental concern.

1.3 Purpose and Scope - The purpose of the site assessment was to identify potential sources of hazardous substances that are obvious upon visual observations or by all appropriate inquiry using elective research of readily available information. All appropriate inquiry constitutes research into previous ownership and uses of the subject property consistent with good commercial or customary practices as defined by CERCLA, 42 U.S.C. 9601(35)(B). All appropriate inquiry will qualify a party to a commercial real estate transaction for one of the threshold criteria for

satisfying the Landowner Liability Protections to CERCLA liability (42 U.S.C 9601(35)(A) & (B), 9607(b)(3), 9607(q) and 9607(r).

Visual inspections and all appropriate inquiry (AAI) were used to identify recognized environmental conditions (REC), historical recognized environmental conditions (HREC) and Controlled recognized environmental conditions (CREC) in connection with the subject property. The AAI included surveys of historical literature, regulatory review of the available records for the subject property and adjacent properties, if listed, interviews with persons having knowledge of the site and its use, vapor migration screening and the determination if any obvious hazardous substances exist or may have existed on the subject property. The scope of these services was conducted in compliance with ASTM E 1527-13 guidelines for Phase 1 Environmental Site Assessments.

1.4 Environmental Issues - The most salient environmental issues noted in our investigation are as follows:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near

surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

1.5 Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

2.0 Site Reconnaissance

The site location is shown on Plate 1, Site Location Map.

2.1 *On-Site Properties* - A site reconnaissance was conducted on July 28, 2022, which consisted of walking the property and taking multiple photographs (see Plate 3, followed by photos). The site consists of approximately 20.25 acres and consists of one (1) parcel located SW of S. Oswell St. and Zephyr Ln. in Bakersfield, CA. The site is a vacant field that has a moderate amount of vegetation. There are traces of an irrigation/drainage ditch adjacent to the center of the site to the east trending north south. Just east of the irrigation/drainage ditch, there are multiple scattered piles that appear to contain some combination of soil/debris/vegetation/concrete/bricks/asphaltic material. These piles are also scattered along the western half of the southern border and along the western border of the site. There are also dirt roads along the eastern, southern, and the northeastern border. There is also a berm along the eastern border and barbed wire fencing along the western and southern border. Farmlands borders the site to the south and west of the property. To the north there is vacant land and there are residential properties to the east.

Overall, the site appears to be in moderate to good shape.

See Plate 2 for a Plot Plan and Appendix B for an Assessors Map showing the areas discussed above. Also see Appendix D for a checklist of environmental conditions reviewed as part of the QA/QC for this report.

2.2 *Oil Wells and Water Wells* – There are no oil wells present within the site, but the site is within the Edison Oil & Gas Field. No water wells were observed on site.

2.3 *Site Area* - The project site covers an area of approximately 20.25 acres as shown on the Assessors Map in Appendix B.

2.4 *Adjacent Off-site Properties* – Adjacent off-site properties include residential properties to the east, Farmland to the west and south, and vacant land to the north.

2.5 *Off-site Listed Properties within a One -Mile Radius* – There were 8 property listings (some repeated) in the EDR-Radius Map with GeoCheck report (EDR report) as being within a 1-mile radius of the site and have experienced a release of hazardous waste or store hazardous materials. A review of the EDR search and files at the Kern County Environmental Health Services Department and Bakersfield Fire Department indicates that no active sites are considered an environmental threat.

The listed offsite properties within a 1 -mile of the site include the following:

- Dickinson Fleet Services, 5026 Mar Grande Dr - This property is present <1/8 mile east of the site area. Listed on the RCRA NonGen/NLR database. This location is not a generator, verified.

- Drain Pro Rooter & Septic Inc, 600 Workman St. - This property is present <1/8 mile NNW of the site area. Listed on the CUPA LISTINGS and CERS databases. This location has had multiple CERS violations but have all been returned to compliance. There are no current violations listed.

- Sandoval Construction & Excavation Inc, 508 Workman St - This property is present <1/4 mile NNW of the site area. Listed on the RCRA NonGen/NLR. No known current environmental issues listed.

- New Continuation High School, East Belle Terrace Avenue/East of South Mount Vern – < 1/4 < x < 1/2 - mile located to the WNW. Listed on the ENVIROSTOR and SCH databases. This property received a no further action by the DTSC as there was no chemicals of concern encountered.

- Kern Sanitation Authority WWTF, Hwy 58 & Quantico – < 1/4 < x < 1/2 - mile located to the NW. Listed on CORTESE, ENF, WDR, CIWQS, and CERS databases. This property has no current violations listed.

- Westminster Ceramics, Inc, 3901 E. Brundage Lane – < 1/2 < x < 1 - mile located to the northwest. Listed on ENVIROSTOR, and EMI databases. This location's air emissions were monitored.

- Proposed New Continuation High School 2004-1, East Belle Terrace/MT. Vernon Avenue – < 1/2 < x < 1 - mile located to the West. Listed on ENVIROSTOR and SCH databases. This property received a no further action by the DTSC as of 7/03/2008

- Mira Monte High School, South Fairfax Rd./Redbank Rd. – < 1/2 < x < 1 - mile located to the W. Listed on ENVIROSTOR and SCH databases. This property received a no further action by the DTSC as of 8/21/2006.

2.6 Previous Site Development - A review of available aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to 1973. From 2017 to 2020, there were soil piles on the southeast portion of the site. Currently the site is vacant land. See Appendix C for copies of aerial photographs.

Aerial Photographs

1937 Aerial Photo	The site is mainly vacant native land with what appears to be a drainage/irrigation ditch transecting the site north south adjacent to the central portion of the site to the east. Vacant land is adjacent to the site to the north, east, and south. There is a major road that borders the site to the east. There is a water feature to the west of the site trending northwest and southeast.
1942 Aerial Photo	Similar to the 1937 aerial. Across the main road bordering the site to the east, the site appears to be tilled.
1952 Aerial Photo	Similar to the 1942 aerial photograph. Agricultural properties border the site to the west, southwest, and east. Vacant land with a portion of the irrigation/drainage ditch borders the site to the north and vacant land borders the site to the south. The water feature is no longer to the southwest of the site.
1957 Aerial Photo	Similar to the 1952 aerial photo. There is agricultural land to the south along with a yard.
1968 Aerial Photo	The majority of the site is vacant land. The site still has an irrigation/drainage ditch just east of the central portion of the site. Adjacent to the ditch to the east, there is a small strip of land that appears to be utilized for agricultural purposes. Vacant land and agricultural land borders the site to the north while agricultural land surrounds the site to the west, southwest, south, and east. Dirt roads appear to border the site to the west, south, and S. Oswell St to the east.
1973 Aerial Photo	Similar to the 1968 aerial photo.
1984 Aerial Photo	The site now appears to be vacant land with a dirt road near the center of the site trending north south and another dirt road along the southern border. Agricultural lands border the site to the west, southwest and south. Vacant land border the site to the north, east and northeast. There is an irrigation reservoir to the west and southeast of the site. Grading activities are occurring to the far north.
1992 Aerial Photo	Similar to the 1984 aerial photograph.

2003 Aerial Photo — Similar to the 1992 aerial photo. Vacant land is to the north and southeast. Agricultural lands are present to the west, southwest, and south. Ponds are located to the west and northwest. Grading activities are occurring to the northeast and there are residential properties to the far northeast.

2006 Aerial Photo — The site is vacant land. Dirt roads border the site to the south, southwest, and west. S. Oswell Street border the site to the east. Grading activities for residential properties are occurring to the far north and to the southeast. Residential properties border the site to the east. Ponds are located to the west.

2009 Aerial Photo — Similar to the 2006 aerial photo. Dirt Roads are on the site.

2012 Aerial Photo — Similar to the 2009 aerial photo.

2016 Aerial Photo — Similar to the 2012 aerial photo. The residential developments are advancing.

2018 Aerial Photo — Similar to the 2016 aerial photo. There are soil piles on the southeast portion of the site.

2021 Aerial Photo — Similar to the 2016 aerial photograph. Residential properties to the east and far north are now finished. There is vacant land to the far NNE and SSE. The soil piles are no longer there maybe used for the berm to the east.

Historical Topographic Maps

Topographic maps of the area were reviewed to establish previous development of the site, adjoining properties, and surrounding areas. See Appendix A for copies of these maps. The topographic maps reviewed indicated the following:

1914 Topo – Shows vacant land in the general area of the site. Vacant land border the site in all major directions. There is a dirt road as the eastern border. SF Tracks are to the north and the Eastside Canal is to the north and east. Fairfax School is to the east.

1929 & 1932 Topo – Similar to the 1914 topo. There is a Sewage Basin to the northwest. Brundage Lane is shown to the north.

1938 & 1941 & 1950 Topo – Similar to 1932 topo. There are water features adjacent to the site to the east.

1954 & 1968 & 1973 Topo – The site is vacant land. There is a road as the eastern border and vacant land is shown to the north, west, and south. Pipelines are shown to the east and west. There is a sewage disposal site to the northwest. There are multiple reservoirs away from the site in all major directions. Hwy 58 is under construction to the north. Fairfax school is to the east. Transmission lines are present to the east.

1995 – The topographic map shows very little detail of the site. There are many ponds to the southwest and west of the site. There are pipelines to the far east. Major streets are shown. Hwy 58 is to the north.

2012 & 2015 & 2018 Topo – Similar to the 1995 topographic map.

Sanborn Map Review

No Sanborn Fire Insurance maps were available for this portion of Bakersfield, CA. See Appendix A for the results of this search.

City Directory Search

The project address appeared in the City Directory search conducted by EDR as indicated below:

- None

See Appendix A for the results of this search.

2.7 *Source of Potable Water* - Potable water may be serviced by the East Niles Community Services District.

2.8 *Sewage Disposal* – Sewage will be treated by Kern County.

2.9 *Potential Occupant Hazards*

2.9.1 *Radon Gas* - According to GeoCheck Version 2.1 Summary (page 11, Appendix A), the average radon level in this region of Kern County is 1.217 pCi/L, a safe concentration. No radon sampling was conducted.

2.9.2 *Asbestos Containing Materials (ACM's)* – No suspected ACMs were observed during our walk-through of the site. No ACM testing was conducted during this

investigation. Naturally occurring asbestos (NOA) is not present within 10-miles of the site according to the State NOA map.

2.9.3 Polychlorinated Biphenyl (PCB's) – No electrical transformers were observed on-site or directly adjacent to the site area. No PCB's are suspected at this site. No PCB testing was conducted during this investigation.

2.9.4 *High Pressure Pipelines & High Voltage Power Transmission Lines* - SEI contacted The Gas Company & PG&E to determine the nearest high-pressure natural gas transmission lines near the site. Representatives for PG&E and the Gas Company indicate that the nearest high-pressure natural gas transmission lines are located over 1500' from of the site. No high-pressure petroleum pipelines appear to be present within 1500' of the site area according to the City of Bakersfield Pipeline Map and the National Pipeline Map.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east of the site border trending N-S along the eastern portion of S. Oswell Street. In an event of a full diameter rupture, the estimated water release impact is calculated under the assumption that an average design velocity is 5 feet per second, time to shut-off is 5 minutes, drain down after shutoff is assumed negligible, and that the assumed spill pool depth is assumed to be 1.0'. The impact distance for a circular pool is 52' in which does not affect the site. The impact distance for a rectangular channel with a width of 20' is 105' which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. which will help control the water from a potential release to the site. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended for buildings.

There were no overhead power transmission lines that were observed to be present within 350' of the site boundaries that carry ≥50 Kilovolt (kV) power over or underground. There are no underground power lines present within or along the borders of the site.

2.10 Vapor Migration Screening

A Vapor Migration Screening was conducted by SEI on the site and surrounding properties. Historical oilfield activities have been conducted within 1/3 of a mile of the site location and resides withing the Edison Oil/Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other wells to the east and southeast ~980' and ~730' respectively. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. See Appendix A for the EDR Vapor Encroachment Screen.

2.11 Soil Sampling Conducted

To assess near surface soil conditions within the site area, SEI collected a total of 64 on-site soil samples in general accordance with the Department of Toxic Substances Controls (DTSC's) PEA Guidance Manual and the DTSC's Interim Guidance for Sampling Agricultural Properties (3rd Revision). The soil samples were collected at depth intervals of 0" to 6" and 2' to 2.5' below ground surface (bgs) at the on-site sampling locations as shown on Plate 2A. The area was divided into eight (8) grid sections (C1 to C8) with four (4) sample locations (A, B, C & D) per grid section. Soil samples collected within areas of current or former fill material piles were also analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), and Total Petroleum Hydrocarbons (TPH C5 to C36). This included samples C5A-3" C5C-3", C6C-3", C7D-3", C8B-3", and C8D-3". A duplicate soil sample (C3E-3") was collected at sample location C3B-3" and analyzed for OCPs and arsenic for Quality Control/Quality Assurance. The deeper -2' soil samples were analyzed if the corresponding -3" soil sample had one of the highest concentrations reported of OCPs or arsenic. This included soil samples C3B-2', C5C-2', C8A-3", C8C-3", C8A-2', C8B-2', C8C-2', C8D-2' and C7D-2' for OCPs and samples C1B-2', C2B-2', C3B-2', C5A-2', C6B-2', C6C-2', C7B-2' and C7D-2' for arsenic. In addition, two (2) background soil samples (B1@6' and B2@6') collected at a depth of 6' in the two (2) geotechnical soil borings were also analyzed for arsenic for background comparison purposes.

Discrete soil samples were also collected at 3 locations (BM1 to BM3) within the eastern edge berm piles and were analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPH C5 to C36) and pH. EPA Method 5035 was utilized to preserve the soil sample portion for the VOC analysis.

The soil samples were shipped to Positive Lab Services in Los Angeles, CA in a cooler with blue ice along with completed chain of custody documents.

The analytical results of the 0" to 6" composite samples (C1A,B,C,D-3" to C8A,B,C,D-3") and the 0 to 6" (-3") and 2' to 2.5' (-2') discrete soil samples analyzed for organo-chlorine pesticides (OCPs) within the site area during this investigation, indicate that only minor concentration 4,4'-DDD (up to 0.0192 mg/kg), 4,4'-DDE (up to 0.0236 mg/kg), 4,4'-DDT (up to 0.125 mg/kg) and dieldrin (up to 0.00818mg/kg) were reported. All of these results are well below the EPA Regional Screening Levels (RSLs) and the DTSC Screening Levels (SLs) for these constituents.

The analytical results of on-site arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg with an average of 11.9 mg/kg in the soil samples analyzed. Two (2) background soil samples collected at a depth of 6' had arsenic concentrations reported at 11.5 mg/kg and 9.2 mg/kg. A duplicate sample C3E-3" (same as C3B-3") was also analyzed for arsenic with a similar result. Lead concentrations from the soil samples collected in the former fill

areas and in the soil berms ranged from 1.97 to 23.7 mg/kg indicating no concentrations exceeding the DTSC SL of 80 mg/kg in these areas.

The 3 berm pile samples had no elevated concentrations of OCPs, TPH, VOCs, CAM 17 Metals or pH reported.

See Table 1 for the soil sample analytical results. See Plate 2A for the soil sample locations.

2.12 Preliminary Risk & Hazard Evaluation

Exposure Pathways and Media of Concern

The exposure pathways of concern are soil pathways (ingestion and absorption through skin contact) and air pathways (dust particles inhaled during soil disturbances and vapor intrusion from subsurface contaminates in soil). Since groundwater will not be exposed at the surface, absorption and ingestion of groundwater was not evaluated. Soil may have residual concentrations of pesticides, petroleum hydrocarbons, VOCs and metals. The release of these soil particles would be intermittent and should be considered as a threatened release not as an actual release at this site. SEI has prepared a Conceptual Site Model to show the potential exposure pathways at this site, which is included as Plate 9.

Risk Evaluation and Endangerment Determination

Based on the analytical results reported in the soil samples collected at the site a preliminary hazard and risk analysis was conducted to evaluate the potential total risk and hazard at the site to human receptors.

The highest concentrations of chemicals of potential concern (COPC) reported in the soil samples were included in a human health screening evaluation. This included the following COPCs: 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg, The highest arsenic concentration (17.8 mg/kg) is within the East Bakersfield area background arsenic concentrations as shown on Table 2 and was eliminated from the risk and hazard evaluation. As stated in the PEA Guidance manual the following formulas are utilized for a basic screening level risk and hazard evaluation.

For a carcinogenic chemical: The screening concentration is based on a target cancer risk of one-in-a-million (10-6).

$$\frac{\text{Maximum concentration}}{\text{Screening concentration}} \times 10\text{-}6 = \text{Cancer Risk Screening concentration}$$

For a non-carcinogenic chemical: The screening concentration is based on a target Hazard Quotient (HQ) of one.

$$\text{Maximum concentration} = \text{Hazard Quotient} \times \text{Screening concentration}$$

SCREENING LEVEL RISK & HAZARD CALCULATIONS

COPC	Maximum On-site Concentration Reported (mg/kg)	Cancer Endpoint EPA RSL or DTSC SL (mg/kg)	Screening Level Risk: Max Conc./RSL or SL x 10-6 = Cancer Risk	Non-Cancer Endpoint EPA RSL or DTSC SL (mg/kg)	Screening Level Hazard: Max Conc./RSL or SL x 1.0 = Hazard Quotient
Arsenic	17.8 (median = 11.9)	0.1*	Within East Bakersfield background (WB)	0.41*	Within regional background
4,4'-DDD	0.0192	2.3	8.34783E-09	1.9	0.010105
4,4'-DDE	0.0236	2.0	1.18E-08	23	0.001026
4,4'-DDT	0.125	1.9	6.57895E-08	37	0.003378
Dieldrin	0.00818	0.034	2.40588E-07	3.2	0.002556
Lead	23.7	NA	WB	80*	WB
CUMULATIVE RESULTS			3.26526E-07		0.017066

COPC = Chemical of Potential Concern, RSL = EPA Regional Screening Level for residential sites (May 2022), *SL = HHRA Note 3 (June 2020), Conc. = Concentration, WB = Within Regional Background concentrations.

Based on this screening level evaluation of risk and hazard none of the COPCs exceed the risk (1 x 10-6) or hazard level (1.0) of potential concern. In addition, the cumulative risk is below a risk level of potential concern (<1 x 10-6) and the cumulative hazard level is below the hazard level (1.0) of potential concern.

Risk Characterization Summary

Based on a comparison of the highest concentrations of COPC's reported with the DTSC SLs and the EPA RSLs the total cumulative risk is 3.265 x 10-7 and the total cumulative hazard is 0.017066 for all pathways.

These results indicate:

1. The risk and hazard levels appear to be acceptable for the proposed school area.
2. The historical agricultural use and occasional dumping of fill materials do not appear to have caused an elevated risk or hazard level to future occupants at the proposed school site.

3.0 Property Use

Available records kept by the County of Kern, City of Bakersfield, aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to the 1970s. From 2017 to 2020, there were soil piles on the southeast portion of the site. Currently the site is vacant land. See Appendix C for copies of aerial photographs.

3.1 *Chronology of Former Property Use* - Site usage, as indicated on aerial photographs, City Directories, personnel interviews and Building Permits has included the following:

Vacant Land w/ irrigation & drainage ditch < 1937 to 1950's

Vacant Land/Irrigation/drainage ditch/ agricultural land – < 1960s to 1970s

Vacant Land/ inactive irrigation/drainage ditch – 1980s to Present

3.2 *Rationale For Research Period* - The research period for records dates from the earliest records retained in the archives of the County of Kern and the City of Bakersfield and available databases yielding information from the 1950's to the present.

3.3 *Sources* - A review was made of environmental records maintained by government agencies and private sources. The contents of that review are included in Appendix A. The list of Federal, State, and Local databases searched is summarized on Pages ES1 to ES4 and GR1 to GR5 of the EDR report Appendix A). In addition, the following total sources were researched:

Building Permits – were reviewed for the County of Kern and the City of Bakersfield with the following permits listed for the site.

- No permits for the site address were found at the County of Kern that would indicate an environmental concern.

Geologic Energy Management Division Publications - Records were researched for the period circa 1940 to the present. CalGEM online mapping site indicates that no oil wells were drilled on-site but the site resides withing the Edison Oil/Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. See Plate 8 for a map of the site showing the nearest oil well locations and Appendix B for some of the oil well information.

Kern County Environmental Services Department - The following information was found on file for the sites close enough to be considered a possible threat to the subject property:

- None

Bakersfield Fire Department - The following information was found on file for the sites close enough to be considered a possible threat to the subject property:

- None

Kern County Department of Agriculture – The Kern County Department of Agriculture (KCDA) keeps records for the past 5 years, only. SEI has access to data for the last 16 years.

- Agricultural use of a portion of the site occurred from the 1960s to 1970s. Normal use of pesticides and herbicides throughout this period is assumed.

GeoTracker – The State of CA GeoTracker website was reviewed for information on the subject site and surrounding facilities.

- Nothing of concern was listed.

4.0 Current Property Uses

The site is vacant land with some dirt roads across the site. There are traces of an irrigation/drainage ditch just east from the center of the site. There are scattered piles of different combinations of soil, bricks, concrete, vegetation, and trash along the eastern border, western side of the southern border, and just east of the irrigation/drainage ditch.

5.0 Current and Historical Regulatory Review of Subject Site & Adjoining Listed Properties

5.1 *Site* – The following Site listings were present in the EDR database search of potential environmental concern.

- None

5.2 *Listed Adjoining Properties* – The following adjoining properties are listed in the EDR database search of potential environmental concern.

- None

5.3 *Database Search* - A summary of the list of government records searched is contained in Appendix A in the sections titled “EXECUTIVE SUMMARY” and "GOVERNMENT RECORDS SEARCHED/DATA CURRENCY TRACKING," pages Executive Summary ES1-ES4 and GR1 through GR5 in Appendix A.

6.0 User Provided Information

6.1 *Review of Title Documents*

6.1.1 There are no easements that are known which might indicate that the property was used for the process, storage, and transportation of hazardous materials, are known.

6.1.2 The following are the owners and Assessors Parcel Numbers (APN) for the subject site:

Parcel Number	Owners:
Southern 1/2 Portion of 173-191-01	Bloemer Estate LP

See Assessors Maps for site configurations in Appendix B for more detail.

6.2 *Environmental Liens or Activity and Use Limitations*

No environmental liens or Activity and Use Limitations are known for this site, according to the User Questionnaire attached in Appendix B.

6.3 *Specialized Knowledge*

The user has no specialized knowledge for this site, according to the User Questionnaire attached in Appendix B.

6.4 *Commonly Known or Reasonably Ascertainable Information*

- The user has no information that covers the sites historical usage other than it is zoned as agricultural.
- The user has no knowledge of any specific chemicals used at the site.
- The user has no knowledge of any spills or other chemical releases that have taken place at the site.
- The user has no knowledge of any environmental cleanups that have taken place at the site.

See attached User Questionnaire attached in Appendix B for more detail.

6.5 Valuation Reduction for Environmental Issues

The property appears to be at fair market value. See attached User Questionnaire attached in Appendix B for more detail.

6.6 Owner, Property Manager and Occupant Information

The user questionnaire was filled out by Rosa Brown, whom is a representative for FSD.

6.7 Reason for Performing Phase 1 ESA

The Enhanced Phase 1 ESA is being performed in anticipation for construction of a school site and to get DTSC approval of the site.

6.8 Other

An Environmental Questionnaire and Disclosure Statement was filled in by Toni Bloemer, whom is the owner. The Environmental and Disclosure Statement is attached in Appendix B.

7.0 Geology and Hydrology

7.1 The regional area of the site has a general southwesterly slope, with the majority of surface elevations matching adjacent roads and properties (See Physical Setting Map, Plate 4).

7.1.1 ***Geologic Setting*** **-** The project site rests on a considerable thickness of granitic alluvium, identified as "Recent Alluvial Fan Deposits" on geologic maps within the San Joaquin Valley. Near-surface soils within the zone of influence of future developments consist of interbedded sand, silt, gravel and clay layers, and overlying bedrock, which is located several thousand feet below the surface. These sediments were derived in the Sierra Nevada Mountains to the east and deposited by local drainage features.

7.1.2 ***Surface Lithology*** **-** Earth materials identified in the two (2) onsite soil borings (B-1 and B-2) conducted on August 18, 2022, consisted generally of intervals of Silty Clay (CL), Clayey Sand (SC), Silty Sand (SM), Clayey Silt (ML) and occasional Poorly Graded Sand (SP) in the top 51 feet below ground surface (bgs). These soils are classified as CL, SC, SM, ML and SP respectively, in the Unified Soils Classification System.

7.2 Hydrology

7.2.1 Depth To Water **–** According to maps prepared by the Department of Water Resources presented on the SGMA Data Viewer Groundwater Levels Maps, depth

to water in wells near the site was reported at approximately 253 feet in the Spring of 2021. See Plate 7 for a Depth to Water Map.

7.2.2 *Groundwater Quality* - Groundwater data from 1997 reported in Kern County Water Agency's Water Supply Report 2011, indicates total dissolved solids were in the range of 200 ppm for the confined aquifer and 500 ppm for the unconfined aquifer in the subject site area.

7.2.3 *Plate 4 "Physical Setting Map,"* - Depicts general site topography including elevation contour lines.

7.2.4 *Water Wells* - No active water wells were identified onsite. 35 water wells were identified within one mile of the property, as indicated in the database search provided in Appendix A in the section titled "GEOCHECK – PHYSICAL SETTING SOURCE SUMMARY – WELL SEARCH DISTANCE INFORMATION" pages A7 to A8.

7.2.5 *The California Regional Water Quality Control Board* - Leaking Underground Storage Tank (LUST) records were reviewed. A list of agencies with LUST information is given on page GR1 to GR5. As the regulatory agency for the California Regional Water Quality Control Board, Kern County Environmental Health Services Department and the Bakersfield Fire Department maintains a database of underground storage tanks and leaking underground storage tanks in the Kern County area, including the subject site. Independent data base searches were performed by Environmental Data Resources, Inc., and by SEI utilizing GeoTracker.

7.2.6 *Wetlands* – There are four (4) wetlands present within ¼-mile of the site according to the Detail Map on Plate 6.

8.0 **Oil and Gas Well Locations** were reviewed on the CalGEM well finder webpage. This map indicates that no oil wells were drilled on-site but the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these nearby wells were dry holes with no oil production. See Plate 8 for a map of the site showing the nearest oil well locations and Appendix B for some of the oil well information.

8 oil wells were indicated within one mile of the property, as indicated in the database search provided in Appendix A in the section titled "GEOCHECK – PHYSICAL SETTING SOURCE MAP FINDINGS" pages A8.

9.0 Surrounding Properties - Plate 5, "Overview Map" shows the locations of sites that were listed on one of the Databases searched (See Section 5.2 for more detail).

9.1 Data Base Search – Eight (8) properties were mapped within a one-mile radius of the site as potential environmental threats (see Overview Map, Plate 5). For more details see Plate 6, Detail Map and pages 9 to 10 in "MAP FINDINGS" in Appendix A.

9.2 Orphan Summary List – The data base search indicated that one (1) address that was insufficient to plot on the site Overview Map. A list of this site is provided on the "Orphan Summary Sheet," on page 57 in Appendix A. The orphan addresses appear to be an environmental threat to the site.

9.3 Historical Use Information on Adjoining Properties

Adjoining properties include vacant land to the north, residential properties to the east, and agricultural properties to the west and south. None of these adjoining properties are an environmental threat to the site.

10.0 Interviews - The following interviews were conducted during this Phase 1 ESA.

10.1 Interview with Owner

An Environmental Questionnaire and Disclosure Statement was filled in by Toni Bloemer, whom is the owner. The Environmental and Disclosure Statement is attached in Appendix B. A phone interview was also conducted with Ms. Bloemer with the information gathered included within this report.

10.2 Interview with Site Manager

No manager

10.3 Interview with Occupants

No occupants.

10.4 Interviews with Local Government Officials

SEI conducted phone or e-mail interviews with the Kern County Environmental Health Services Department (KCEHSD) and the County of Kern Building Department, concerning the sites historical activities and adjoining properties. See Appendix B for the KCEHSD Inspections Reports.

10.5 Interviews with Others

- None

11.0 Findings

The following was identified at the site during this investigation:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17

metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

12.0 Opinion

The following is SEI's opinion as to the known or suspected recognized environmental concerns identified at the site:

- The proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field. Since the nearest oil wells were all dry holes with no oil production, SEI is of the opinion that vapor migration will likely not be an environmental issue of concern but should be evaluated for potential vapor migration during an SSI conducted under DTSC oversight.

- Agricultural activities appear to have occurred from the 1960s to the 1970s in a portion of the site and may have pesticides and heavy metals (arsenic) at elevated levels in the near surface soils. The preliminary assessment conducted on-site indicates that the historical agricultural use and the occasional fill material dumping has not significantly impacted the near surface soil.

13.0 Conclusions & Deviations

13.1 Conclusions - SEI has performed an Enhanced Phase 1 Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice E 1527-13, of a property located SW of Oswell St. & Zephyr Ln. in Bakersfield, CA (Southern ½ Portion of APN: # APN:173-191-01. Any exceptions to or deletions from this practice are described in section 13.2 of this report. There are some RECs and no Historical RECs nor

controlled RECs in connection with this property. Additional assessment for soil vapor is recommended.

13.2 Deviations – The following deletions or additions to the ASTM E 1527-13 standard practice were conducted during this investigation:

Deletions

– None

13.3 Additional Services

- Reporting of average radon concentrations in the general area of the site.
- Conducting soil sampling and chemical analysis of the near surface soil to evaluate the site for potential chemicals of concern prior to purchase.

13.3 Data Gaps

- No significant data gaps were encountered that might impact the validity of this investigation.

14.0 Attachments

14.1 Location Map - Plate 1, "Location Map" shows the location of the site with relationship to roads and land features.

14.2 Plot Plan - Plate 2, "Plot Plan" shows the location and lot configuration of the property.

14.2.1 Soil Sampling Map, Plate 2A shows the location of the soil samples collected within the site area.

14.3 Photo Map - Plate 3, "Photo Map" shows the location and direction of photos taken at the site. See attached 25 pictures.

14.4 Physical Setting Source Map - Plate 4, Shows the property location referenced to major city streets and State, Federal and public supply wells with topographic elevations is attached as the "Physical Setting Source Map".

14.5 Overview Map - Plate 5, the property location referenced to neighboring streets and potentially environmental sensitive sites up to 1 mile away, is attached as the "Overview Map," Plate 5.

14.6 Detail Map - Plate 6, the property location referenced to neighboring streets and potentially environmental sensitive sites within 1/4 mile, is attached as the "Detail Map," Plate 6.

14.7 Depth to Water Map – Plate 7, the property location referenced to the approximate depth to groundwater.

14.8 CalGEM Map – Plate 8, the property shown in reference to nearby oil and gas wells, as shown on the online CalGEM Map.

14.9 Conceptual Site Model – Plate 9, shows the potential sources of chemicals of potential concern, the potential method of transport and the potential affected media.

14.10 Appendix A - EDR Report contains the Environmental Data Base Resources, Inc., The EDR Summary Radius Map Report - TM, Inquiry No.:7060049.2s, dated July 20, 2022. Also included are EDR's Historical Topographic Maps, Sanborn Map search results, City Directory summary and Vapor Encroachment Screening Report.

14.11 Appendix B - Assessors Map contains a copy of the assessor's map for the property. User Questionnaire and Environmental Questionnaire and Disclosure Statements are included. CalGem oil wells information are included. Table 1 Analytical Results, Table 2 East Bakersfield Arsenic Concentrations, and Analytical Reports

14.12 Appendix C - Aerial Photographs contains copies of available aerial photographs (1937 to 2021).

14.13 Appendix D - Quality Assurance/Quality Control

14.13.1 A site inspection check list has been completed as a part of the site reconnaissance survey and is attached on QA/QC Form D-1.

14.13.2 Form QA/QC - D-2 provides a checklist of summary of historical research items included in the scope of the investigation.

14.13.3 A list of the aerial photographs reviewed are given on QA/QC Form D-3

14.13.4 Areas that are excluded from review because of inaccessibility or for other causes and not included in the site reconnaissance are listed on QA/QC - D-4.

15.0 Statement of Qualifications

15.1 This *Enhanced Phase 1 Environmental Site Assessment* was prepared by Mr. Robert J. Becker, a California Professional Geologist (PG-5076) and a Certified Engineering Geologist (EG 2238). Mr. Becker has a Bachelor of Science degree from Oregon State

University with a major in geology. Mr. Becker is also registered in the State of Oregon (PG).

Mr. Becker has performed numerous preliminary environmental assessments and site characterizations, and risk assessments for known contamination on raw land, on existing residential, commercial, and industrial properties for public and private sector clientele. Mr. Becker's experience includes: installation of monitoring wells, vapor extraction system installations and operation, bioremediation of contaminated soil, groundwater treatment system installations and operation, preliminary endangerment assessments of proposed school sites and risk assessments.

16.0 References

- Environmental Data Resources (EDR): The EDR Summary Radius Map Report; EDR Historical Topographic Maps, Certified Sanborn Map Report, City Directory Abstract and Vapor Encroachment Screening.
- Geologic Energy Management Division, CalGEM Online Mapping System.
- Aerial Photographs – Kern County Engineering and Surveying Services, EDR and Google Earth.
- Kern County Agency, Division of Environmental Health.
- Bakersfield Fire Department Office of Environmental Services.
- City of Bakersfield Building Department.
- California Division of Mines and Geology - Geologic Map of California-Bakersfield Sheet.
- Water Supply Report 2011, Report on Water Conditions, Kern County Water Agency.
- Kern County Department of Agriculture, Pesticide Use and Permits.
- Kern County Building Departments and Assessors Dept.
- Improvement District #4 2016 Report on Water Conditions, Kern County Water Agency, Bakersfield, California, 2017.
- GeoTracker: https://geotracker.waterboards.ca.gov/
- Wetlands Mapper: http://www.fws.gov/wetlands/Data/Mapper.html

- DTSC, Final DTSC PEA Guidance Manual dated October 2015.
- DTSC Interim Guidance for Sampling Agricultural Land (Third Revision) dated August 7, 2008.
- DTSC, 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 (revised June 9, 2006).
- DTSC, Arsenic Strategies, Determination of Arsenic Remediation Development of Arsenic Cleanup Goals for Proposed and Existing School Sites, March 21, 2007.
- DTSC, HUMAN AND ECOLOGICAL RISK OFFICE (HERO), HHRA Note Number 3, June 2020.
- DTSC, HUMAN AND ECOLOGICAL RISK OFFICE (HERO), HHRA Note Number 2, May 2009.
- USGS, Reported Historic Asbestos Mines, Historic Asbestos Prospects, and other Natural Occurrences of Asbestos in California, Map Sheet 59.
- Wilson, S.A. et all, “Analysis of Soil Samples from the San Joaquin Valley of California”, United States Geological Survey (USGS), Open File Report 90-214, undated.
- EPA, Regional Screening Level (RSL) Resident Soil Table (TR=1E-6, HQ=1) May 2022.

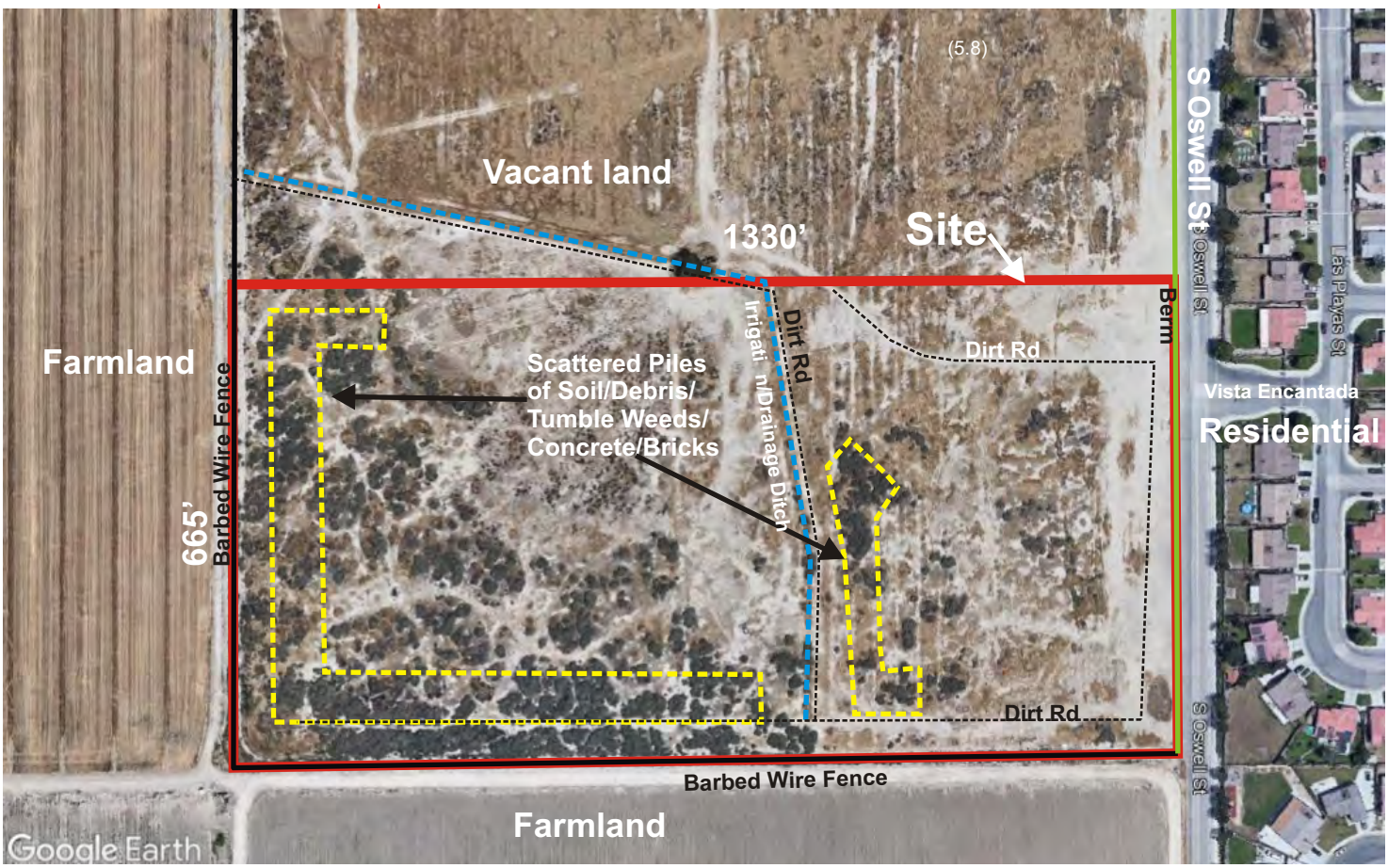
SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

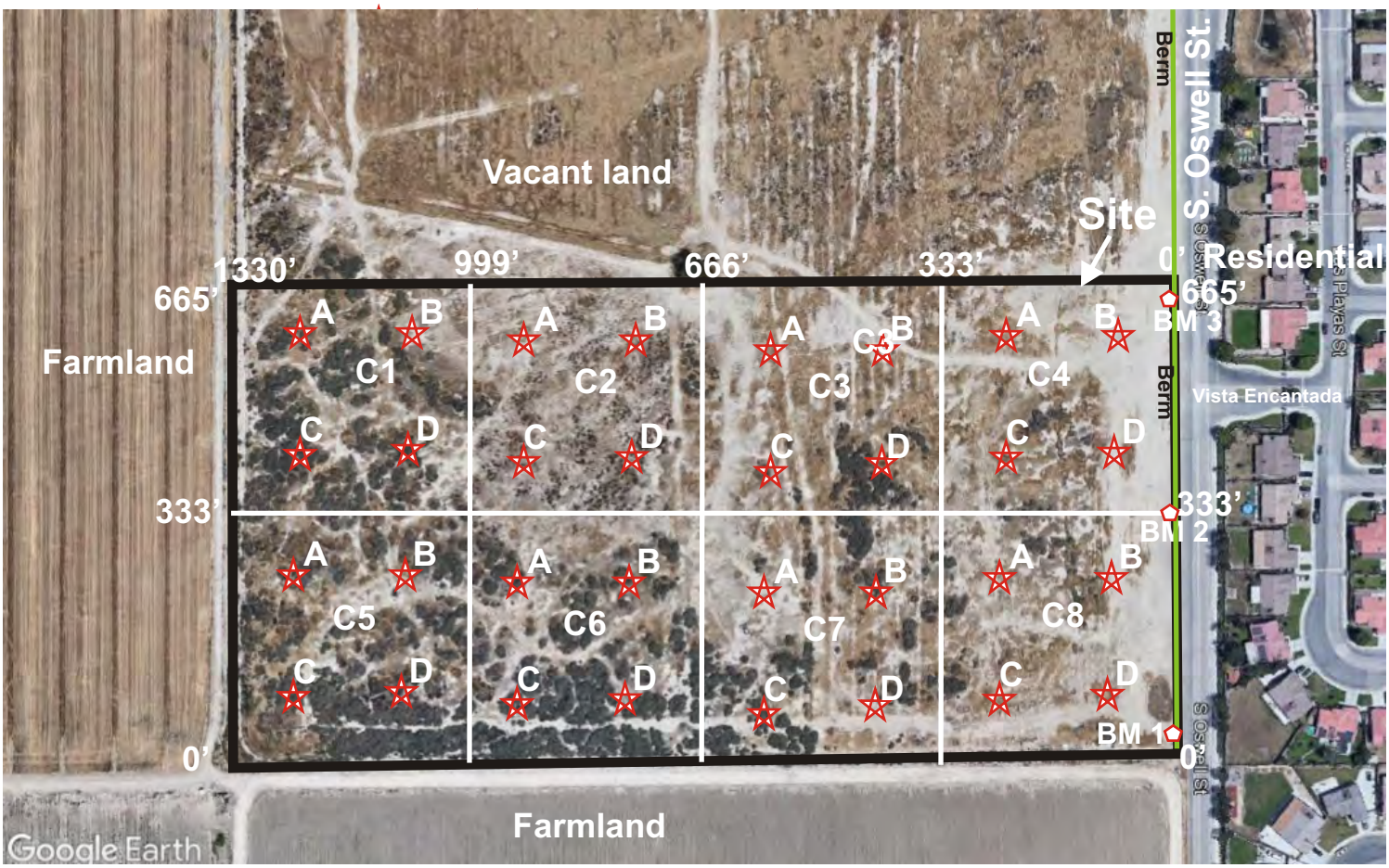
FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

LOCATION MAP

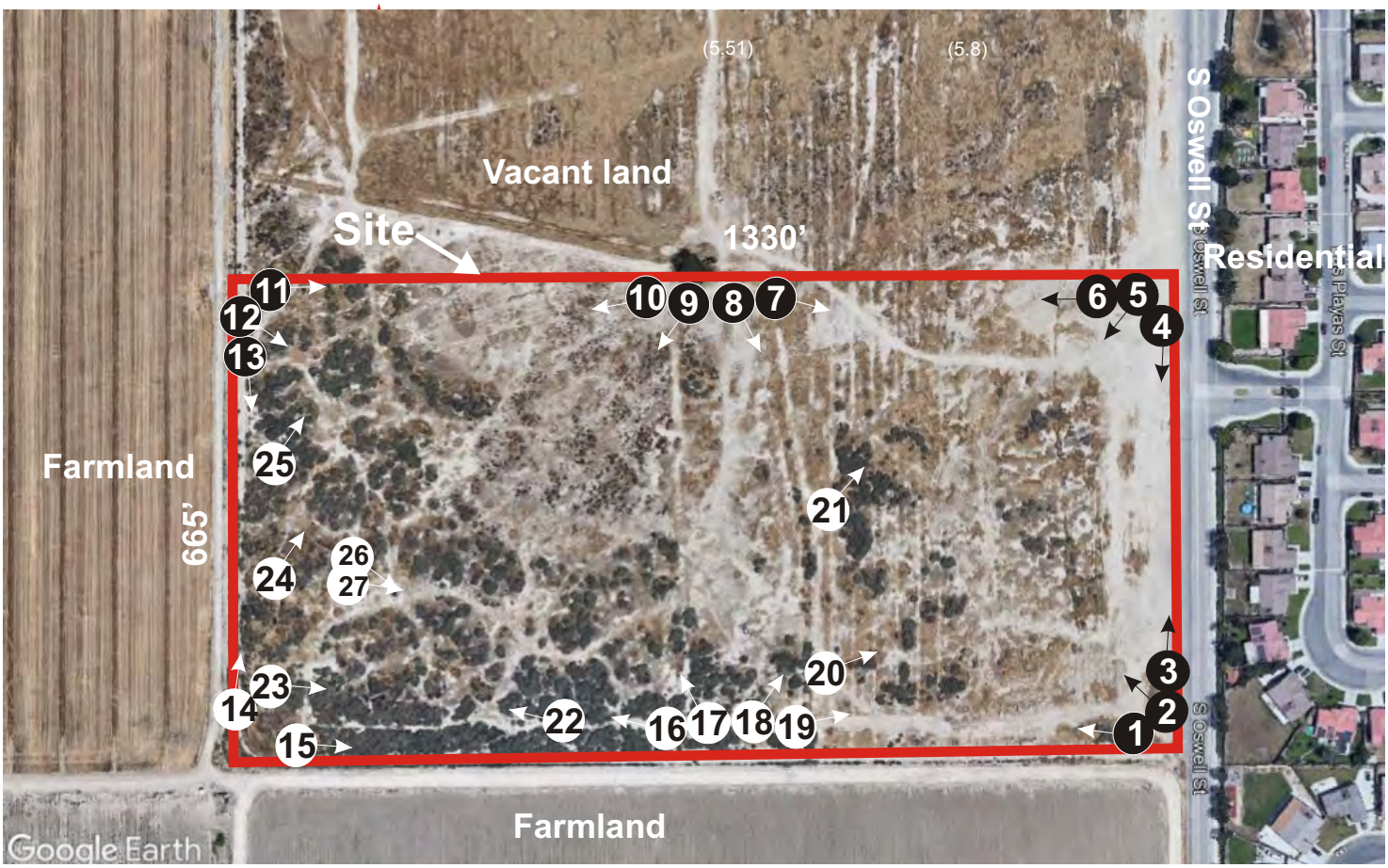
PLATE
1



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PLOT PLAN**	**PLATE** **2**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	SOIL SAMPLE LOCATION MAP FSD Proposed School Site #5 SW of S. Oswell St. & Zephyr Lane Bakersfield, CA	Plate 2A



Picture # & Direction #

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PHOTO MAP**	**PLATE** **3**

Picture 1. Looking west from the SEC of the site.

Picture 2. Looking northwest from the SEC of the site.

Picture 3. Looking north from the SEC of the site.

Picture 4. Looking south from the NEC of the site.

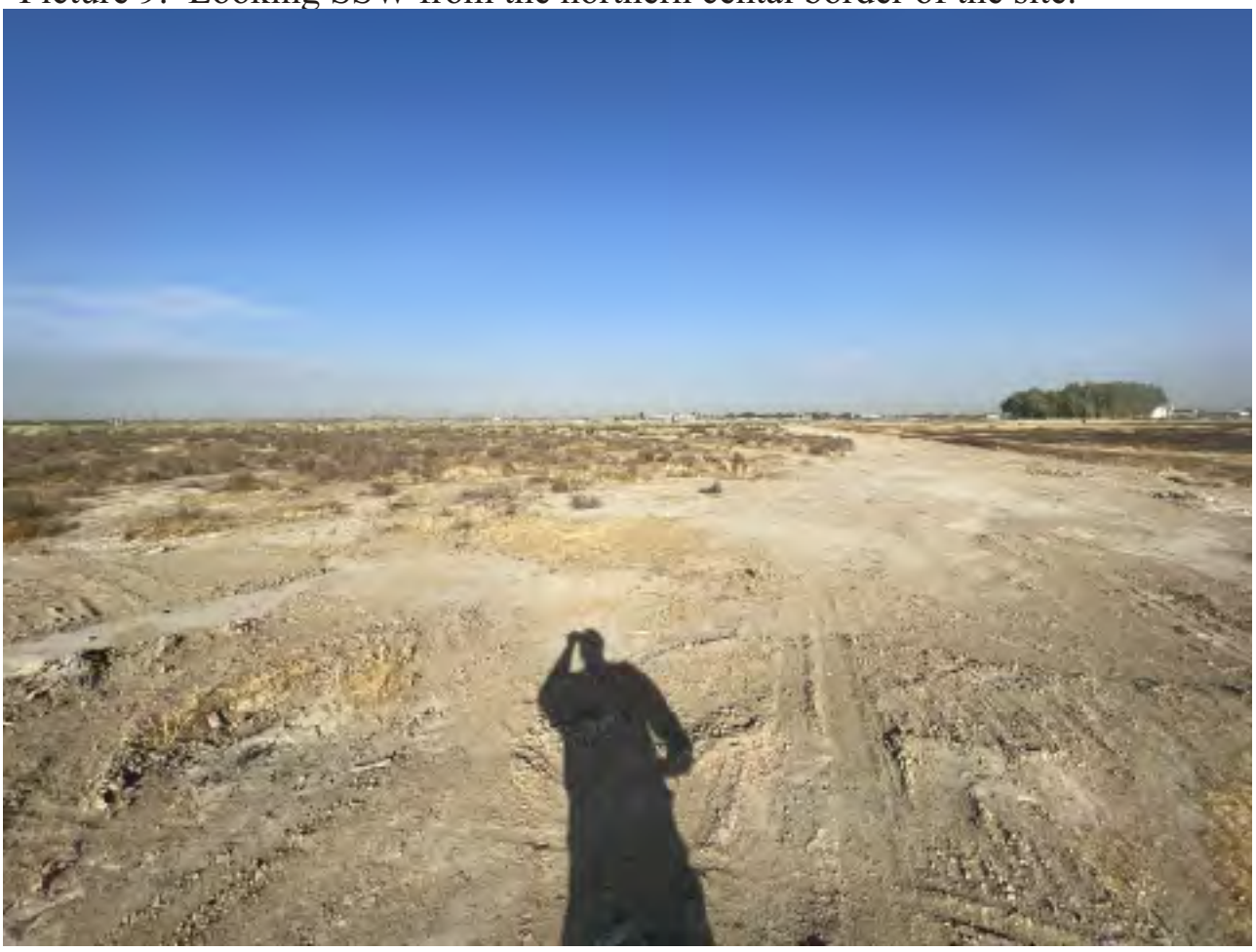
Picture 5. Looking SW from the NEC of the site.

Picture 6. Looking west from the NEC of the site.

Picture 7. Looking east from northen central border of the site

Picture 8. Looking SSE from the northern central border of the site.

Picture 9. Looking SSW from the northern cental border of the site.



Picture 10. Looking West from northern cental border of the site.

Picture 11. Looking east from the NWC of the site.

Picture 12. Looking SE from the NWC of the site.

Picture 13. Looking south from the NWC of the site

Picture 14. Looking north from the SWC of the site.

Picture 15. Looking East from the SWC of the site.

Picture 16. Looking west from the southern central border.

Picture 17. Looking NNW from the southern central border of the site.

Picture 18. Looking northeast from the southern central border of the site.

Picture 19. Looking east from the southern central border of the site.

Picture 20. Looking at a pile with concrete, soil, and vegetation adjacent to the south central border.

Picture 21. Looking at a pile with concrete, debris, and soil adjacent to the irrigation/ drainage ditch to the east.

Picture 22 Looking at another pile with concrete, vegetation, and soil along the southern border.

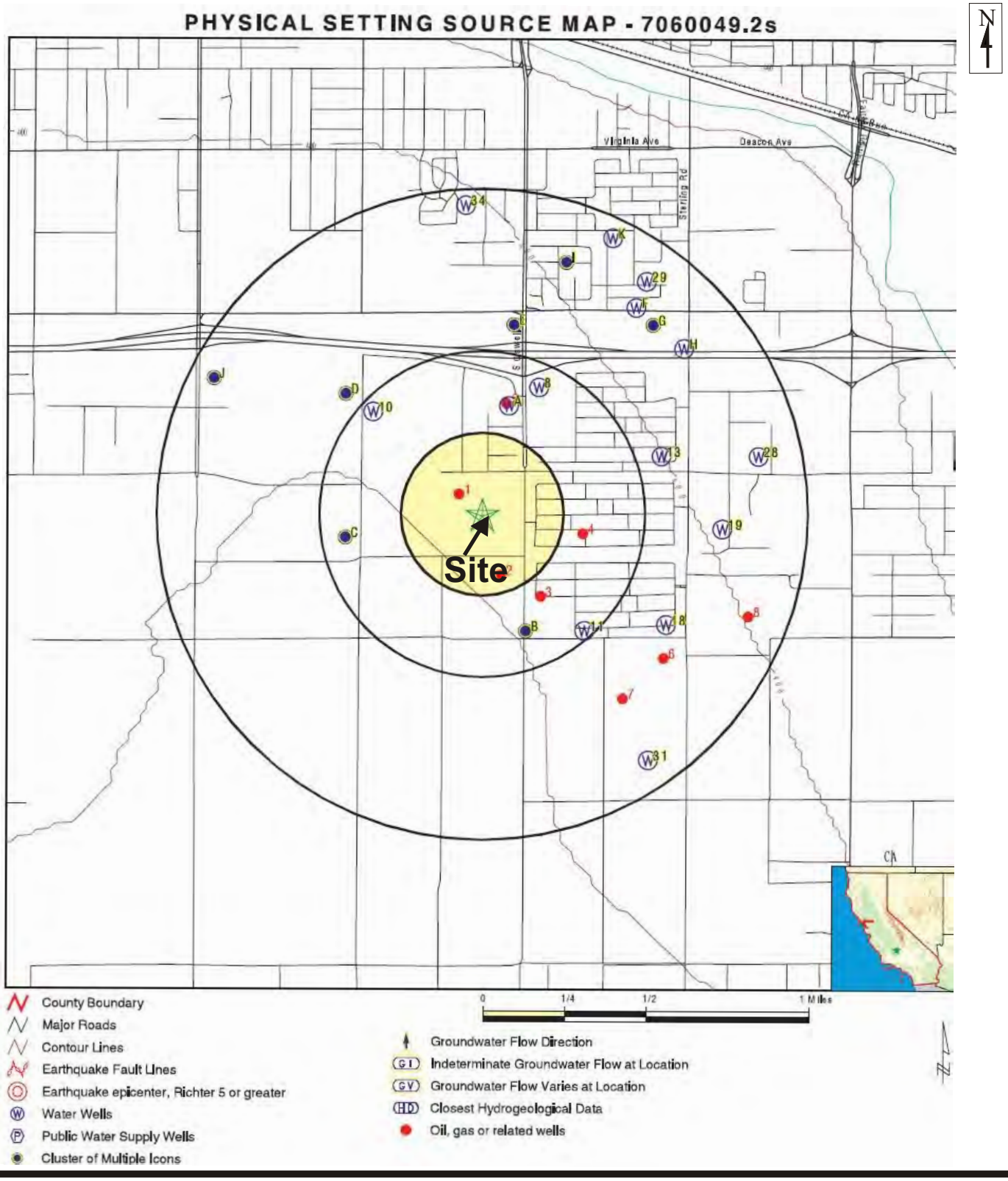
Picture 23. Looking at a soil pile with some debris in the SW portion of the site.

Picture 24. Looking at a few small soil piles in the western portion of the site.

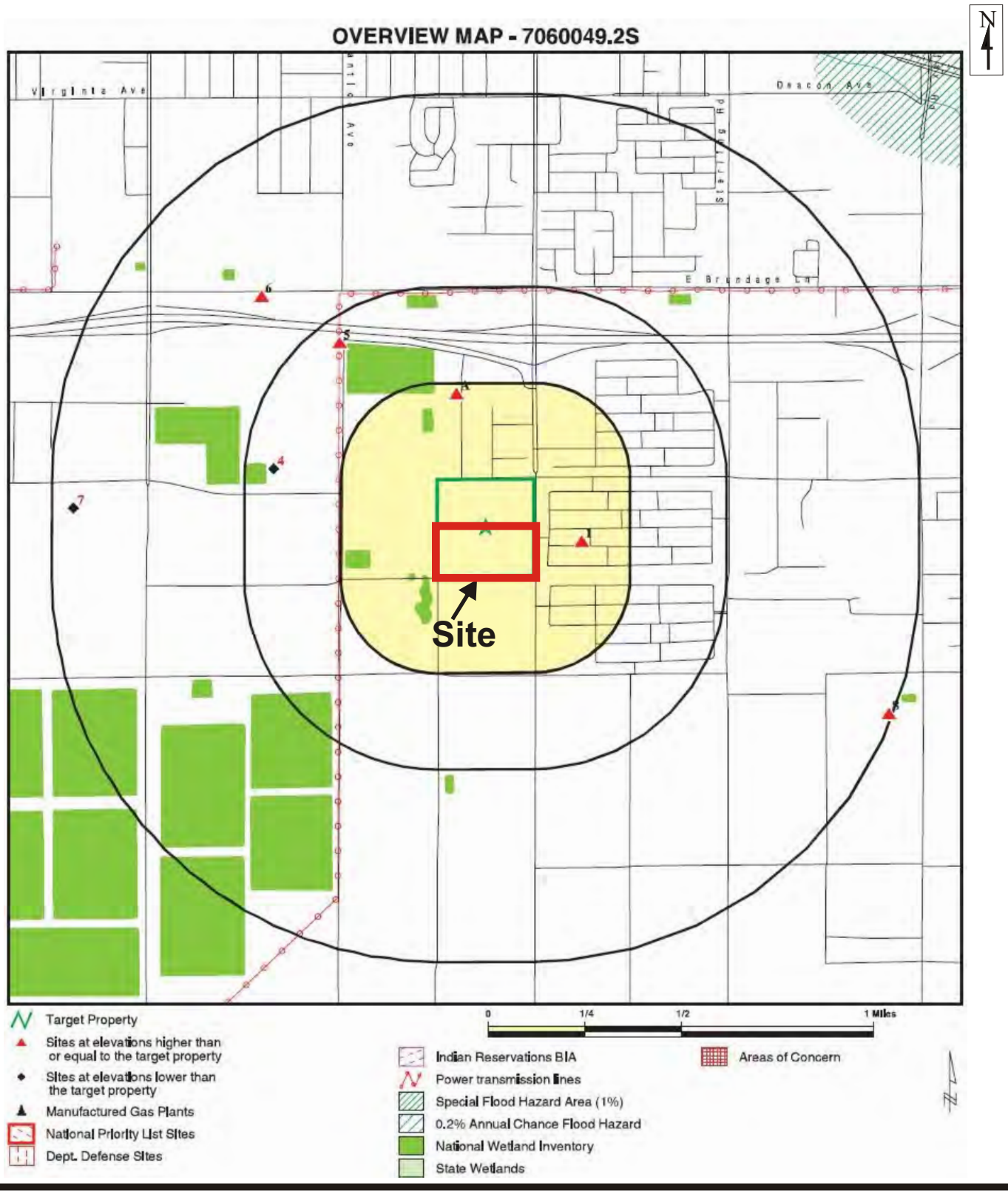
Picture 25. Looking at a concrete pile in the NW portion of the site.

Picture 26. Looking at sample location at 0 to 6”

Picture 27. Looking at sample location at 2’ to 2.5’



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Physical Setting Source Map**	**PLATE** **4**



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

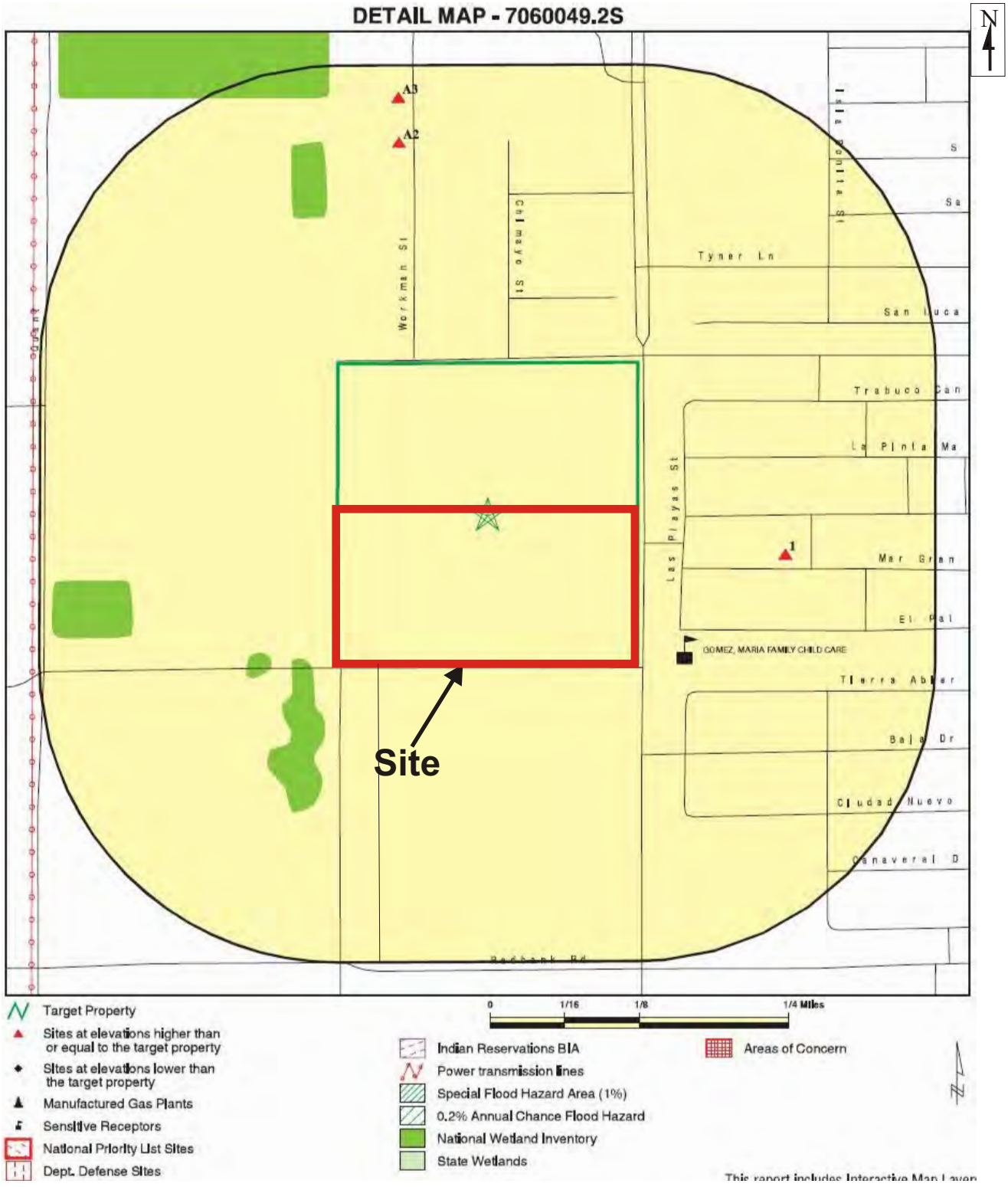
DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

Overview Map

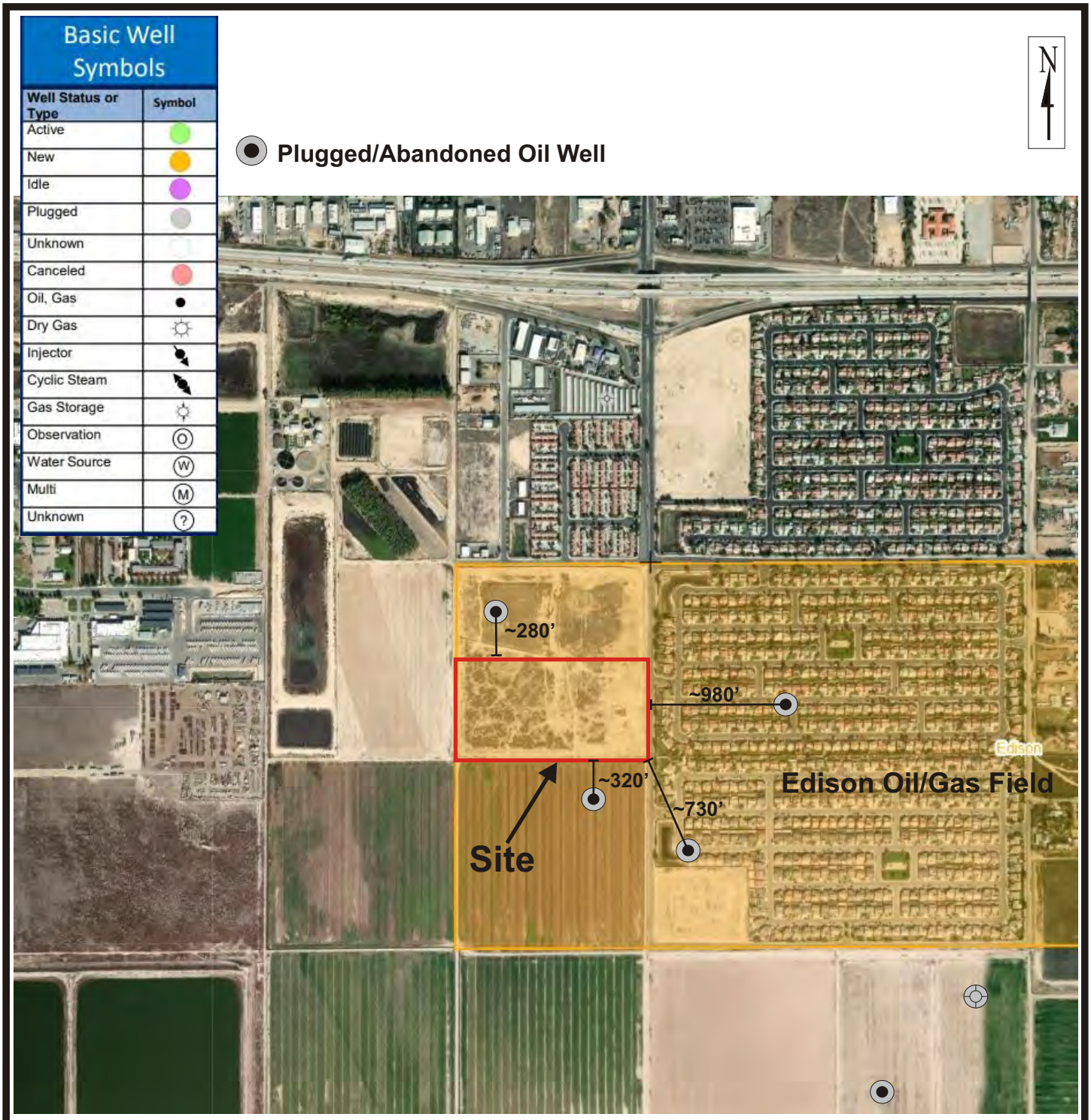
PLATE

5



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Detail Map**	**PLATE** **6**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Depth to Water Map**	**PLATE** **7**



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

CalGEM Map

PLATE
8

Appendix A

EDR Summary Radius Map Report, Certified Sanborn Map Report, the Historical Topographic Maps, the EDR-City Directory Abstract and a Vapor Encroachment Screen.

FSD New Potential Site #5
Oswell & Zephyr
Bakersfield, CA 93307

Inquiry Number: 7060049.2s
July 20, 2022

EDR Summary Radius Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

OSWELL & ZEPHYR
BAKERSFIELD, CA 93307

COORDINATES

Latitude (North):	35.3451460 - 35ˆ 20' 42.52''
Longitude (West):	118.9520570 - 118ˆ 57' 7.40''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	322607.2
UTM Y (Meters):	3912869.5
Elevation:	384 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140617
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
OSWELL & ZEPHYR
BAKERSFIELD, CA 93307

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	DICKINSON FLEET SERV	5026 MAR GRANDE DR	RCRA NonGen / NLR	Higher	655, 0.124, East
A2	DRAIN PRO ROOTER & S	600 WORKMAN ST	CUPA Listings, CERS	Higher	978, 0.185, NNW
A3	SANDOVAL CONSTRUCTIO	508 WORKMAN ST	RCRA NonGen / NLR	Higher	1177, 0.223, NNW
4	NEW CONTINUATION HIG	EAST BELLE TERRACE A	ENVIROSTOR, SCH	Lower	2247, 0.426, WNW
5	KERN SANITATION AUTH	HWY 58 & QUANTICO	Cortese, ENF, WDR, CIWQS, CERS	Higher	2304, 0.436, NW
6	WESTMINSTER CERAMICS	3901 E. BRUNDAGE LAN	ENVIROSTOR, EMI	Higher	3479, 0.659, NW
7	PROPOSED NEW CONTINU	EAST BELLE TERRACE/M	ENVIROSTOR, SCH	Lower	4984, 0.944, West
8	MIRA MONTE HIGH SCHO	SOUTH FAIRFAX RD./RE	ENVIROSTOR, SCH	Higher	5219, 0.988, ESE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: A review of the ENVIROSTOR list, as provided by EDR, and dated 04/25/2022 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTMINSTER CERAMICS Facility Id: 71003570 Status: Inactive - Needs Evaluation	***3901 E. BRUNDAGE LAN***	***NW 1/2 - 1 (0.659 mi.)***	***6***	***10***
MIRA MONTE HIGH SCHO Facility Id: 15820004 Status: No Further Action	***SOUTH FAIRFAX RD./RE***	***ESE 1/2 - 1 (0.988 mi.)***	***8***	***10***

Lower Elevation	Address	Direction / Distance	Map ID	Page
NEW CONTINUATION HIG Facility Id: 60000986 Status: No Further Action	***EAST BELLE TERRACE A***	***WNW 1/4 - 1/2 (0.426 mi.)***	***4***	***9***
PROPOSED NEW CONTINU Facility Id: 60000758 Status: No Further Action	***EAST BELLE TERRACE/M***	***W 1/2 - 1 (0.944 mi.)***	***7***	***10***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/20/2022

has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DICKINSON FLEET SERV EPA ID:: CAC003160227	5026 MAR GRANDE DR	E 0 - 1/8 (0.124 mi.)	1	9
SANDOVAL CONSTRUCTIO EPA ID:: CAL000351395	508 WORKMAN ST	NNW 1/8 - 1/4 (0.223 mi.)	A3	9

Cortese: A review of the Cortese list, as provided by EDR, and dated 03/21/2022 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KERN SANITATION AUTH	***HWY 58 & QUANTICO***	***NW 1/4 - 1/2 (0.436 mi.)***	***5***	***9***

CUPA Listings: A review of the CUPA Listings list, as provided by EDR, has revealed that there is 1 CUPA Listings site within approximately 0.25 miles of the target property.

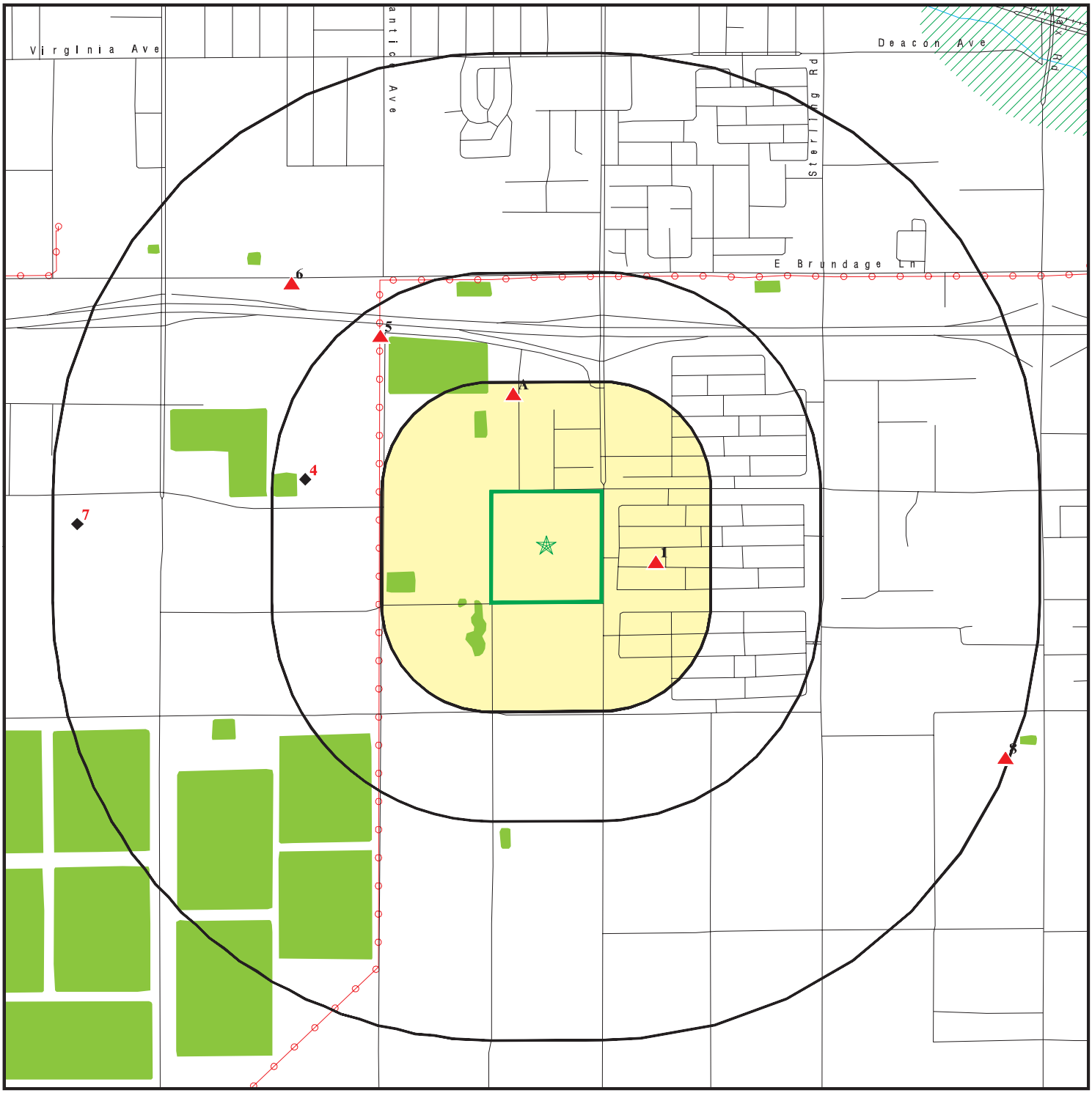
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DRAIN PRO ROOTER & S	***600 WORKMAN ST***	***NNW 1/8 - 1/4 (0.185 mi.)***	***A2***	***9***
Database: KERN CO CUPA, Date of Government Version: 02/10/2022				

Count: 1 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BAKERSFIELD	S126143198	MIRA MONTE HIGH SCHOOL ADDITION	NORTHWEST OF S. FAIRFAX ROAD &	93307	ENVIROSTOR, SCH

OVERVIEW MAP - 7060049.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA
Power transmission lines
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
National Wetland Inventory
State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	FSD New Potential Site #5	CLIENT:	Soils Engineering, Inc.
ADDRESS:	Oswell & Zephyr Bakersfield CA 93307	CONTACT:	Robert Becker
LAT/LONG:	35.345146 / 118.952057	INQUIRY #:	7060049.2s
		DATE:	July 20, 2022 1:20 pm

DETAIL MAP - 7060049.2S

0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: FSD New Potential Site #5	CLIENT: Soils Engineering, Inc.
ADDRESS: Oswell & Zephyr Bakersfield CA 93307	CONTACT: Robert Becker
LAT/LONG: 35.345146 / 118.952057	INQUIRY #: 7060049.2s DATE: July 20, 2022 1:20 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	1	3	NR	4
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	1	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	1	NR	NR	1
CUPA Listings	0.250		0	1	NR	NR	NR	1
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	1	2	2	3	0	8

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
East
< 1/8
0.124 mi.
655 ft.

Relative:
Higher

DICKINSON FLEET SERVICES — **RCRA NonGen / NLR** — **1027087837**
5026 MAR GRANDE DR — **CAC003160227**
BAKERSFIELD, CA 93307

Click here for full text details

RCRA NonGen / NLR
EPA Id CAC003160227

A2
NNW
1/8-1/4
0.185 mi.
978 ft.

Relative:
Higher

DRAIN PRO ROOTER & SEPTIC INC. — **CUPA Listings** — **S121772738**
600 WORKMAN ST — **CERS** — **N/A**
BAKERSFIELD, CA 93307

Click here for full text details

A3
NNW
1/8-1/4
0.223 mi.
1177 ft.

Relative:
Higher

SANDOVAL CONSTRUCTION & EXCAVATION INC — **RCRA NonGen / NLR** — **1024825543**
508 WORKMAN ST — **CAL000351395**
BAKERSFIELD, CA 93307

Click here for full text details

RCRA NonGen / NLR
EPA Id CAL000351395

4
WNW
1/4-1/2
0.426 mi.
2247 ft.

Relative:
Lower

NEW CONTINUATION HIGH SCHOOL — **ENVIROSTOR** — **S109348591**
EAST BELLE TERRACE AVENUE/EAST OF SOUTH MOUNT VERNON AVENUE — **SCH** — **N/A**
BAKERSFIELD, CA 93306

Click here for full text details

ENVIROSTOR
Facility Id 60000986
Status No Further Action

SCH
Facility Id 60000986
Status No Further Action

5
NW
1/4-1/2
0.436 mi.
2304 ft.

Relative:
Higher

KERN SANITATION AUTHORITY WWTF — **Cortese** — **S111023366**
HWY 58 & QUANTICO — **ENF** — **N/A**
BAKERSFIELD, CA — **WDR**
CIWQS
CERS

Click here for full text details

ENF
Status Active
Facility Id 273142
Status Historical

6
NW
1/2-1
0.659 mi.
3479 ft.

Relative:
Higher

WESTMINSTER CERAMICS, INC.
3901 E. BRUNDAGE LANE
BAKERSFIELD, CA 93307

ENVIROSTOR
EMI

S106842554
N/A

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ENVIROSTOR
Facility Id 71003570
Status Inactive - Needs Evaluation

EMI
Facility Id 1536

7
West
1/2-1
0.944 mi.
4984 ft.

Relative:
Lower

PROPOSED NEW CONTINUATION HIGH SCHOOL 2004-1
EAST BELLE TERRACE/MT. VERNON AVENUE
BAKERSFIELD, CA 93306

ENVIROSTOR
SCH

S108936108
N/A

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ENVIROSTOR
Facility Id 60000758
Status No Further Action

SCH
Facility Id 60000758
Status No Further Action

8
ESE
1/2-1
0.988 mi.
5219 ft.

Relative:
Higher

MIRA MONTE HIGH SCHOOL
SOUTH FAIRFAX RD./REDBANK RD.
BAKERSFIELD, CA 93307

ENVIROSTOR
SCH

S107027243
N/A

Click here for full text details

ENVIROSTOR
Facility Id 15820004
Status No Further Action

SCH
Facility Id 15820004
Status No Further Action

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	02/20/2020	12/10/2021	02/25/2022
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	03/21/2022	03/21/2022	06/14/2022
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2019	01/20/2021	04/08/2021
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	04/18/2022	04/19/2022	07/12/2022
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	04/18/2022	04/19/2022	07/12/2022
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	04/18/2022	04/19/2022	07/12/2022
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	04/03/2022	04/19/2022	07/12/2022
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	02/28/2022	02/28/2022	05/25/2022
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	03/21/2022	03/21/2022	06/14/2022
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	12/07/2021	05/09/2022	05/17/2022
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	02/28/2022	02/28/2022	05/25/2022
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	02/24/2022	02/25/2022	05/18/2022
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	02/17/2022	02/24/2022	05/18/2022
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2019	06/10/2021	08/27/2021
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	04/12/2022	04/19/2022	05/31/2022
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	04/25/2022	04/26/2022	07/15/2022
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	04/19/2022	04/29/2022	07/15/2022
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	02/23/2022	02/24/2022	05/18/2022
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	02/15/2022	02/24/2022	05/25/2022
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2019	04/15/2020	07/02/2020
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	02/14/2022	02/15/2022	05/12/2022
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	04/05/2022	04/05/2022	06/27/2022
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	04/05/2022	04/05/2022	04/26/2022
CA	ICE	ICE	Department of Toxic Subsances Control	02/14/2022	02/15/2022	05/12/2022
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	05/23/2022	05/23/2022	05/24/2022
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	02/24/2022	02/25/2022	03/09/2022
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	05/24/2022
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	MINES	Mines Site Location Listing	Department of Conservation	03/07/2022	03/08/2022	06/01/2022
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	02/17/2022	02/28/2022	05/25/2022
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	03/11/2022	03/15/2022	06/08/2022
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	02/07/2022	02/08/2022	05/05/2022
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	02/28/2022	02/28/2022	05/25/2022
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/02/2022
CA	PROC	Certified Processors Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	04/25/2022	04/26/2022	07/15/2022
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	02/03/2022	02/04/2022	05/02/2022
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	04/25/2022	04/26/2022	07/15/2022
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	02/07/2022	02/08/2022	05/05/2022
CA	SWRCY	Recycler Database	Department of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	03/07/2022	03/08/2022	06/02/2022
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	05/23/2022	05/23/2022	06/02/2022
CA	UST	Active UST Facilities	SWRCB	03/07/2022	03/08/2022	06/02/2022
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	04/25/2022	04/26/2022	07/15/2022
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	02/11/2021	07/01/2021	09/29/2021
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	03/07/2022	03/08/2022	06/03/2022
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	05/23/2022	05/23/2022	06/02/2022
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	03/10/2022	03/10/2022	06/14/2022
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2019	03/02/2022	03/25/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2020	11/30/2021	02/22/2022
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	03/31/2022	04/14/2022	07/12/2022
US	CORRACTS	Corrective Action Report	EPA	06/20/2022	06/21/2022	06/28/2022
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	Delisted NPL	National Priority List Deletions	EPA	04/27/2022	05/05/2022	05/31/2022
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	04/02/2022	04/05/2022	06/28/2022
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/14/2022	06/15/2022	06/21/2022
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	05/25/2021	06/24/2021	09/20/2021
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	10/14/2021	11/05/2021	02/01/2022
US	FINDS	Facility Index System/Facility Registry System	EPA	05/13/2022	05/18/2022	05/31/2022
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	12/01/2021	02/15/2022	05/10/2022
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	02/17/2022	02/17/2022	05/10/2022
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	07/26/2021	07/27/2021	10/22/2021
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	03/21/2022	03/21/2022	06/14/2022
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/28/2021	06/11/2021	09/07/2021
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	10/12/2021	11/15/2021	02/08/2022
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/14/2021	11/15/2021	02/08/2022
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/28/2021	06/22/2021	09/20/2021
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/06/2021	06/11/2021	09/07/2021
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	10/12/2021	11/15/2021	02/08/2022
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	10/12/2021	11/15/2021	02/08/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	04/27/2022	05/05/2022	05/31/2022
US	LUCIS	Land Use Control Information System	Department of the Navy	02/08/2022	02/11/2022	05/10/2022
US	MINES MRDS	Mineral Resources Data System	USGS	04/06/2018	10/21/2019	10/24/2019
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	03/21/2022	03/22/2022	03/25/2022
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	03/11/2022	03/15/2022	06/14/2022
US	NPL	National Priority List	EPA	04/27/2022	05/05/2022	05/31/2022
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	01/20/2022	01/20/2022	03/25/2022
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	PCS	Permit Compliance System	EPA, Office of Water	07/14/2011	08/05/2011	09/29/2011
US	PCS ENF	Enforcement data	EPA	12/31/2014	02/05/2015	03/06/2015
US	PCS INACTIVE	Listing of Inactive PCS Permits	EPA	11/05/2014	01/06/2015	05/06/2015
US	PRP	Potentially Responsible Parties	EPA	01/25/2022	02/03/2022	02/25/2022
US	Proposed NPL	Proposed National Priority List Sites	EPA	04/27/2022	05/05/2022	05/31/2022
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	06/20/2022	06/21/2022	06/28/2022
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	06/20/2022	06/21/2022	06/28/2022
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	06/20/2022	06/21/2022	06/28/2022
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	06/20/2022	06/21/2022	06/28/2022
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	06/20/2022	06/21/2022	06/28/2022
US	RMP	Risk Management Plans	Environmental Protection Agency	04/27/2022	05/04/2022	05/10/2022
US	ROD	Records Of Decision	EPA	04/27/2022	05/05/2022	05/31/2022
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	04/27/2022	05/05/2022	05/31/2022
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	04/27/2022	05/05/2022	05/31/2022
US	SSTS	Section 7 Tracking Systems	EPA	01/19/2022	01/19/2022	04/11/2022
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2018	08/14/2020	11/04/2020
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/17/2020	09/10/2020
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	02/23/2022	03/10/2022	03/10/2022
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	03/21/2022	03/21/2022	06/14/2022
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	02/22/2022	02/23/2022	05/10/2022
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	02/21/2022	02/23/2022	05/24/2022
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	02/01/2022	02/23/2022	05/24/2022
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	05/06/2020	05/27/2020	08/13/2020
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2020	01/11/2022	02/14/2022

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	12/03/2021	02/11/2022	05/06/2022
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2018	04/10/2019	05/16/2019
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	01/01/2019	10/29/2021	01/19/2022
PA	PA MANIFEST	Manifest Information	Department of Environmental Protection	06/30/2018	07/19/2019	09/10/2019
RI	RI MANIFEST	Manifest information	Department of Environmental Management	12/31/2020	11/30/2021	02/18/2022
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	05/31/2018	06/19/2019	09/03/2019
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
CA	Daycare Centers	Sensitive Receptor: Licensed Facilities	Department of Social Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
CA	State Wetlands	Wetland Inventory	Department of Fish and Wildlife			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		Endeavor Business Media			
US	Electric Power Transmission Line Data		Endeavor Business Media			

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FSD NEW POTENTIAL SITE #5
OSWELL & ZEPHYR
BAKERSFIELD, CA 93307

TARGET PROPERTY COORDINATES

Latitude (North):	35.345146 - 35ˆ 20’ 42.53’’
Longitude (West):	118.952057 - 118ˆ 57’ 7.41’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	322607.2
UTM Y (Meters):	3912869.5
Elevation:	384 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12007771 LAMONT, CA
Version Date:	2018

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

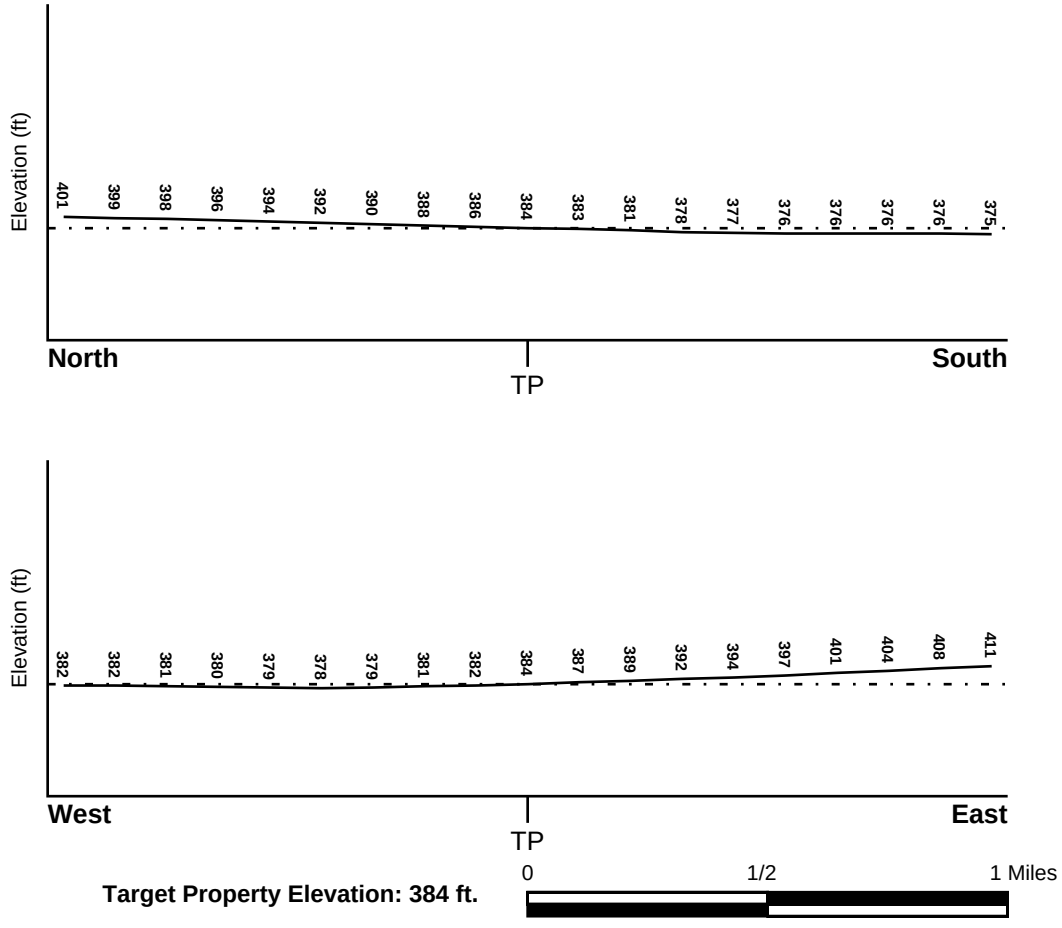
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06029C2325E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06029C2306E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LAMONT	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

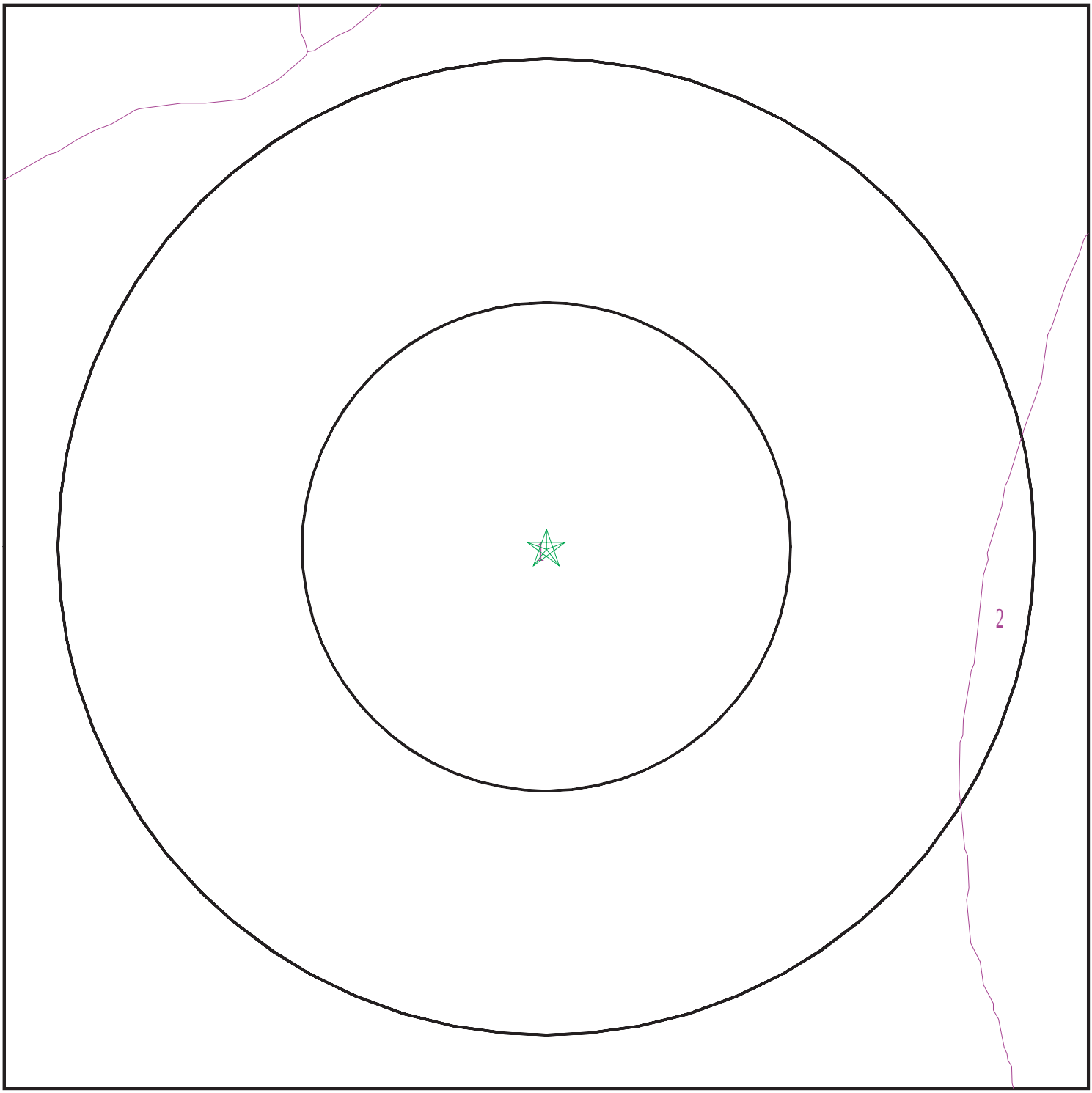
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7060049.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	FSD New Potential Site #5	CLIENT:	Soils Engineering, Inc.
ADDRESS:	Oswell & Zephyr Bakersfield CA 93307	CONTACT:	Robert Becker
		INQUIRY #:	7060049.2s
LAT/LONG:	35.345146 / 118.952057	DATE:	July 20, 2022 1:20 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GARCES

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9.6 Min: 8.4
2	1 inches	9 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9.6 Min: 8.4
3	9 inches	22 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9.6 Min: 8.4
4	22 inches	37 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9.6 Min: 8.4
5	37 inches	59 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9.6 Min: 8.4

Soil Map ID: 2

Soil Component Name: PANOCHE

Soil Surface Texture:
Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9 Min: 8.5
2	20 inches	59 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 9 Min: 8.5

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B5	USGS40000163022	1/4 - 1/2 Mile SSE
C7	USGS40000163061	1/4 - 1/2 Mile West
8	USGS40000163154	1/4 - 1/2 Mile NNE
11	USGS40000163021	1/4 - 1/2 Mile SE
D12	USGS40000163151	1/2 - 1 Mile NW
13	USGS40000163123	1/2 - 1 Mile ENE
E16	USGS40000163232	1/2 - 1 Mile North
18	USGS40000163030	1/2 - 1 Mile ESE
G22	USGS40000163199	1/2 - 1 Mile NE
I27	USGS40000163259	1/2 - 1 Mile NNE
28	USGS40000163122	1/2 - 1 Mile ENE
29	USGS40000163246	1/2 - 1 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
J35	USGS40000163174	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

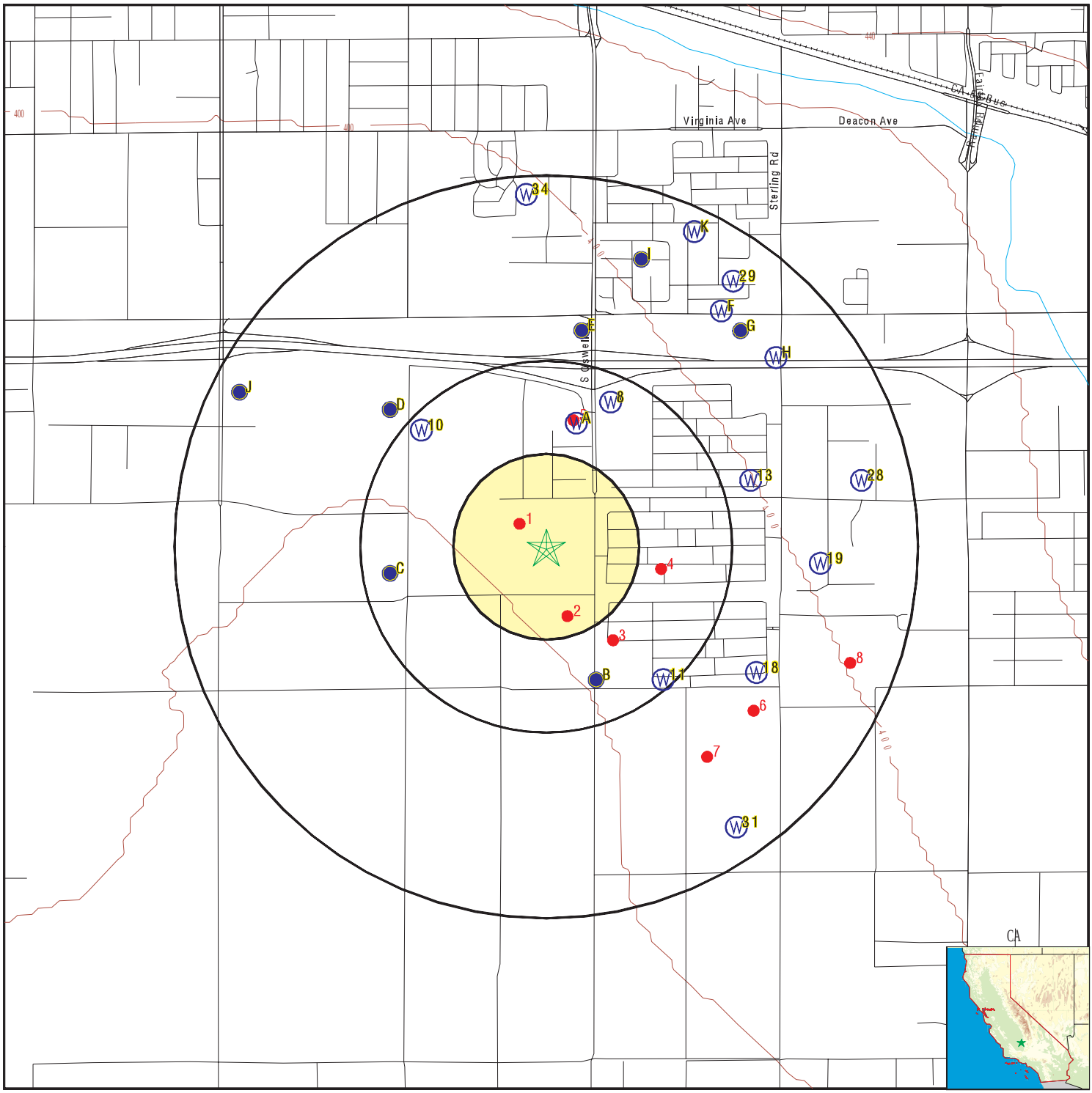
MAP ID	WELL ID	LOCATION FROM TP
A1	17359	1/4 - 1/2 Mile North
A2	17360	1/4 - 1/2 Mile North
A3	CADDW0000004717	1/4 - 1/2 Mile NNE
B4	CADWR9000018229	1/4 - 1/2 Mile SSE
B6	CAUSGSN00003847	1/4 - 1/2 Mile SSE
C9	CADWR9000018258	1/4 - 1/2 Mile West
10	CADWR0000015726	1/4 - 1/2 Mile NW
D14	CADWR9000018306	1/2 - 1 Mile NW
E15	CADWR9000018336	1/2 - 1 Mile North
E17	CADWR0000013393	1/2 - 1 Mile NNE
19	CADWR0000006154	1/2 - 1 Mile East
F20	CADDW0000006642	1/2 - 1 Mile NE
G21	CADWR0000033468	1/2 - 1 Mile NE
H23	17582	1/2 - 1 Mile NE
H24	CADDW0000010374	1/2 - 1 Mile NE
I25	CADWR9000018375	1/2 - 1 Mile NNE
F26	17361	1/2 - 1 Mile NE
J30	CADWR9000018315	1/2 - 1 Mile WNW
31	CADWR9000018155	1/2 - 1 Mile SE
K32	CADDW0000017340	1/2 - 1 Mile NNE
K33	CADWR0000004924	1/2 - 1 Mile NNE
34	CADWR0000002498	1/2 - 1 Mile North

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG14000085061	0 - 1/8 Mile NW
2	CAOG14000085062	1/8 - 1/4 Mile SSE
3	CAOG14000084378	1/4 - 1/2 Mile SE
4	CAOG14000085136	1/4 - 1/2 Mile East
5	CAOG14000002921	1/4 - 1/2 Mile NNE
6	CAOG14000002918	1/2 - 1 Mile SE
7	CAOG14000004207	1/2 - 1 Mile SE
8	CAOG14000085300	1/2 - 1 Mile ESE

PHYSICAL SETTING SOURCE MAP - 7060049.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	FSD New Potential Site #5	CLIENT:	Soils Engineering, Inc.
ADDRESS:	Oswell & Zephyr Bakersfield CA 93307	CONTACT:	Robert Becker
		INQUIRY #:	7060049.2s
LAT/LONG:	35.345146 / 118.952057	DATE:	July 20, 2022 1:20 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **NW** **0 - 1/8 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000085061**
2 **SSE** **1/8 - 1/4 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000085062**
3 **SE** **1/4 - 1/2 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000084378**
4 **East** **1/4 - 1/2 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000085136**
5 **NNE** **1/4 - 1/2 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000002921**
6 **SE** **1/2 - 1 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000002918**
7 **SE** **1/2 - 1 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000004207**
8 **ESE** **1/2 - 1 Mile**	Click here for full text details	**OIL_GAS**	**CAOG14000085300**
A1 **North** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**CA WELLS**	**17359**
A2 **North** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**CA WELLS**	**17360**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A3 **NNE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000004717**
B4 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000018229**
B5 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000163022**
B6 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CAUSGSN00003847**
C7 **West** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000163061**
8 **NNE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163154**
C9 **West** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000018258**
10 **NW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000015726**
11 **SE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163021**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
D12 **NW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163151**
13 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163123**
D14 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000018306**
E15 **North** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000018336**
E16 **North** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163232**
E17 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000013393**
18 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163030**
19 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000006154**
F20 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000006642**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
G21 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000033468**
G22 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163199**
H23 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**17582**
H24 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000010374**
I25 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000018375**
F26 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**17361**
I27 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163259**
28 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163122**
29 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163246**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
J30 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000018315**
31 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000018155**
K32 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000017340**
K33 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000004924**
34 **North** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000002498**
J35 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000163174**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93307	68	7

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 93307

Number of sites tested: 6

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.217 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

FSD New Potential Site #5

Oswell & Zephyr

Bakersfield, CA 93307

Inquiry Number: 7060049.3

July 20, 2022

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

07/20/22

Site Name:

FSD New Potential Site #5
Oswell & Zephyr
Bakersfield, CA 93307
EDR Inquiry # 7060049.3

Client Name:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313
Contact: Robert Becker

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Soils Engineering, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 500B-420F-9757

PO # 22-408 - EDR

Project FSD Potential Site #5

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 500B-420F-9757

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Soils Engineering, Inc. (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

FSD New Potential Site #5

Oswell & Zephyr

Bakersfield, CA 93307

Inquiry Number: 7060049.4

July 20, 2022

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

07/20/22

Site Name:

FSD New Potential Site #5
Oswell & Zephyr
Bakersfield, CA 93307
EDR Inquiry # 7060049.4

Client Name:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313
Contact: Robert Becker

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Soils Engineering, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 22-408 - EDR
Project: FSD Potential Site #5

Coordinates:

Latitude:	35.345146 35° 20' 43" North
Longitude:	-118.952057 -118° 57' 7" West
UTM Zone:	Zone 11 North
UTM X Meters:	322611.32
UTM Y Meters:	3913068.05
Elevation:	384.00' above sea level

Maps Provided:

2018	1950
2015	1941
2012	1938
1995	1932
1978	1929
1973	1914
1968	
1954	

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Lamont
2018
7.5-minute, 24000

2015 Source Sheets

Lamont
2015
7.5-minute, 24000

2012 Source Sheets

Lamont
2012
7.5-minute, 24000

1995 Source Sheets

Lamont
1995
7.5-minute, 24000
Aerial Photo Revised 1992

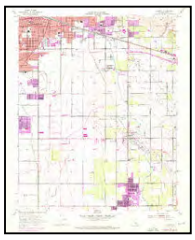
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1978 Source Sheets

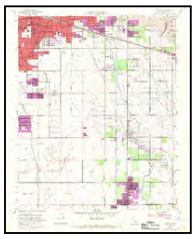
Lamont
1978
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets



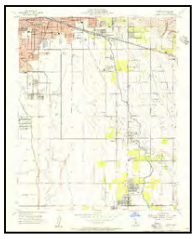
Lamont
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1968 Source Sheets



Lamont
1968
7.5-minute, 24000
Aerial Photo Revised 1968

1954 Source Sheets



Lamont
1954
7.5-minute, 24000
Aerial Photo Revised 1952

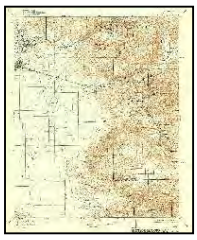
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1950 Source Sheets

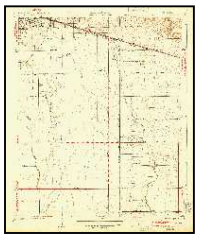
Fairfax School
1950
7.5-minute, 24000

1941 Source Sheets



CALIENTE
1941
30-minute, 125000

1938 Source Sheets



FAIRFAX SCHOOL
1938
7.5-minute, 31680

1932 Source Sheets

Fairfax School
1932
7.5-minute, 31680

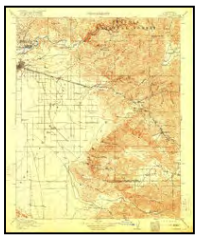
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1929 Source Sheets

Fairfax School
1929
7.5-minute, 31680

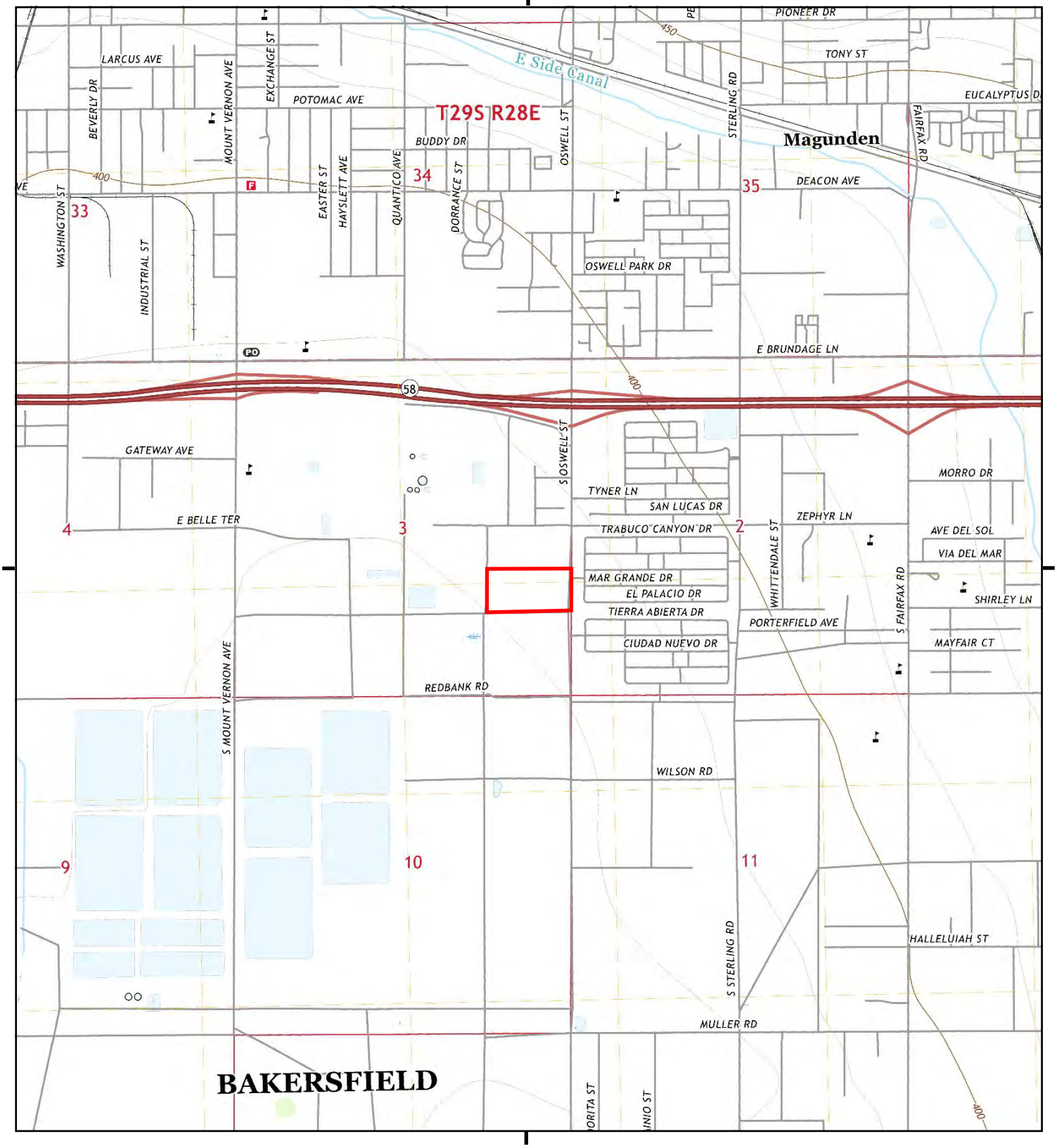
1914 Source Sheets



Caliente
1914
30-minute, 125000

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

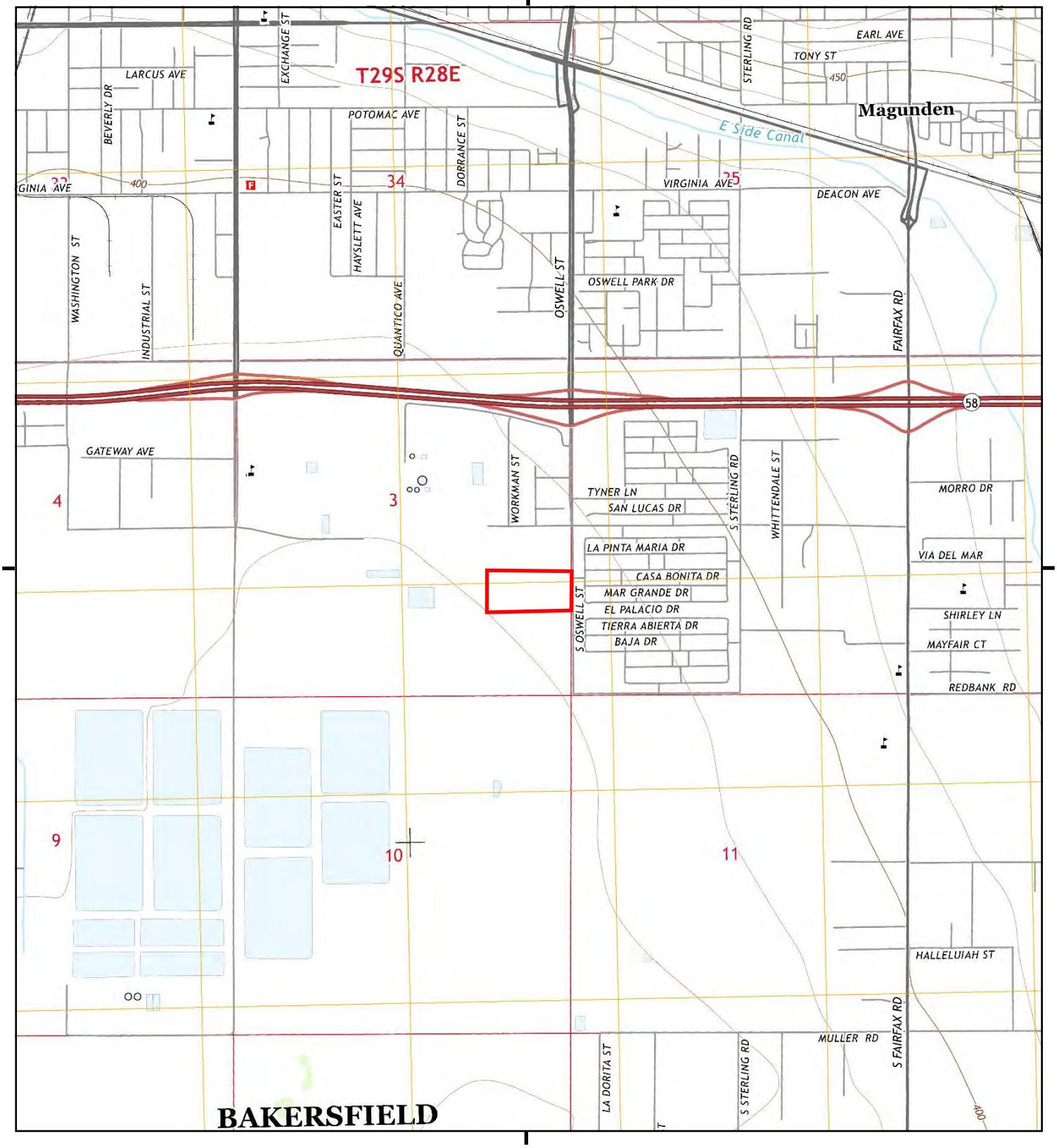
TP, Lamont, 2018, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

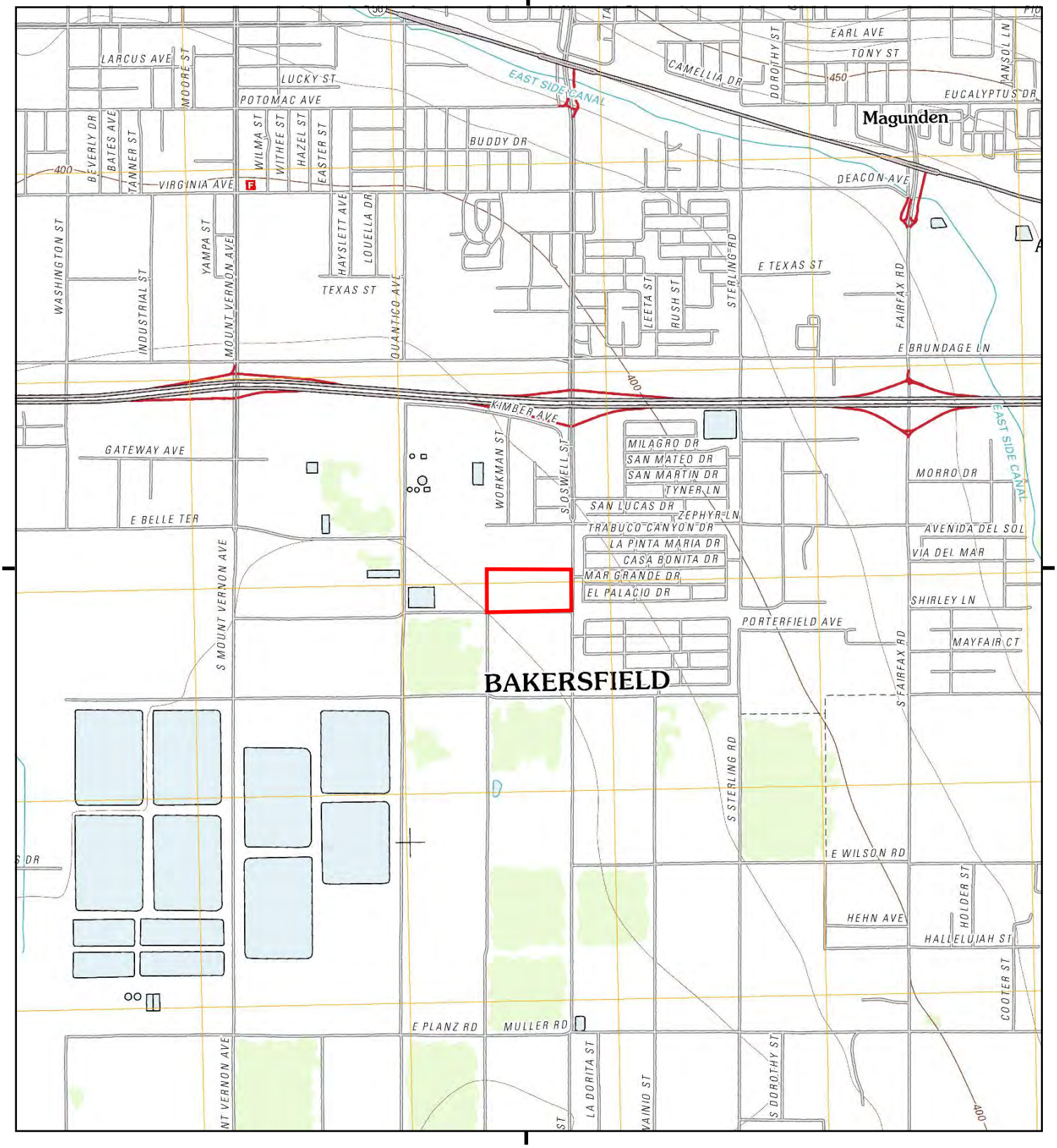
TP, Lamont, 2015, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

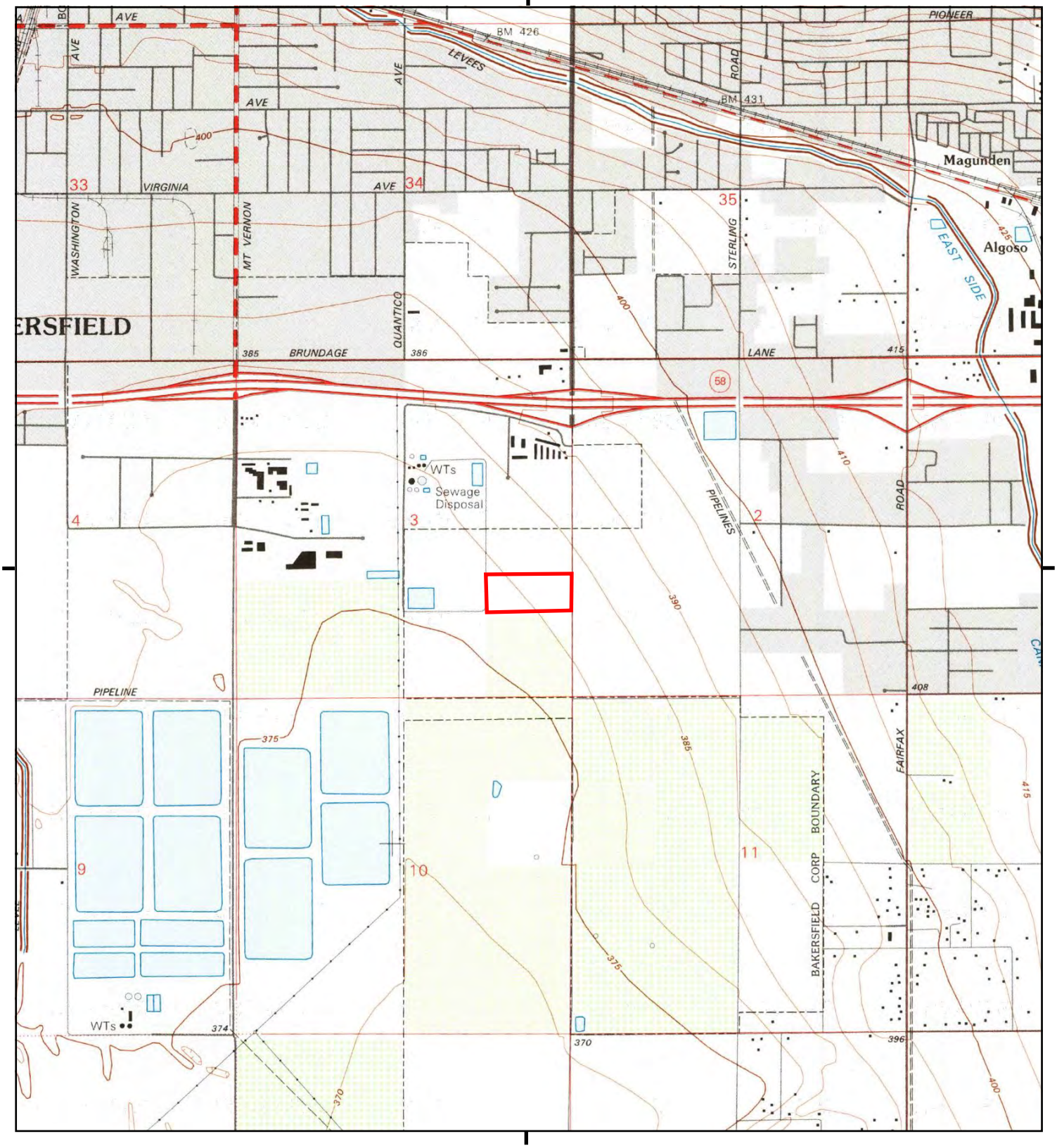
TP, Lamont, 2012, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1995



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

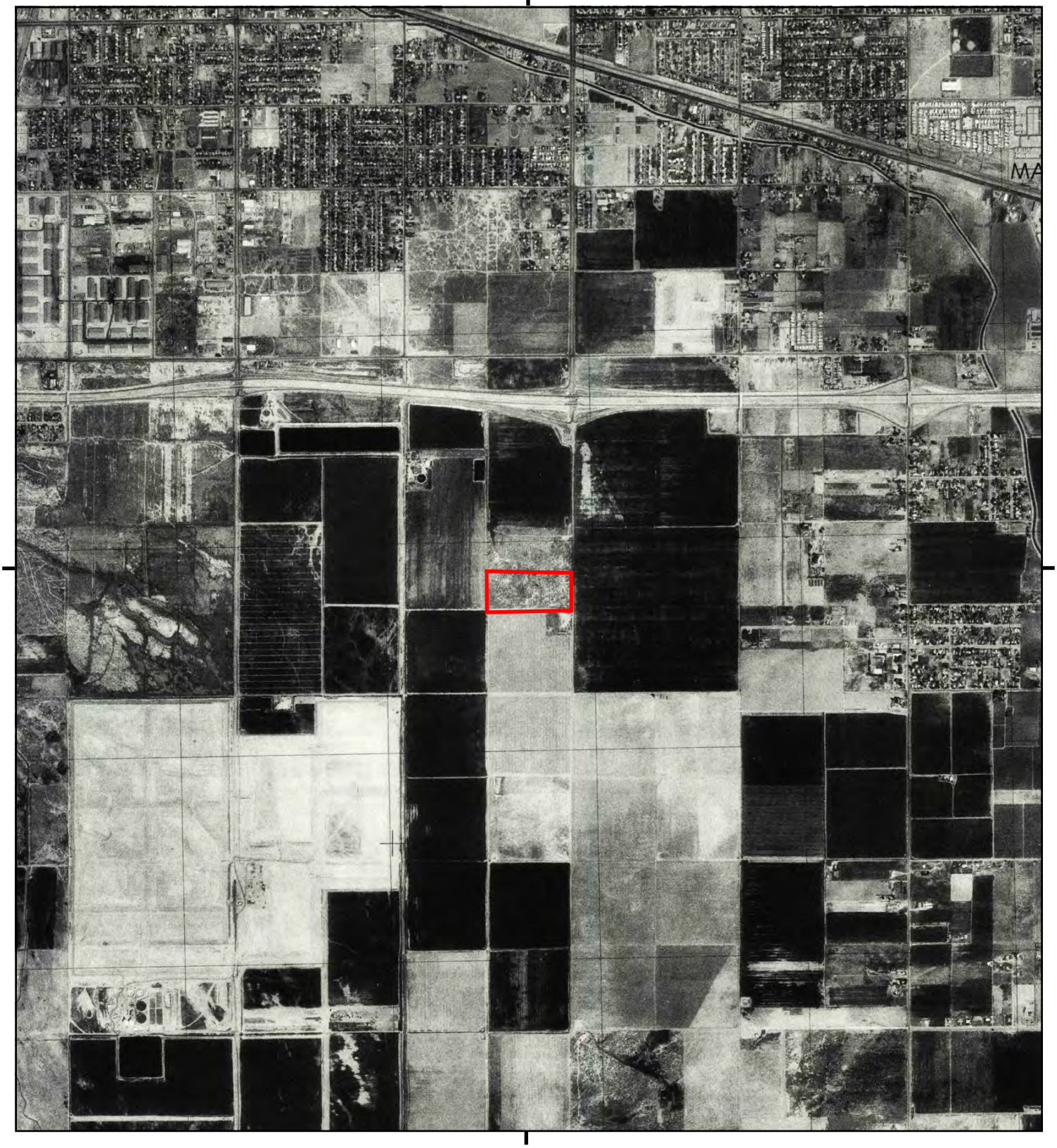
TP, Lamont, 1995, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1978



This report includes information from the following map sheet(s).

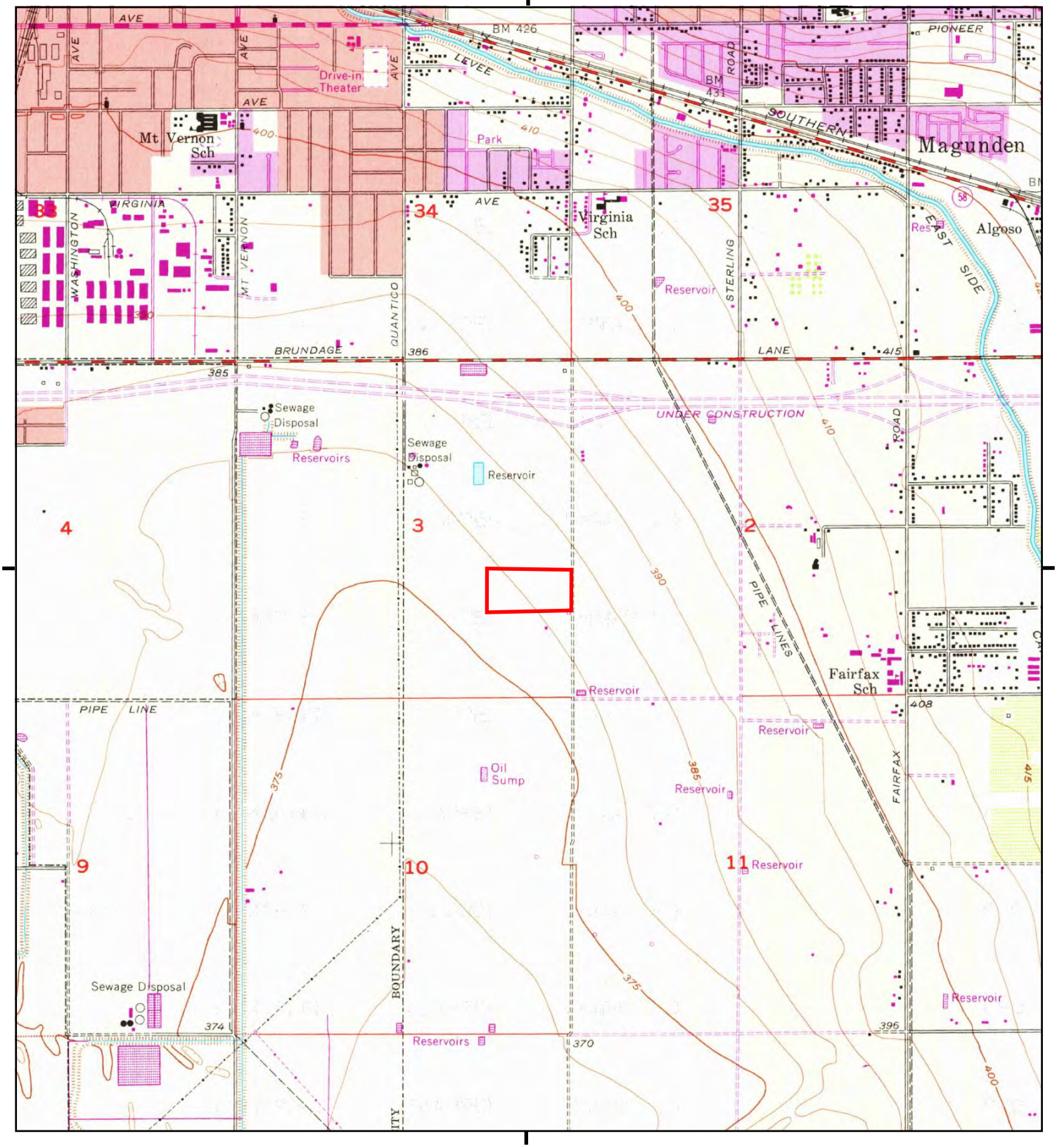
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lamont, 1978, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

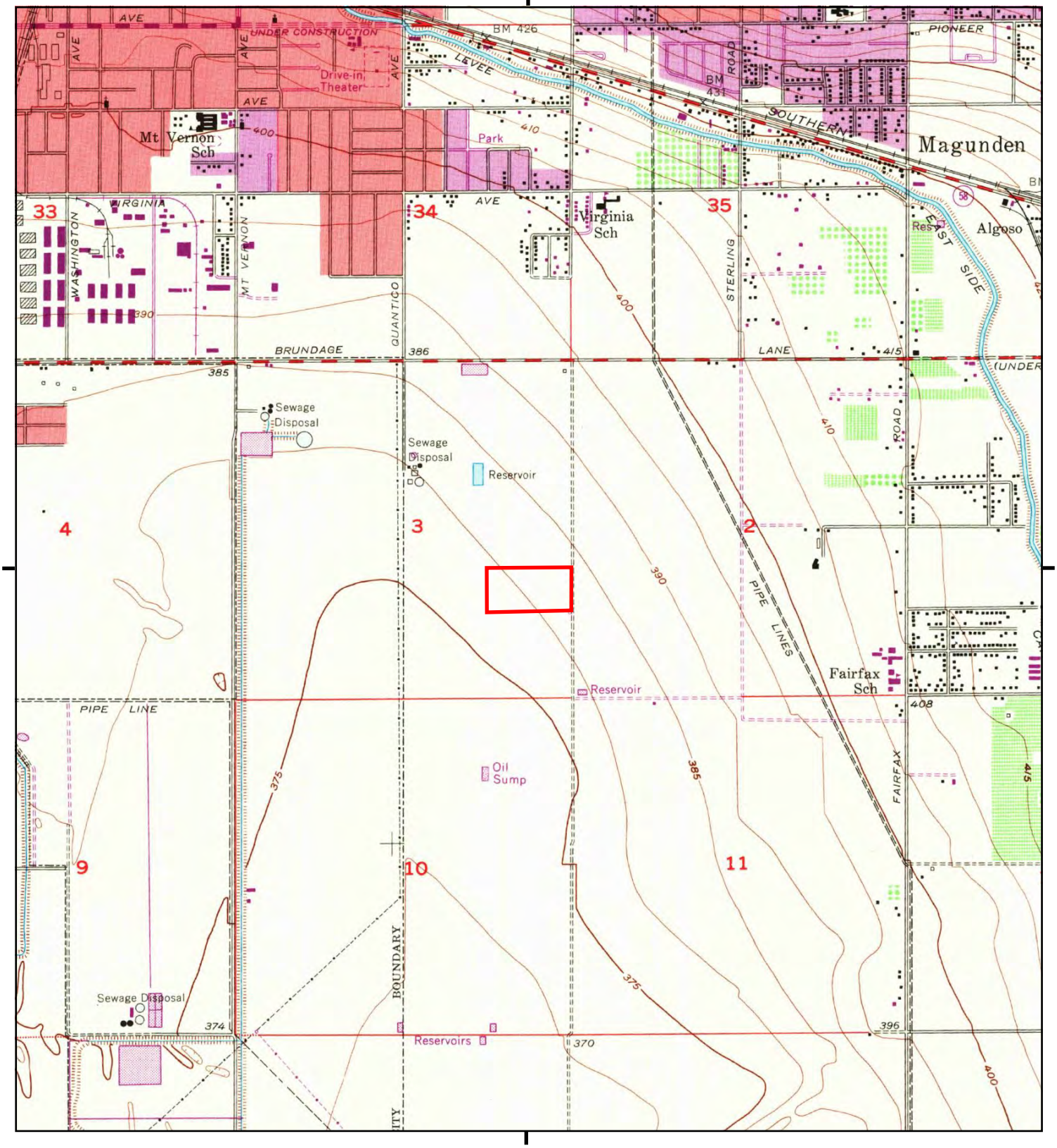
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lamont, 1973, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

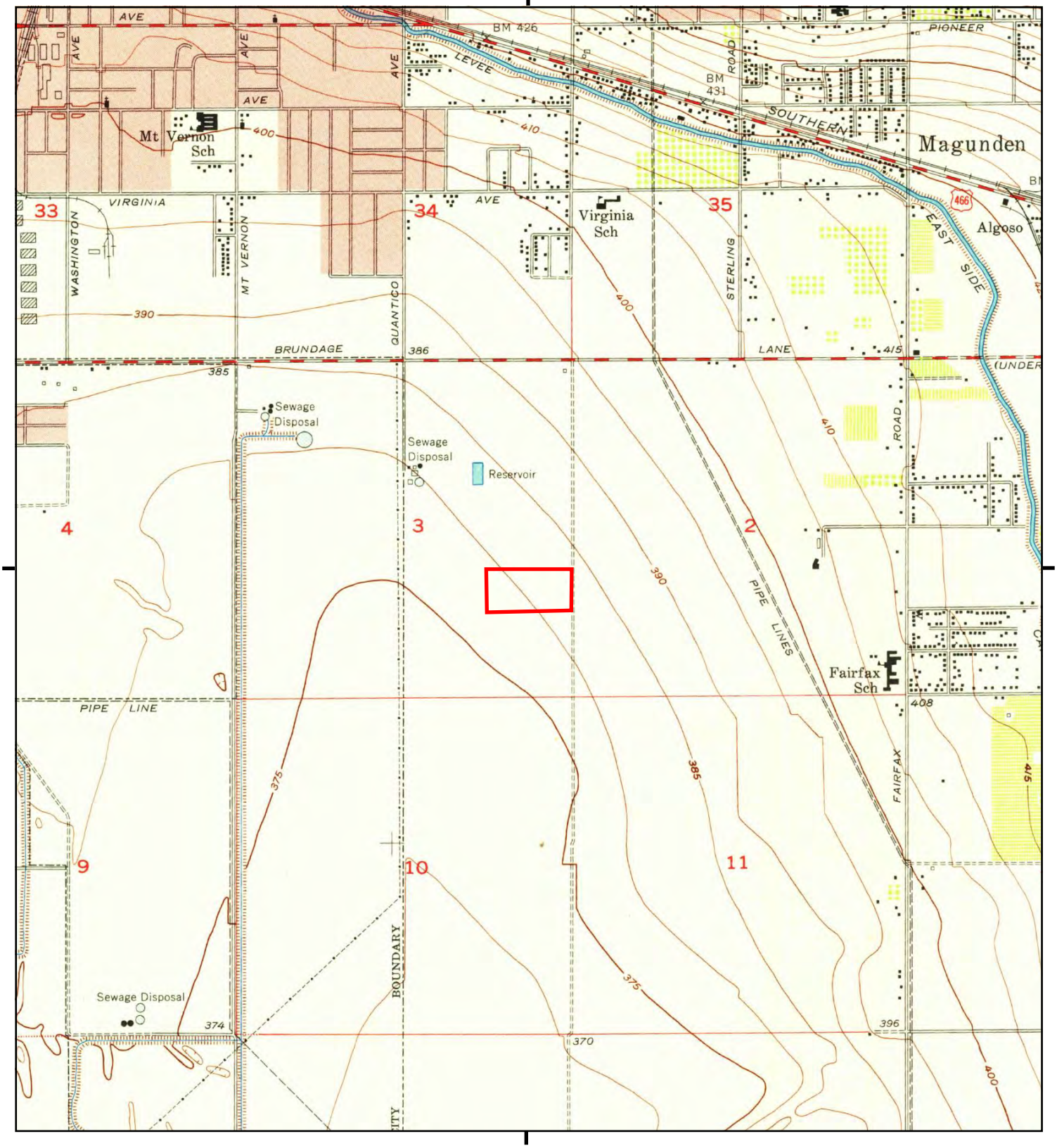
TP, Lamont, 1968, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1954



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

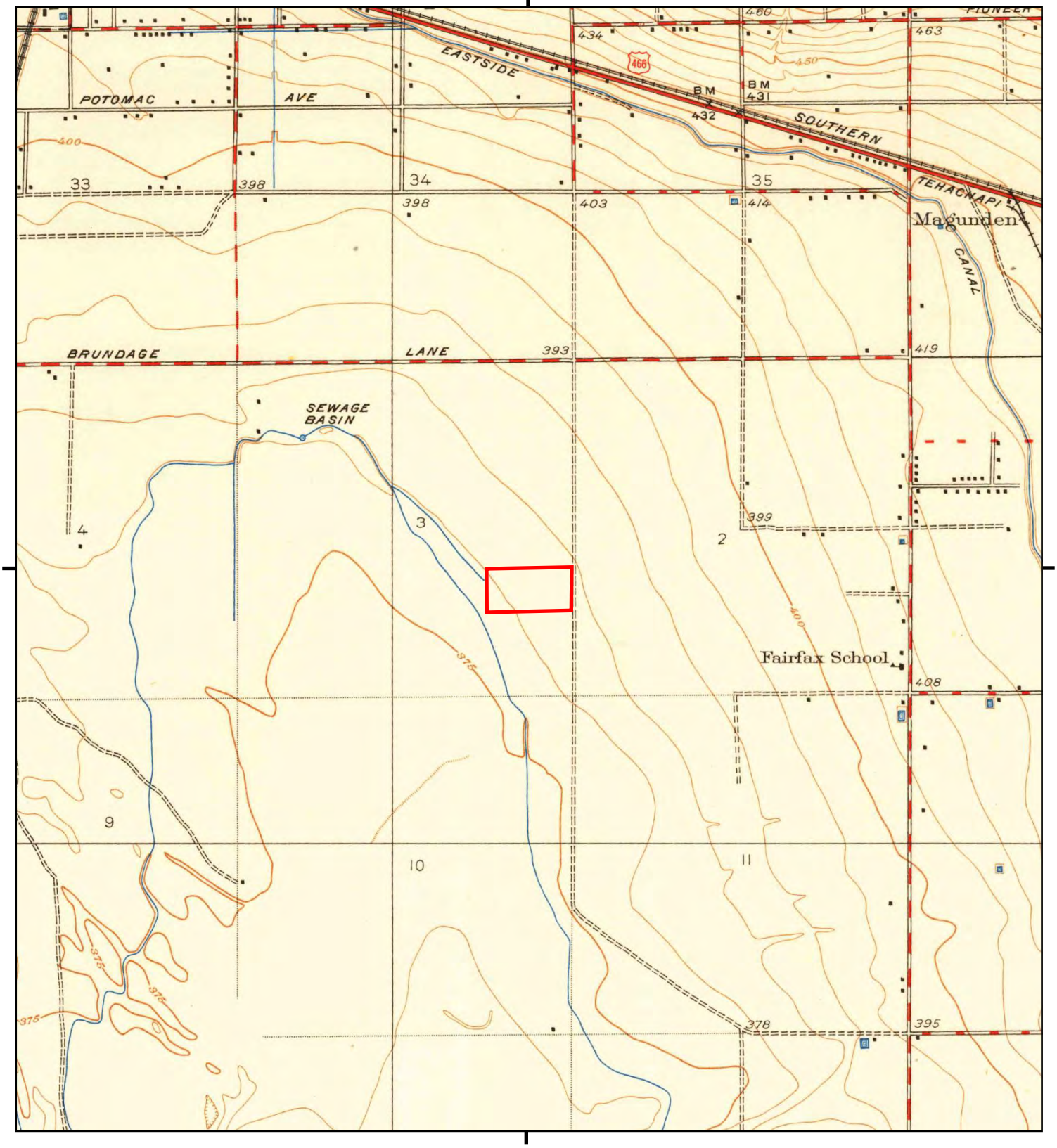
TP, Lamont, 1954, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1950



This report includes information from the following map sheet(s).

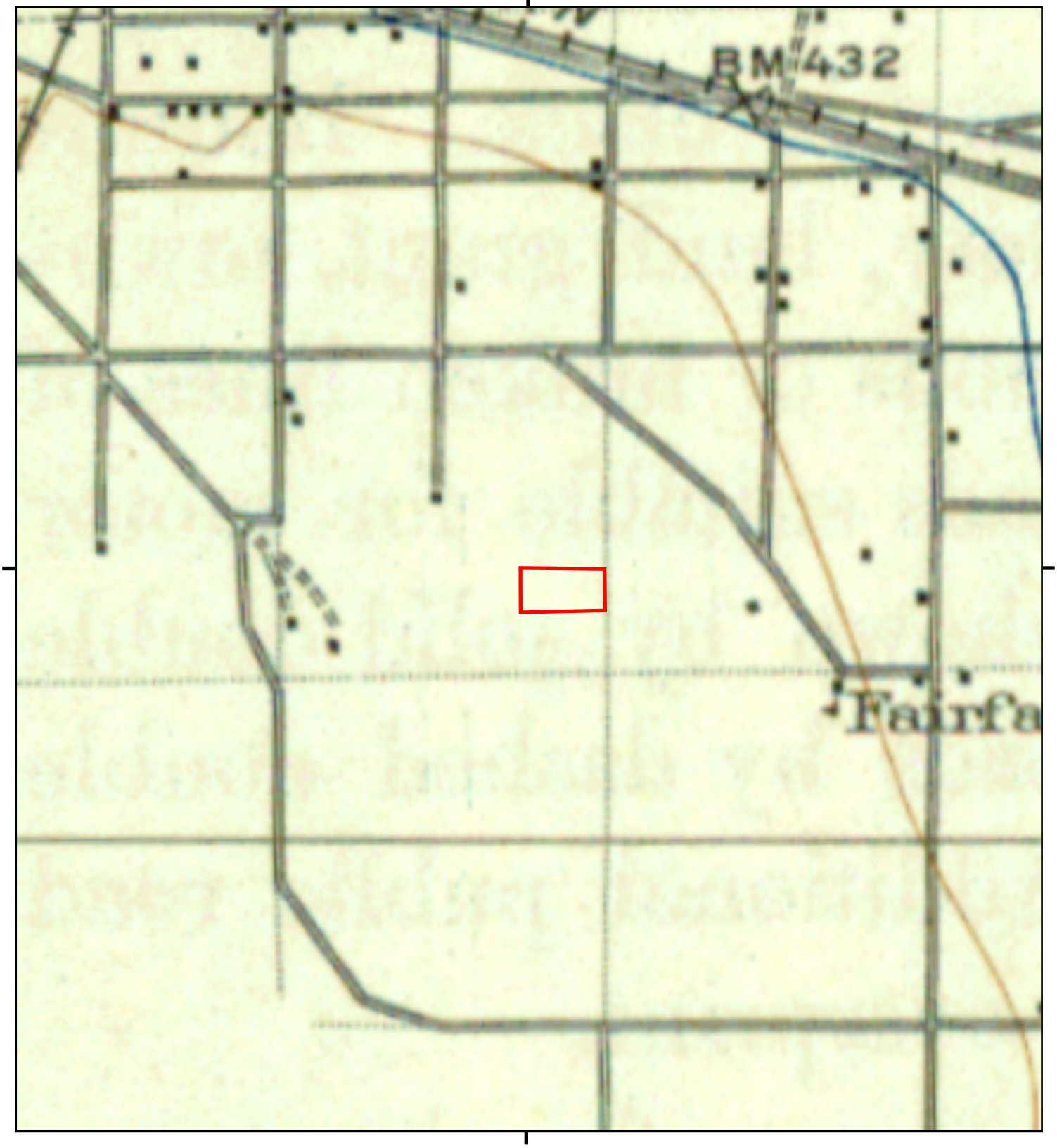
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fairfax School, 1950, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

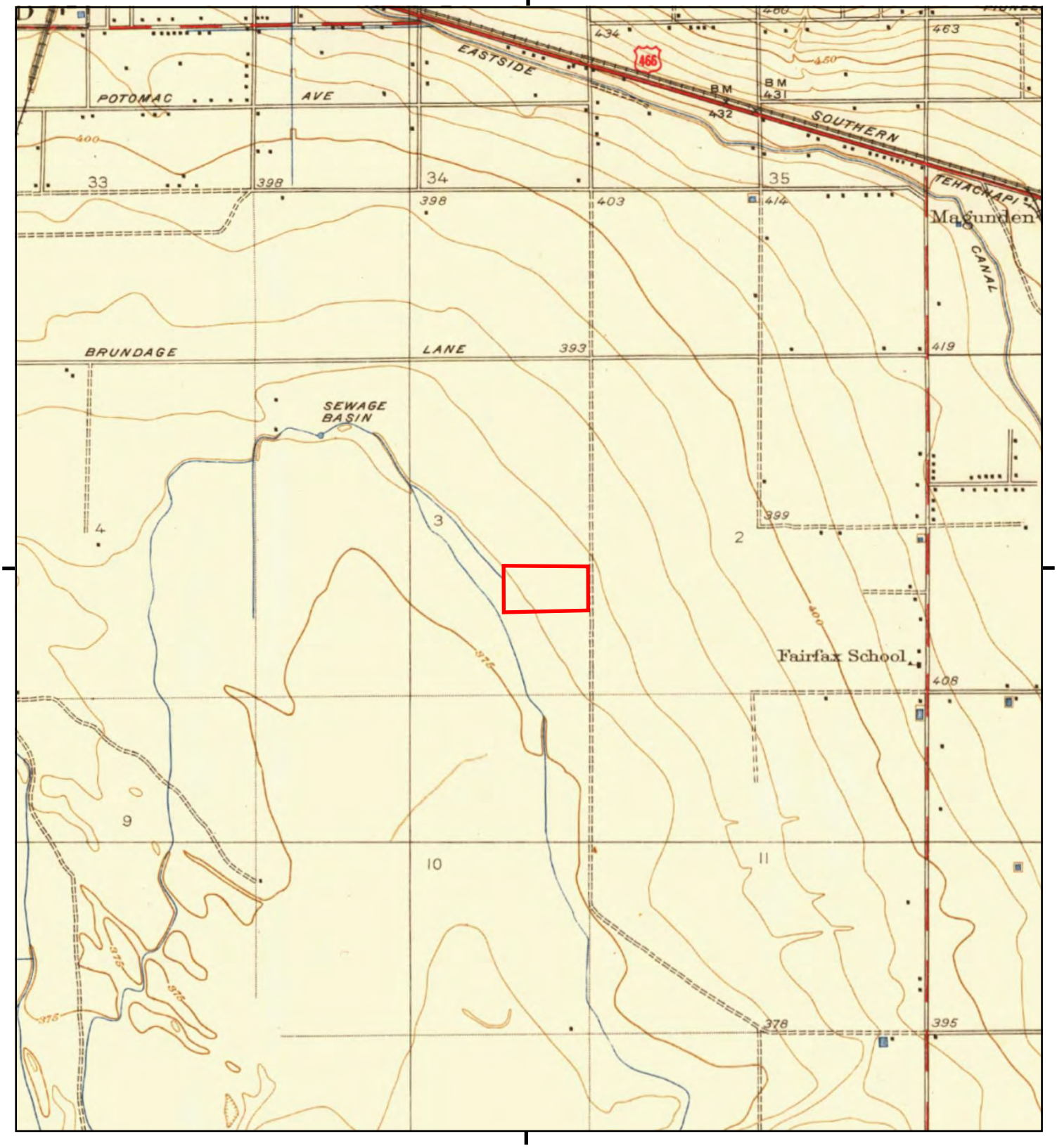
TP, CALIENTE, 1941, 30-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1938



This report includes information from the following map sheet(s).

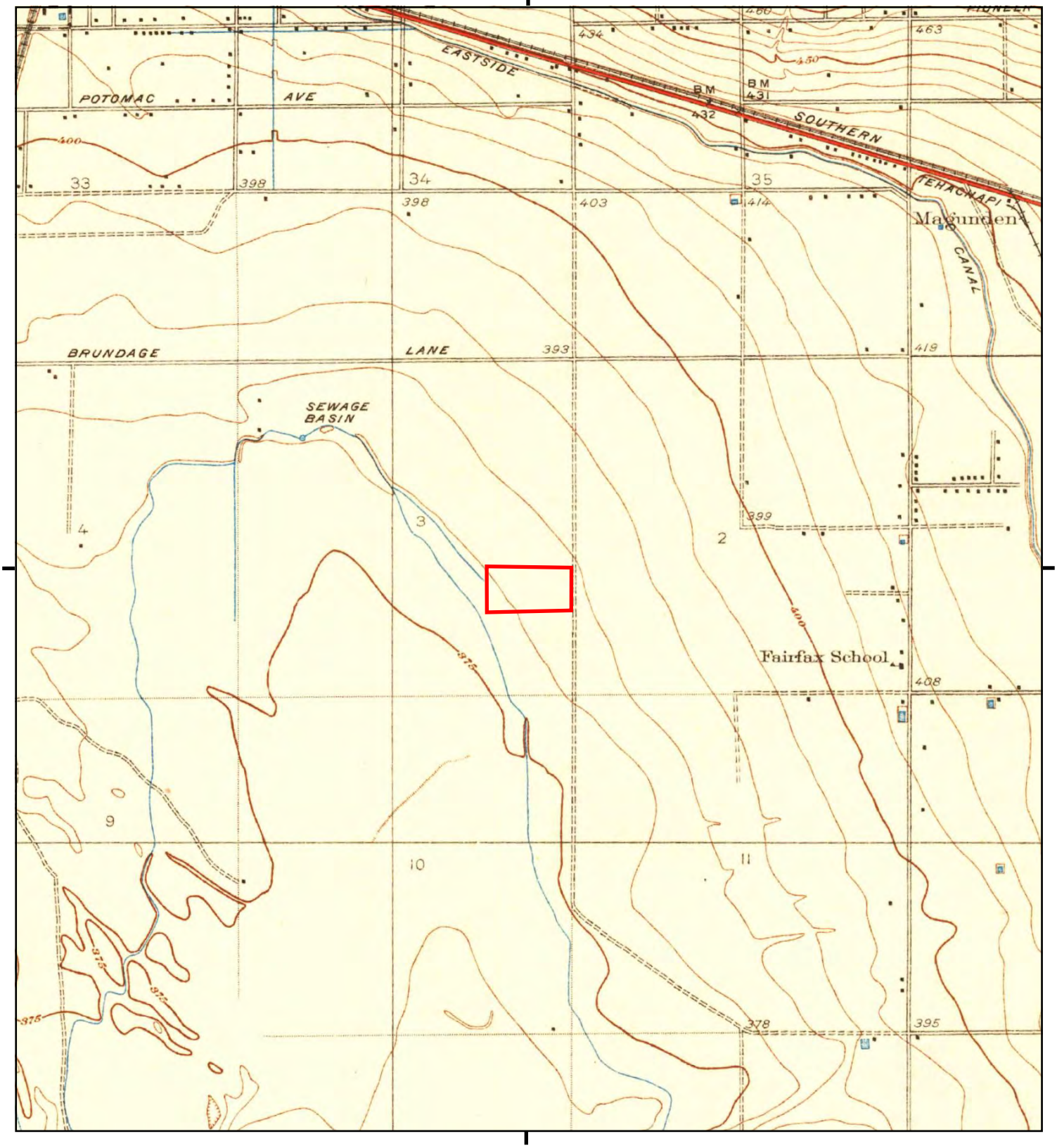
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, FAIRFAX SCHOOL, 1938, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

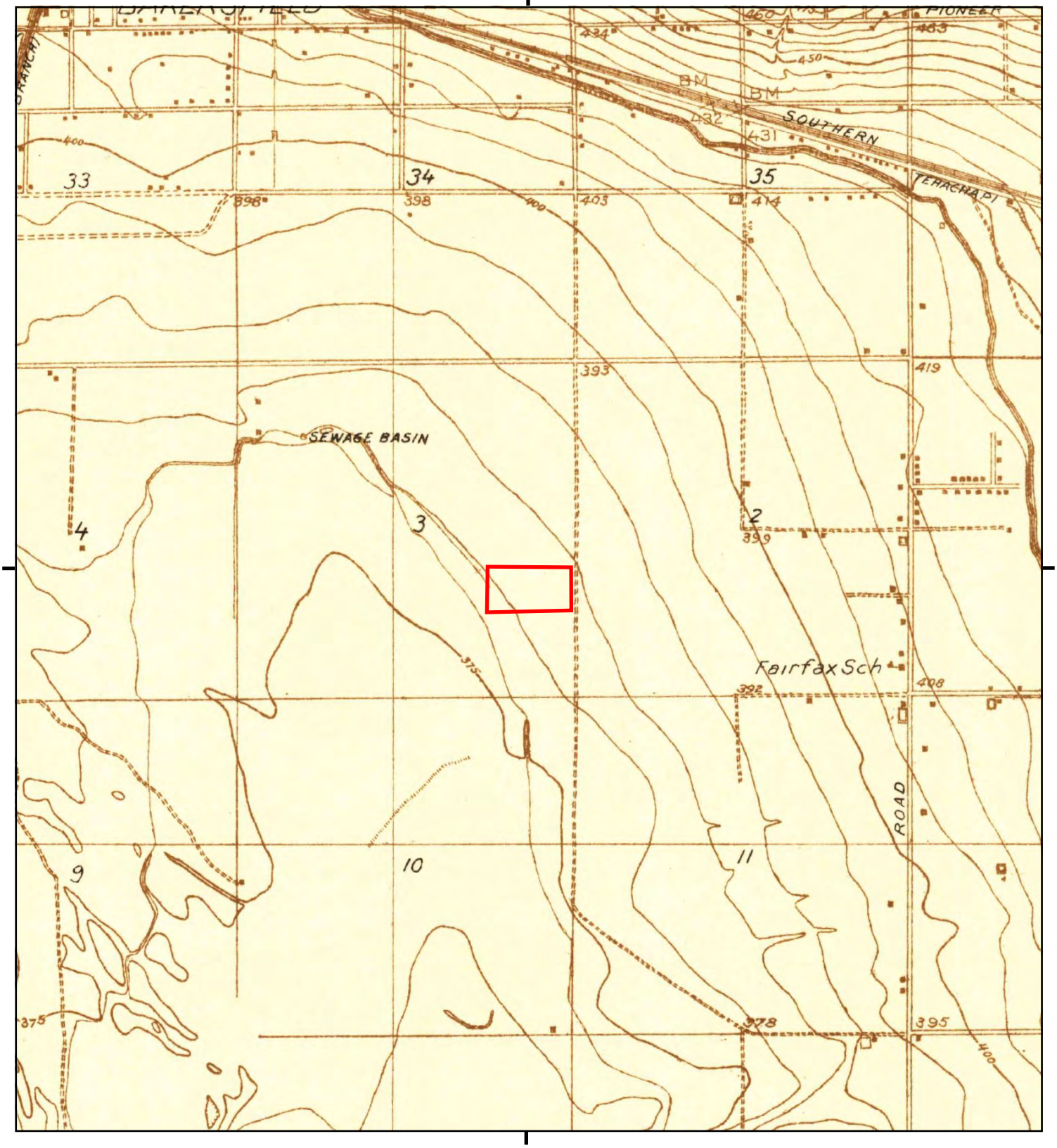
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fairfax School, 1932, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

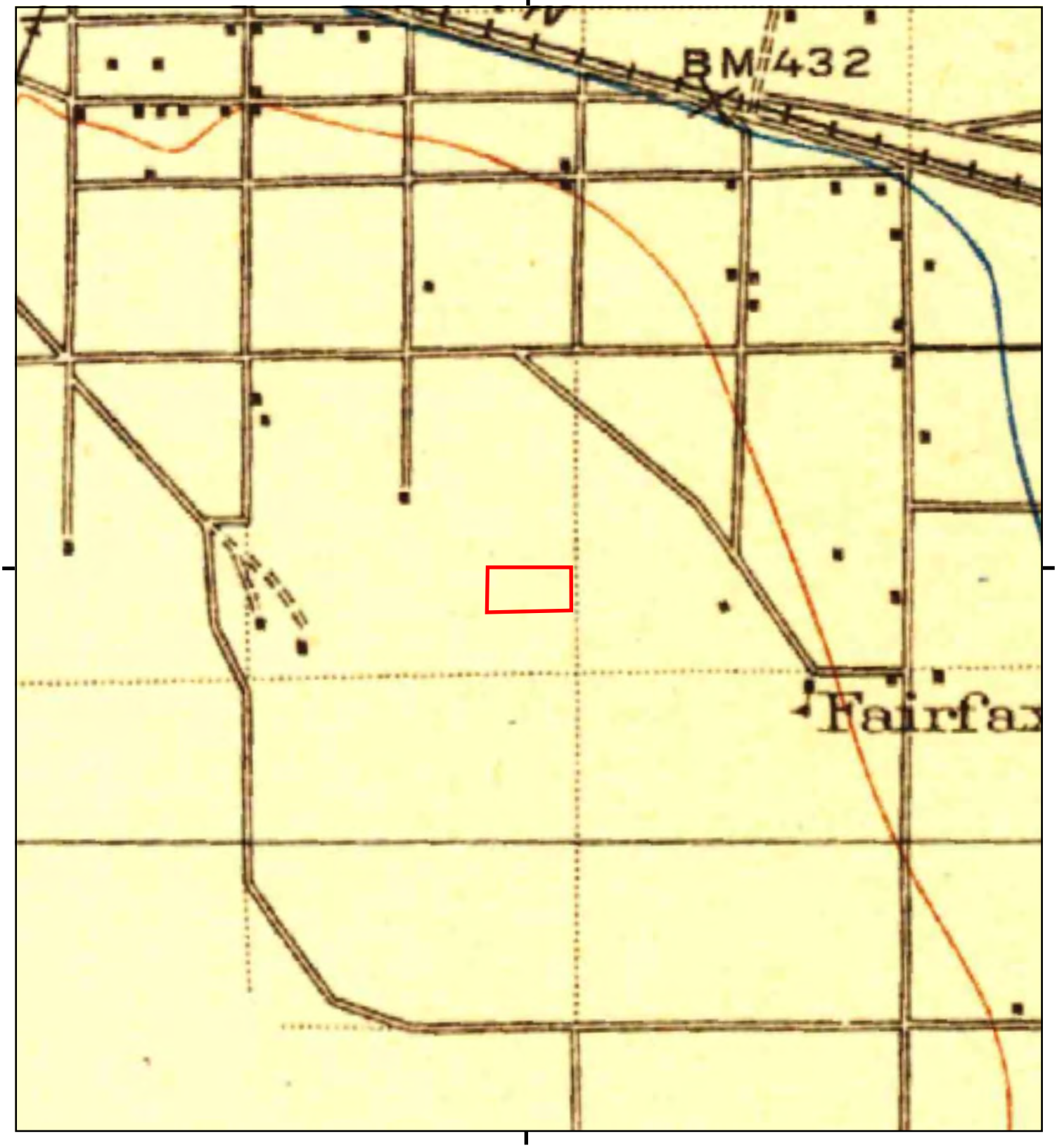
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Fairfax School, 1929, 7.5-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Caliente, 1914, 30-minute

SITE NAME: FSD New Potential Site #5
ADDRESS: Oswell & Zephyr
Bakersfield, CA 93307
CLIENT: Soils Engineering, Inc.

N

FSD New Potential Site #5
Oswell & Zephyr
Bakersfield, CA 93307

Inquiry Number: 7060049.5
July 20, 2022

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1922 through 2017. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2017	Cole Information Services	-	X	X	-
2014	Cole Information Services	-	X	X	-
2009	Cole Information Services	-	X	X	-
2004	Cole Information Services	-	X	X	-
2002	R.L. Polk Co Publishers	-	-	-	-
1999	Cole Information Services	-	X	X	-
1995	R.L. Polk Co Publishers	-	-	-	-
1994	Cole Information Services	-	-	-	-
1990	Pacific Bell Telephone Co	-	-	-	-
1986	Pacific Telephone	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1980	R.L. Polk Co Publishers	-	-	-	-
1976	B&G Publications	-	-	-	-
1975	R.L. Polk Co Publishers	-	-	-	-
1971	B&G Publications	-	-	-	-
1970	R.L. Polk Co Publishers	-	-	-	-
1965	R.L. Polk Co Publishers	-	-	-	-
1960	R.L. Polk Co Publishers	-	-	-	-
1955	R. L. Polk Co.	-	-	-	-
1951	R. L. Polk Co.	-	-	-	-
1945	R. L. Polk Co.	-	-	-	-
1940	R. L. Polk Co.	-	-	-	-
1935	R.L. Polk Co Publishers	-	-	-	-
1930	R. L. Polk Co.	-	-	-	-
1928	R.L. Polk Co Publishers	-	-	-	-
1922	Polk-Husted Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

Oswell & Zephyr
Bakersfield, CA 93307

FINDINGS DETAIL

Target Property research detail.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

CHIMAYO ST

800 CHIMAYO ST

Year	Uses	Source
2017	BOWEN WEITING	Cole Information Services
	FERNANDO IRIBE	Cole Information Services
	EDWARD AGUIRRE	Cole Information Services
	SAM LEON	Cole Information Services
	ROSA TAMAYO	Cole Information Services
2014	BOWEN WEITING	Cole Information Services
2009	JOSHUA ESPINOZA	Cole Information Services
1999	JOSHUA ESPINOZA	Cole Information Services

806 CHIMAYO ST

Year	Uses	Source
2017	RAUDEL MEJIA	Cole Information Services
2014	CYNTHIA IRIBE	Cole Information Services
	THOMAS ALVARADO	Cole Information Services
	A TOOR	Cole Information Services
	RAUDEL MEJIA	Cole Information Services
2009	PEDRO HERNANDEZ	Cole Information Services
	MELODY SMITH	Cole Information Services
1999	PEDRO HERNANDEZ	Cole Information Services
	MELODY SMITH	Cole Information Services

812 CHIMAYO ST

Year	Uses	Source
2017	MARISA CARRANZA	Cole Information Services
	NOEL LOPEZ	Cole Information Services
	WALTER RUBI	Cole Information Services
	GINA MARTINEZ	Cole Information Services

Year	Uses	Source
2014	JORGE OVALLES	Cole Information Services
	WALTER RUBI	Cole Information Services

818 CHIMAYO ST

Year	Uses	Source
2017	ALLEN ROSAS	Cole Information Services
2014	STANFORD MARTIN	Cole Information Services
	MANUEL ROSAS	Cole Information Services
	LAURA RODRIGUEZ	Cole Information Services
2009	THOMAS DUNCAN	Cole Information Services
1999	THOMAS DUNCAN	Cole Information Services

LA PINTA MARIA DR

5002 LA PINTA MARIA DR

Year	Uses	Source
2017	RAUL RODRIGUEZ	Cole Information Services
2014	RITA CARRILLO	Cole Information Services
2009	ROY MONSIBAIS	Cole Information Services
1999	ROY MONSIBAIS	Cole Information Services

5003 LA PINTA MARIA DR

Year	Uses	Source
2014	ROBERTO RUIZ	Cole Information Services
2009	MARIA RIOS	Cole Information Services
1999	MARIA RIOS	Cole Information Services

5006 LA PINTA MARIA DR

Year	Uses	Source
2017	MICHAEL LIEBEL	Cole Information Services
2014	MICHAEL LIEBEL	Cole Information Services
2009	OCCUPANT UNKNOWN	Cole Information Services

5007 LA PINTA MARIA DR

Year	Uses	Source
2017	BEVERLY MOLAND	Cole Information Services

FINDINGS

Year	Uses	Source
2014	ALYCE NICHOLS	Cole Information Services
2009	MIKHAIL BRAZIO	Cole Information Services
1999	MIKHAIL BRAZIO	Cole Information Services

5010 LA PINTA MARIA DR

Year	Uses	Source
2017	JEFFREY STAFFORD	Cole Information Services
2014	JEFFREY STAFFORD	Cole Information Services
2009	JEFFREY STAFFORD	Cole Information Services
1999	JEFFREY STAFFORD	Cole Information Services

5011 LA PINTA MARIA DR

Year	Uses	Source
2017	CARLOS HERNANDEZ	Cole Information Services
2014	CARLOS HERNANDEZ	Cole Information Services
2009	JOHNNI MOLINE	Cole Information Services
1999	JOHNNI MOLINE	Cole Information Services

5014 LA PINTA MARIA DR

Year	Uses	Source
2017	SHINNIKA HOOSER	Cole Information Services
2014	SHINNIKA HOOSER	Cole Information Services
2009	CARLOS LUIS	Cole Information Services
1999	CARLOS LUIS	Cole Information Services

5015 LA PINTA MARIA DR

Year	Uses	Source
2017	RUBEN BECERRA	Cole Information Services
2014	RUBEN BECERRA	Cole Information Services
2009	MARIA VILLASENOR	Cole Information Services
1999	MARIA VILLASENOR	Cole Information Services

5018 LA PINTA MARIA DR

Year	Uses	Source
2017	MARIO RAMIREZ	Cole Information Services
2014	JOSE GALVAN	Cole Information Services

FINDINGS

Year	Uses	Source
2009	SERGIO LUIS	Cole Information Services
1999	SERGIO LUIS	Cole Information Services

5019 LA PINTA MARIA DR

Year	Uses	Source
2014	GINGER PFIEFER	Cole Information Services
2009	OCCUPANT UNKNOWN	Cole Information Services

5022 LA PINTA MARIA DR

Year	Uses	Source
2014	AMHET LOPEZ	Cole Information Services
2009	JUAN MAGANA	Cole Information Services

5023 LA PINTA MARIA DR

Year	Uses	Source
2017	ROLANDO MARTINEZ	Cole Information Services
2014	RONALD OPFERGELT	Cole Information Services
2009	RONALD OPFERGELT	Cole Information Services
1999	RONALD OPFERGELT	Cole Information Services

5026 LA PINTA MARIA DR

Year	Uses	Source
2017	ABEL VASQUEZ	Cole Information Services
2014	ERIC SAMPSON	Cole Information Services
2009	RENAE ANDERSON	Cole Information Services
1999	RENAE ANDERSON	Cole Information Services

5027 LA PINTA MARIA DR

Year	Uses	Source
2014	MARIA MARTINEZ	Cole Information Services
2009	JOE TETRO	Cole Information Services
1999	JOE TETRO	Cole Information Services

5100 LA PINTA MARIA DR

Year	Uses	Source
2017	REFUGIO CASTRO	Cole Information Services

Year	Uses	Source
2009	FRANCISCO GALLARDO	Cole Information Services
1999	FRANCISCO GALLARDO	Cole Information Services

MONTARO CT

4700 MONTARO CT

Year	Uses	Source
2014	DANIEL GARCIA	Cole Information Services
	SHEILA FRANCISCO	Cole Information Services
2009	ROQUE CERVANTES	Cole Information Services
1999	ROQUE CERVANTES	Cole Information Services

4701 MONTARO CT

Year	Uses	Source
2017	TYESHA SHEFFIELD	Cole Information Services
2014	MELODY QUIRINO	Cole Information Services
	LEROY MCDONALD	Cole Information Services
	JULIA BEVERLY	Cole Information Services
2009	ALEX MORALES	Cole Information Services
	JULIA BEVERLY	Cole Information Services
	BJ MCDONALD	Cole Information Services
1999	ALEX MORALES	Cole Information Services
	BJ MCDONALD	Cole Information Services
	JULIA BEVERLY	Cole Information Services

4706 MONTARO CT

Year	Uses	Source
2017	VERONICA ARIAS	Cole Information Services
	GIDGET THOMPSON	Cole Information Services
	ERASTO FLOREZ	Cole Information Services
2014	WALTER RECINO	Cole Information Services
	JENNIFER JORDAN	Cole Information Services
	MIKE WEST	Cole Information Services
2009	CARMELL CRAWFORD	Cole Information Services
	BENNIE WEST	Cole Information Services

FINDINGS

Year	Uses	Source
1999	BENNIE WEST	Cole Information Services
	CARMELL CRAWFORD	Cole Information Services

4707 MONTARO CT

Year	Uses	Source
2017	CHRISTIAN GARCIA	Cole Information Services
	GABRIEL GUIETERZ	Cole Information Services
	LUIS GUTIERREZ	Cole Information Services
	JOHN STEPHENS	Cole Information Services
2014	MANDIE CHAVERRIA	Cole Information Services
	GILBERT CAZARES	Cole Information Services
2009	EDUARDO AGUIRRE	Cole Information Services
	NAOMI RAMOS	Cole Information Services
	VANESSA RANGLE	Cole Information Services
1999	NAOMI RAMOS	Cole Information Services
	VANESSA RANGLE	Cole Information Services
	EDUARDO AGUIRRE	Cole Information Services

4712 MONTARO CT

Year	Uses	Source
2017	RICARDO GUERRA	Cole Information Services
	ANITA RIVERA	Cole Information Services
2014	ANTHONY CORDERO	Cole Information Services
	ANITA RIVERA	Cole Information Services
2009	TYE LOVETT	Cole Information Services
	ESAM MOQBEL	Cole Information Services
1999	TYE LOVETT	Cole Information Services
	ESAM MOQBEL	Cole Information Services

4713 MONTARO CT

Year	Uses	Source
2017	RANDY GONZALEZ	Cole Information Services
	DESHONTE DICKSON	Cole Information Services
2014	MARY BREWER	Cole Information Services

Year	Uses	Source
2014	RANDY GONZALEZ	Cole Information Services
2009	ANTHONY BACA	Cole Information Services
	ALICIA RODRIGUEZ	Cole Information Services
1999	ANTHONY BACA	Cole Information Services

SAN LUCAS DR

5000 SAN LUCAS DR

Year	Uses	Source
2017	STEPHANIE GUTIERREZ	Cole Information Services
2014	MELY ORTIZ	Cole Information Services
2009	MELY ORTIZ	Cole Information Services
2004	MELY ORTIZ	Cole Information Services
1999	MELY ORTIZ	Cole Information Services

5004 SAN LUCAS DR

Year	Uses	Source
2017	JOSE PEREZ	Cole Information Services
2014	JOSE PEREZ	Cole Information Services
2009	JOSE PEREZ	Cole Information Services
2004	JOSE PEREZ	Cole Information Services
1999	JOSE PEREZ	Cole Information Services

5005 SAN LUCAS DR

Year	Uses	Source
2017	ELISA GONZALES	Cole Information Services
2014	ANDREW ANTE	Cole Information Services
2009	ANDREW ANTE	Cole Information Services
2004	ANDREW ANTE	Cole Information Services
1999	ANDREW ANTE	Cole Information Services

5008 SAN LUCAS DR

Year	Uses	Source
2017	GUSTAVO LOPEZ	Cole Information Services
2014	EILEEN ASUNCION	Cole Information Services

FINDINGS

Year	Uses	Source
2009	CYNTHIA GRANADOS	Cole Information Services
1999	CYNTHIA GRANADOS	Cole Information Services

5009 SAN LUCAS DR

Year	Uses	Source
2017	HMR MARIOS CARPET CLEANING & MORE	Cole Information Services
	MARIO HERNANDEZ	Cole Information Services
2014	MARIO HERNANDEZ	Cole Information Services
2009	MARIO HERNANDEZ	Cole Information Services
2004	MARIO HERNANDEZ	Cole Information Services
1999	MARIO HERNANDEZ	Cole Information Services

5012 SAN LUCAS DR

Year	Uses	Source
2014	JUAN PADILLA	Cole Information Services
2009	DANIELLE REYES	Cole Information Services
2004	DAVID WHALEY	Cole Information Services
1999	DANIELLE REYES	Cole Information Services

5013 SAN LUCAS DR

Year	Uses	Source
2014	JULIO ESTRADA	Cole Information Services
2009	DAVID WOODS	Cole Information Services
2004	RENE RAMIREZ	Cole Information Services
1999	DAVID WOODS	Cole Information Services

5016 SAN LUCAS DR

Year	Uses	Source
2017	ANITA KARR	Cole Information Services
2014	ANITA KARR	Cole Information Services
2009	LISA KARR	Cole Information Services
2004	LISA KARR	Cole Information Services
1999	LISA KARR	Cole Information Services

FINDINGS

5017 SAN LUCAS DR

Year	Uses	Source
2017	FELICIA MARTINEZ	Cole Information Services
2014	FELICIA MARTINEZ	Cole Information Services
2009	XAVIER OZAETA	Cole Information Services
2004	XAVIER OZAETA	Cole Information Services
1999	XAVIER OZAETA	Cole Information Services

5102 SAN LUCAS DR

Year	Uses	Source
2017	MARCOS BOURET	Cole Information Services
2014	OCCUPANT UNKNOWN	Cole Information Services
2009	RAMON MORA	Cole Information Services
2004	VERA FISHER	Cole Information Services
1999	RAMON MORA	Cole Information Services

5103 SAN LUCAS DR

Year	Uses	Source
2017	SUSANA GONZALEZ	Cole Information Services
2014	OCCUPANT UNKNOWN	Cole Information Services
2009	OCCUPANT UNKNOWN	Cole Information Services
2004	PEDRO ARRANAGA	Cole Information Services

5106 SAN LUCAS DR

Year	Uses	Source
2017	BRETT POPPLEWELL	Cole Information Services
2014	BRETT POPPLEWELL	Cole Information Services
2009	BRETT POPPLEWELL	Cole Information Services
2004	BRETT POPPLEWELL	Cole Information Services
1999	BRETT POPPLEWELL	Cole Information Services

5107 SAN LUCAS DR

Year	Uses	Source
2009	SERGIO RODRIGUEZ	Cole Information Services
2004	SERGIO RODRIGUEZ	Cole Information Services

FINDINGS

5110 SAN LUCAS DR

Year	Uses	Source
2017	ANITA GARCIA	Cole Information Services
2014	MIGUEL SIERRA	Cole Information Services
2009	GILBERTO ARIAS	Cole Information Services
2004	JOE LARA	Cole Information Services
1999	GILBERTO ARIAS	Cole Information Services

5111 SAN LUCAS DR

Year	Uses	Source
2014	OCCUPANT UNKNOWN	Cole Information Services
2009	RHONDA ROWE	Cole Information Services
2004	RHONDA ROWE	Cole Information Services

5114 SAN LUCAS DR

Year	Uses	Source
2017	GUILLEN CONSUELO	Cole Information Services
2014	GUILLEN CONSUELO	Cole Information Services
2009	RAFAEL GUILLEN	Cole Information Services
2004	THOMAS SHEA	Cole Information Services
1999	RAFAEL GUILLEN	Cole Information Services

5115 SAN LUCAS DR

Year	Uses	Source
2017	BARYANO BAYACA	Cole Information Services
2014	BARYANO BAYACA	Cole Information Services
2009	MELISSA BOATMAN	Cole Information Services
2004	JASON AYALA	Cole Information Services
1999	MELISSA BOATMAN	Cole Information Services

TRABUCO CANYON DR

5001 TRABUCO CANYON DR

Year	Uses	Source
2017	WESLEY CLEVENGER	Cole Information Services
2014	OCCUPANT UNKNOWN	Cole Information Services

FINDINGS

Year	Uses	Source
2009	MANUEL ROCHA	Cole Information Services

5005 TRABUCO CANYON DR

Year	Uses	Source
2014	CARLOS MIRAMONTES	Cole Information Services
2009	OCCUPANT UNKNOWN	Cole Information Services

5009 TRABUCO CANYON DR

Year	Uses	Source
2017	MARIO QUIJADA	Cole Information Services
2014	MARIO QUIJADA	Cole Information Services
2009	ANGELICA GRIMALDO	Cole Information Services
1999	ANGELICA GRIMALDO	Cole Information Services

5012 TRABUCO CANYON DR

Year	Uses	Source
2017	KRISTOFFER MARCHEL	Cole Information Services
2014	CHARLIE ORRELL	Cole Information Services
2009	QUICK & ACCURAGE BOOKKEEPING	Cole Information Services
	CHARLES ORRELL	Cole Information Services
1999	CHARLES ORRELL	Cole Information Services

5013 TRABUCO CANYON DR

Year	Uses	Source
2017	MARTIN GONZALEZ	Cole Information Services
2014	MARTIN GONZALEZ	Cole Information Services
2009	TRINIDAD ARROYO	Cole Information Services
1999	TRINIDAD ARROYO	Cole Information Services

5016 TRABUCO CANYON DR

Year	Uses	Source
2017	RUBEN SIORDIA	Cole Information Services
2009	OCCUPANT UNKNOWN	Cole Information Services

FINDINGS

5017 TRABUCO CANYON DR

Year	Uses	Source
2017	DONALD MORAN	Cole Information Services
2014	DONALD MORAN	Cole Information Services
2009	DONALD MORAN	Cole Information Services
1999	DONALD MORAN	Cole Information Services

5020 TRABUCO CANYON DR

Year	Uses	Source
2014	AMBER COTTON	Cole Information Services
2009	JUAN LOPEZ	Cole Information Services
1999	JUAN LOPEZ	Cole Information Services

5021 TRABUCO CANYON DR

Year	Uses	Source
2017	JOSE VALDEZ	Cole Information Services
2014	JOSE VALDEZ	Cole Information Services
2009	JOSE VALDEZ	Cole Information Services
1999	JOSE VALDEZ	Cole Information Services

5024 TRABUCO CANYON DR

Year	Uses	Source
2017	JULIE NUNES	Cole Information Services
2014	JULIE NUNES	Cole Information Services
2009	ANDREW GONZALEZ	Cole Information Services
1999	ANDREW GONZALEZ	Cole Information Services

5025 TRABUCO CANYON DR

Year	Uses	Source
2017	JOSE ROQUE	Cole Information Services
2014	SANTOS CRUZ	Cole Information Services

5028 TRABUCO CANYON DR

Year	Uses	Source
2017	CARLOS LOZANO	Cole Information Services
2014	CARLOS LOZANO	Cole Information Services

FINDINGS

Year	Uses	Source
2009	CARLOS LOZANO	Cole Information Services
1999	CARLOS LOZANO	Cole Information Services

5029 TRABUCO CANYON DR

Year	Uses	Source
2017	ALAN ROBBINS	Cole Information Services
2014	ALAN ROBBINS	Cole Information Services
2009	GARY ROBBINS	Cole Information Services

5033 TRABUCO CANYON DR

Year	Uses	Source
2017	HUARELIA RIVERA	Cole Information Services
2014	JESSICA GARCIA	Cole Information Services
2009	ROSA HUERTERO	Cole Information Services
1999	ROSA HUERTERO	Cole Information Services

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
4700 MONTARO CT	2017, 2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
4701 MONTARO CT	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
4706 MONTARO CT	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
4707 MONTARO CT	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
4712 MONTARO CT	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
4713 MONTARO CT	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5000 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5001 TRABUCO CANYON DR	2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5002 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5003 LA PINTA MARIA DR	2017, 2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5004 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5005 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5005 TRABUCO CANYON DR	2017, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5006 LA PINTA MARIA DR	2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5007 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5008 SAN LUCAS DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5009 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5009 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5010 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

FINDINGS

Address Researched	Address Not Identified in Research Source
5011 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5012 SAN LUCAS DR	2017, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5012 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5013 SAN LUCAS DR	2017, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5013 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5014 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5015 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5016 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5016 TRABUCO CANYON DR	2014, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5017 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5017 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5018 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5019 LA PINTA MARIA DR	2017, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5020 TRABUCO CANYON DR	2017, 2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5021 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5022 LA PINTA MARIA DR	2017, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5023 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5024 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5025 TRABUCO CANYON DR	2009, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5026 LA PINTA MARIA DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5027 LA PINTA MARIA DR	2017, 2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5028 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

FINDINGS

Address Researched	Address Not Identified in Research Source
5029 TRABUCO CANYON DR	2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5033 TRABUCO CANYON DR	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5100 LA PINTA MARIA DR	2014, 2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5102 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5103 SAN LUCAS DR	2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5106 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5107 SAN LUCAS DR	2017, 2014, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5110 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5111 SAN LUCAS DR	2017, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5114 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
5115 SAN LUCAS DR	2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
800 CHIMAYO ST	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
806 CHIMAYO ST	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
812 CHIMAYO ST	2009, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922
818 CHIMAYO ST	2004, 2002, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
Oswell & Zephyr	2017, 2014, 2009, 2004, 2002, 1999, 1995, 1994, 1990, 1986, 1980, 1976, 1975, 1971, 1970, 1965, 1960, 1955, 1951, 1945, 1940, 1935, 1930, 1928, 1922

VAPOR ENCROACHMENT SCREEN

Prepared by: Soils Engineering, Inc.

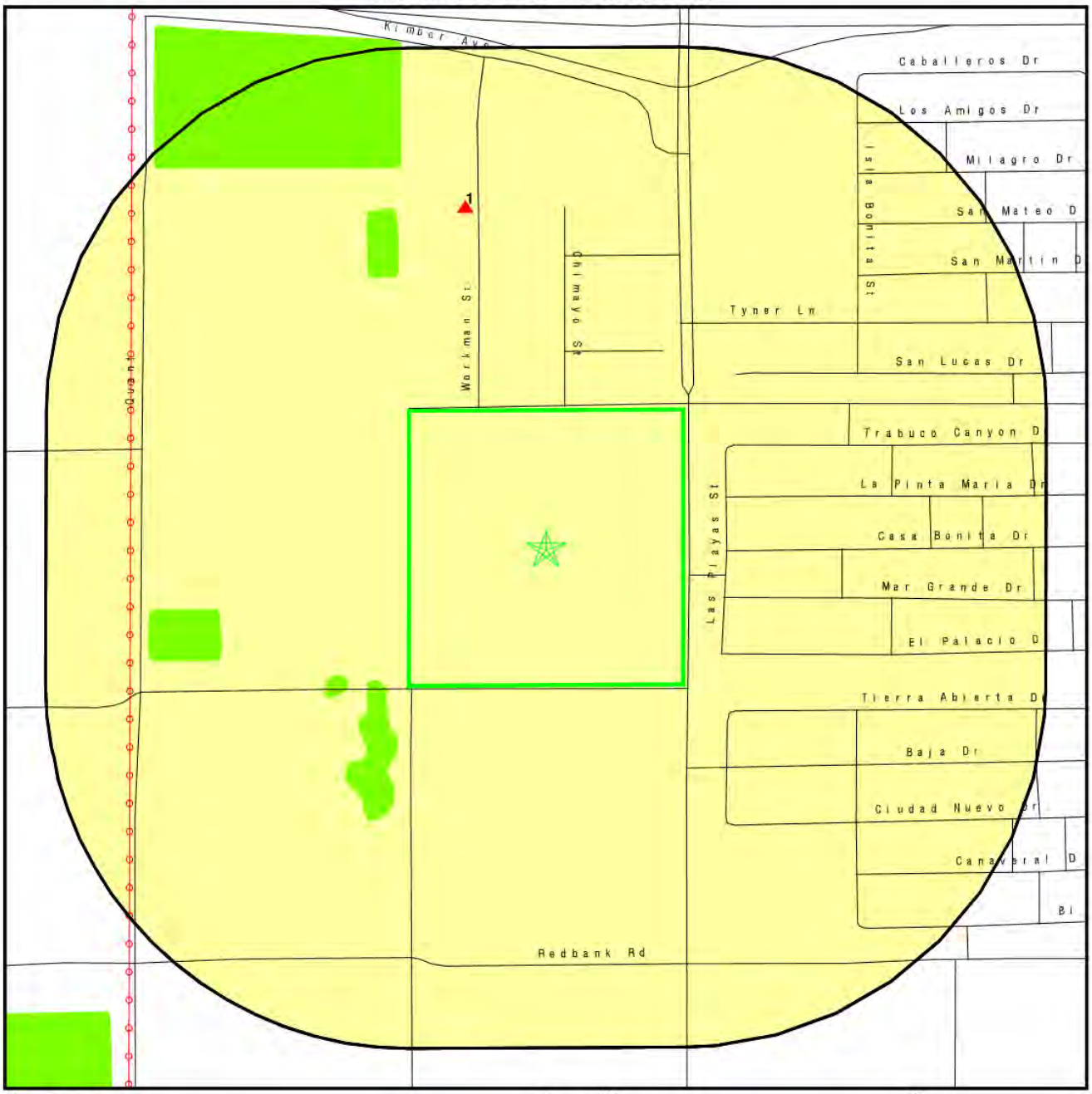
9/1/2022

TABLE OF CONTENTS

EXECUTIVE SUMMARY

DRAIN PRO ROOTER & SEPTIC INC. **600 WORKMAN ST, BAKERSFIELD, CA, 93307**	S121772738
Impact on Target Property: VEC does not exist	

PRIMARY MAP - 7060049.2S



0 300 1/3 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: FSD New Potential Site #5	CLIENT: Soils Engineering, Inc.
ADDRESS: Oswell & Zephyr Bakersfield CA 93307	CONTACT: Robert Becker
LAT/LONG: 35.345146 / 118.952057	INQUIRY #: 7060049.2s DATE: July 20, 2022 1:20 pm

MAP FINDINGS

DRAIN PRO ROOTER & SEPTIC INC. 600 WORKMAN ST, BAKERSFIELD, CA, 93307			S121772738
Map ID: 1	Distance: NNW 1/10 - 1/3 (978 ft. / 0.185 mi.)	Elevation: 4 ft. Higher Elevation 388 ft. Above Sea Level	Other Ascertainable Records

Worksheet:

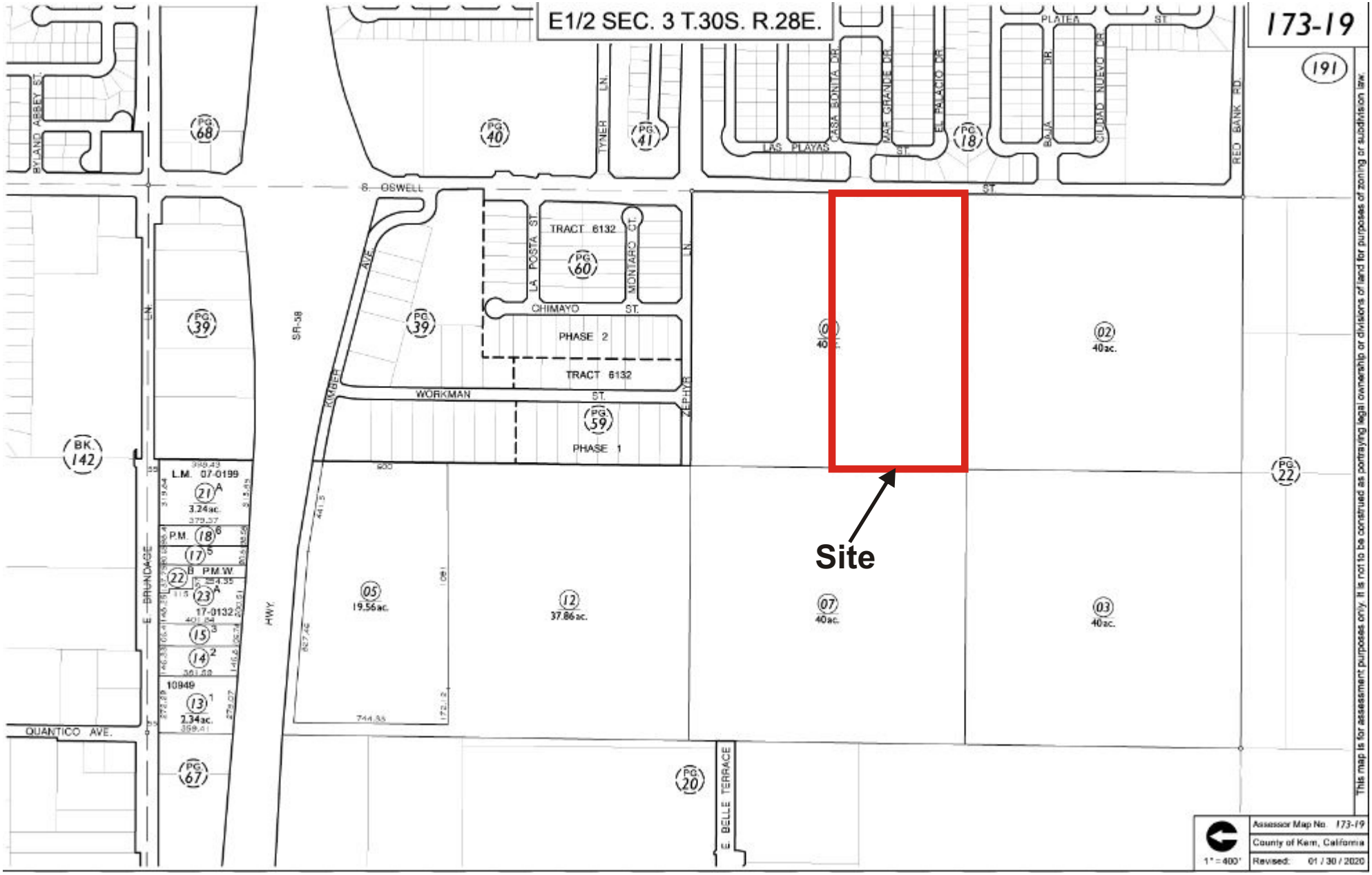
Impact on Target Property: VEC does not exist

Comments: The source is not within the area of concern, based on its distance, gradient and suspected chemical of concern.

Conditions:
Chemicals of Concern: YES

Appendix B

Assessors Map, USER Questionnaire, Environmental Questionnaire and Disclosure Statement, Oil Well Information, Table 1 Analytical Results, Table 2 East Bakersfield Arsenic Concentrations and Analytical Reports



FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

DATE: 8/22
PROJECT: #18503

ASSESSORS MAP

Please Fill Out & Return To: SEI at 4400 Yeager Way, Bakersfield, CA 93313 Attn: Bob Becker
Or Fax: 661-831-2111

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT - USER QUESTIONNAIRE

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *"Brownfields Amendments"),* the *user* must provide the following information (if available) to the *environmental professional.* Failure to provide this information could result in a determination that *"all appropriate inquiry"* is not complete.

(1.) Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law?

Fairfax School District is unaware of any environmental cleanups.

(2.) Are you aware of any activity and land use limitations (AULs), such as *engineering controls,* land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

Fairfax School District is unaware of any land use limitations

(3.) As the *user* of this Environmental Site Assessment *(ESA)* do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Fairfax School District have no specialized knowledge relating nearby properties

(4.) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property?* If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property?*

Fairfax School District believes the property to be a fair price with as we have consulted with are real estate agent.

(5.) Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *user,*
(a.) Do you know the past uses of the *property?*

The districts understanding was the land was zoned for agriculture.

(b.) Do you know of specific chemicals that are present or once were present at the *property?*

The Fairfax School District has no knowledge of chemicals used on the property.

(c.) Do you know of spills or other chemical releases that have taken place at the *property?*

The Fairfax School District has no knowledge of spills on the property.

(d.) Do you know of any environmental cleanups that have taken place at the *property?*

The Fairfax School District has no knowledge of environmental cleanups on the property.

(6.) As the *user* of this *ESA,* based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property?*

The Fairfax School District how no knowledge or indication of contamination.

In addition, certain information should be collected, if available, and provided to the *environmental professional.* This information is intended to assist the *environmental professional* but is not necessarily required to qualify for one of the *LLPs.* The information includes:

(a) the reason why the Phase I is required,

In anticipation for construction of a school site.

(b) the type of *property* and type of *property* transaction, for example, sale, purchase, exchange, etc.,

Purchase of property

(b) the complete and correct address for the *property* (a map or other documentation showing *property* location and boundaries is helpful),

20 gross acres of vacant land located on Oswell Street being the south 1/2 of the 40 acres at the SWC of Oswell Street and Zyphyr Lane (APN 173-191-01) in the City of Bakersfield

(c) the scope of services desired for the Phase I (including whether any parties to the *property* transaction may have a required standard scope of services on whether any considerations beyond the requirements of Practice E 1527 are to be considered),

(e) identification of all parties who will rely on the Phase I *report,*

(f) identification of the site contact and how the contact can be reached,

(g) any special terms and conditions which must be agreed upon by the *environmental professional,* and

(h) any other knowledge or experience with the *property* that may be pertinent to the *environmental professional* (for example, copies of any available prior *environmental site assessment reports,* documents, correspondence, etc., concerning the *property* and its environmental condition. No

Site Name: Fairfax School District Site 5

Lora Brown

Signature of User

Date 7/20/2022

Please return this form by mail, e-mail of fax to SEI at:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Bob Becker Tel: (661) 831-5100, Fax (661) 831-2111
bob@soilsengineering.com

ENVIRONMENTAL QUESTIONNAIRE AND DISCLOSURE STATEMENT

SITE INFORMATION	
Current Site Address	900 S. Oswell St Zepher & Oswell
Current Site Use	vacant land
Current Site Zoning	ag
Current Assessor's Parcel Number	173-191-01-00-7
Addresses Formerly Assigned To Site (if any)	

SITE OWNERSHIP AND PAST USE		
Owner Name, Address & Phone	**Period of Ownership/Use**	**Type of Use**
Current Bluemer Estate LP 4948 Engle Rd Bkrsfld CA 93313	94 years	
Former		
Former		

ADJACENT PROPERTY USE unknown		
Direction	**Type of Use**	**Length of Use**
North		
East		
South		
West		

EXISTING SITE STRUCTURES None			
Structure Description	**Location**	**Use**	**Date of Construction**

FORMER SITE STRUCTURES None			
Structure Description	**Former Location**	**Use**	**Date of Demolition**

SITE LESSEES		
Name, Address & Phone	**Length/Years of Lease**	**Type of Use**
Present: none		
Former: Union Oil	Dec 1983 – July 1988	potential oil drilling - well never drilled
Former:		

SITE UTILITIES	
Utility	**Provider**
Electricity	N/A
Natural Gas	
Drinking Water	
Storm Water Drainage	
Solid Waste Disposal	
Sanitary Sewer	
Emergency Power Source	

**********PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS **********

#	Specific Uses of Site or Adjacent Property	SITE			ADJACENT		
		Yes	No	Don't Know	Yes	No	Don't Know
1	Agricultural chemical formulation, distribution, or application		X				X
2	Airport and/or airplane maintenance						
3	Automotive wrecking yard						
4	Bulk chemical or fuel storage						
5	Commercial printing						
6	Dry cleaning						
7	Landfill						
8	Metal plating or finishing						
9	Mining or minerals processing						
10	Motor vehicle or equipment repair and/or maintenance						
11	Photographic laboratory						
12	Service station						
13	Skeet shooting or gun club						
14	Waste treatment, storage, disposal, processing or recycling, other than a landfill						

"Adjacent Property" includes those properties that border the immediate site and properties located across the street from the site.

**********PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS **********

#	ON-SITE HAZARDOUS MATERIALS USE, STORAGE AND DISPOSAL	Yes	No	Don't Know
1	Are asbestos-containing materials present in on-site structures?		X	
2	Has an asbestos survey been conducted for on-site structures?		X	
3	Are any electrical transformers or capacitors on-site?			X
4	Are any electrical transformers or capacitors on-site not owned by an electrical utility?		X	
5	Has an Environmental Audit or Assessment been conducted for the site?		X	
6	Do you know of any current or former <u>aboveground</u> storage tanks?		X	
7	Do you know of any current or former <u>underground</u> storage tanks (not septic)?		X	
8	Do you know of any fill dirt having been imported to the site?			X
9	Do you know of any current or former wells on-site, including, domestic drinking water, irrigation water, disposal, oil and/or abandoned wells?			X
10	Do you know of any pesticides/herbicides permits for the site?		X	
11	Do you know of any pesticides/herbicides stored or used on-site?		X	
12	Are solvents, petroleum products, or paint products stored on-site?		X	
13	Are you aware of any permits having been issued for the site by the local fire, environmental health, or air pollution control agencies?		X	

************PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS ************

#	ON-SITE HAZARDOUS MATERIALS USE, STORAGE AND DISPOSAL	Yes	No	Don't Know
1	Is liquid waste disposed of to a septic tank on-site?		X	
2	Is liquid waste disposed of		X	
3	Are any ponds, sumps, basins, lagoons, or clarifiers used on-site to collect, treat, or dispose of liquid?		X	
4	If liquid waste is disposed of on-site, is a waste discharge permit required? N/A			
5	Is liquid waste disposed of to an off-site treatment works?		X	
6	Is solid waste disposed of on-site (burned or buried)?		X	
7	Does any solid or liquid off-site waste disposal require a waste manifest or disposal permit?		X	
8	Is any hazardous waste generated, stored, or treated on-site?		X	
9	Are any spills or releases of hazardous materials known or suspected to have occurred at the site?		X	

THIS ENVIRONMENTAL QUESTIONNAIRE AND DISCLOSURE STATEMENT WAS PREPARED BY:

Name Tori Bloemer **Title** _____

Firm Bloemer Estate LP **Relationship to Site** Owner

Address 4948 Engle Rd
Bkrsfld CA 93313

Phone 661-833-9569 **Date** 8/1/22

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's knowledge not material facts have been suppressed or misstated.

Mari Bloemen — Signed

8/1/22 — Date

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND
GEOTHERMAL RESOURCES

REPORT OF PROPERTY AND WELL TRANSFER

DATE: October 7, 2002

FORMER OWNER/OPERATOR: Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)

NEW OWNER/OPERATOR: ChevronTexaco Exploration & Production Company (C5680)
ADDRESS: P.O. Box 1392
Bakersfield, CA 93302

FIELD OR COUNTY: All wells in the state of California including all active, uncompleted, idle or previously abandoned wells

EFFECTIVE DATE OF TRANSFER: 08/22/2002

REPORTED BY: ChevronTexaco Exploration & Production Company (C5680)
CONFIRMED BY: Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)

NEW OPERATOR STATUS: ACTIVE
FORMER OPERATOR STATUS: INACTIVE

cc: ChevronTexaco Exploration & Production Company (C5680)
Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)
CONSERVATION COMMITTEE
EDP
KERN COUNTY ASSESSOR
BLM

Hal Bopp
HAL BOPP
DEPUTY SUPERVISOR

121 _____
WELL FILE _____
LOGS _____
ADDRESS CARD _____
COMP./121 _____
EDP _____
MAP _____
ABD. ROUTE SLIP _____

RA
HB/RA/JP/jg

OGD156

RECEIPT IS HEREBY ACKNOWLEDGED OF FINAL REPORT OF ABANDONMENT

DISTRICT NO. 4B , DATED April 11 , 1945

Well No. 1-"Bloemer"

WESTERN GULF OIL COMPANY

Sec. 3 , T. 30 S., R. 28 E., S. B. B. & M.

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

P. O. Box 1428
Bakersfield, California
April 11, 1945

Mr. T. H. Wallace, Agent
Western Gulf Oil Company
P. O. Box 1392
Bakersfield, California

Dear Sir:

Your report of abandonment of well No. 1-"Bloemer", Sec. 3, T. 30 S., R. 28 E., M.D.B. & M., Edison field, dated March 15, 1945, and submitted to this Division on our form 105, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have now been fulfilled.

Yours truly,

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd
Deputy Supervisor

CC-R. P. Huggins (3)
1221 Subway Term.Bldg.,L.A.,13

-R. D. Bush
SHR:VKS

121 ✓
Card ✓
Elev. ✓
Blanket Bond ✓
Map ✓

UNCOMPLETED ABANDONED

TRANSFER DATA

Former Owner Western Gulf Oil Co.

New Owner GULF OIL CORP OF CALIF

Transfer Date 10-10-60

Form 156 Dated 11-10-60

MTB
4/12/45
RMB

WESTERN GULF OIL COMPANY

LOG OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

Location 330' S & 998.52' W fr. E/4 Cor. Elevation of ~~derrick floor~~ ground above sea level 392.68 K.B. feet.
Gr. 381.0'; mat 382.12', DF 390.6'

In compliance with the provisions of Chapter 718, Statutes of 1915, as amended, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date March 5, 1945 Signed T. H. Wallace.

Glen W. Ledingham (Engineer or Geologist) T. H. Wallace (Superintendent) Title Agent (President, Secretary or Agent)

Commenced drilling January 27, 1945 Completed drilling March 1, 1945 Drilling tools ~~Cable~~ Rotary

Total depth 6025' Plugged depth

Junk Bridged with 170 sacks 2600-2400' & bridged with 110 sacks 680-565'.

GEOLOGICAL MARKERS	DEPTH
Top Santa Margarita	4200' (S)
Top Wicker equivalent	5678' (S)
Top Valv. flood	6000' (C)

Commenced producing ABANDONED March 3, 1945 (date) Flowing/gas lift/pumping (cross out unnecessary words)

	Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Initial production			DRY	HOLE		
Production after 30 days						

APR 10 1945

Casing Record (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforations
10-3/4"	632'	0	45#	New	Smls.	J-55	15-1/2"	450	

Perforations

Size of Casing	From	To	Size of Perforations	Number of Rows	Distance Between Centers	Method of Perforations
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				

Electrical Log Depths 632-6025' (Attach Copy of Log)

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E / M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					SPUDDED IN with a 15-1/2" bit on January 27, 1945 and drilled as follows:
0	187	187'	Drilled		Surface sand
187	638	451'	"		Sand
1-28-45		Ran 632' (16 joints) of 10-3/4", 45#, J-55, new, seamless, Jones & Laughlin casing and cemented to surface in 15-1/2" hole with 450 sacks Victor Construction cement, final pressure 650#.			
1-30-45		Landed casing on Shaffer base plate. Installed Shaffer control gates, Ran in to 600', closed rams, tested controles to 700#, held ok 15 minutes. Drilled out shoe at 632', cleaned out to 638' and resumed drilling with a 9-7/8" bit:			
638	1045	407'	Drilled		Sand
1045	3695	2650'	"		Sand and shale
3695	4083	388'	"		Hard sand with streaks of shale
4083	4120	37'	"		Sand and shale
4120	4130	10'	Cored	2"	Core #1 2" - Siltstone shell - light to medium gray, fine sandy, very hard, tight, massive, carbonaceous.
4130	4131	1'	"	0'	Core #2 No recovery.
2-11-45		Left cutters in hole. Ran basket - no recovery. Ran K-99.			
4131	4136	5'	Drilled		Junk (w/K-99)
2-12-45		Sidetracked cutters at 4136' and resumed coring.			
4136	4162	26'	Cored	26'	Core #3 2' - Sandy siltstone - gray, fine grained, silty, well sorted, fairly hard, difficultly friable, massive, biotitic. 7½' - Claystone - dark gray with dull olive green cast, hard, tight, massive. 14½' - Sand - gray, fine to coarse, poorly sorted, fairly clean, firm,

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

WESTERN GULF OIL COMPANY — WILDCAT

Operator ..... Field .....

1 - "Bloemer" 3 30-S 28-E M.D.

Well No. ..... Sec. ....., T. ....., R. ....., ... B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					friable, massive, very good permeability, no shows, becomes more silty in bottom 3', includes 4" sandy siltstone streak 3½' from bottom. 2' - Siltstone - gray, scattered small quartz grits and coarse sand grains, hard, tight, very biotitic
4162	4189	27'	Cored	23'	Core #4 11' - Siltstone - as above, locally clayey and fine sandy. 12' - Sand - as above, no shows, very good permeability, includes ½' sandstone shell at top.
4189	4212	23'	"	12'	Core #5 10' - Sand - gray as above, includes 1' sandstone shell at top, gray with green cast, and 4" siltstone streak as last above 1' from bottom. 1½' - Siltstone - as last above. ½' - Sandstone shell - 12° dip.
4212	4266	54'	Drilled		Sand and shale streaks
4266	5650	1384'	"		Sand and shale
5650	5655	5'	Cored	5'	Core #6 1½' - Siltstone - dark brownish-gray, hard, tight, massive, to fairly well bedded, 7½ dips, finely micaceous, occasional fish remains, occasional thin chert laminae, includes 1" streak sand, gray, very fine grained, soft, crumbly, well sorted, appears low to fair permeability, fairly clean. 1½' - Sand - gray, very fine grained, soft, crumbly, well sorted, finely micaceous, massive, fairly clean, low to fair permeability, no shows. 2' - Shale - dark brownish-gray, fine silty, fairly well bedded, good 7° dips, hard, tight, finely micaceous.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5655	5659	4'	Cored	4'	Core #7 4' - Siltstone - as above, thinly laminated with fine gray sand in 1' streak 2' from top.
5659	5667	8'	"	4½'	Core #8 4½' - Siltstone - as above, thin fine grained, gray sand laminae as above occasionally, includes 2" streak gray sand as above, good permeability 2" from bottom.
5667	5677	10'	Cored	9½'	Core #9 9' - Siltstone - as above, locally becomes shaly with good 10° dips, occasional rusty clay patches, locally sandy and thinly laminated with fine gray sand as above in bottom 4', occasional fish remains. ½' - Sand - as last above, locally silty.
5677	5687	10'	"	8'	Core #10 2½' - Sand - good permeability, no shows. 5½' - Siltstone - as above, includes 2" sand streaks as above 1½' from top and 3' from top, occasional fish remains.
5687	5697	10'	"	10'	Core #11 10' - Siltstone - as above, occasional laminae of fine gray sand as above, occasional laminae of tan clayey material and includes 2" streak sand as above ½' from top and 4" streak 2' from bottom.
5697	5707	10'	"	10'	Core #12 10' - Siltstone - as above, occasional laminae sand as above, occasional fish remains, common forams locally, gas bubbles on mud sheath.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5707	5715	8'	Cored	2'	Core #13 2' - Shale - as last above, massive to well bedded, silty, very fine sandy locally, good 13° dips, occasional fish remains, abundant forams locally.
5715	5720	5'	"	2'	Core #14 2' - Siltstone - as last above, occasional fish remains, common forams and occasional shell fragments, thinly laminated occasionally with fine gray sand, locally fairly well bedded, 8° dips.
5720	5725	5'	"	1'	Core #15 1' - Siltstone - as above, 12° dips, locally fairly well bedded.
5725	5235	10'	"	7½'	Core #16 7½' - Shale - as last above, well bedded near top to vaguely bedded at bottom. 13° dips near top, occasional thin tan chert laminae and patches, common forams, occasional fish remains.
5735	5740	5'	"	5'	Core #17 5' - Same lithology and fauna - locally platy, 10° dips.
5740	5750	10'	"	10'	Core #18 2' - Same lithology and fauna - 12° dips, bottom 1' rotten. 1½' - Bentonite - light whitish-gray, quite ashy, soapy, soft, tight, massive. 6½' - Shale - as last above, 10° dips.
5750	5760	10'	"	9'	Core #19 9' - Siltstone - as last above, locally clayey, fair 8° dips

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5760	5770	10'	Cored	10'	Core #20 10' - Shale - as above, silty, abundant forams, common fish remains, occasional thin tan cherty streaks, locally platy and well bedded 15° dips.
5770	5773	3'	"	3'	Core #21 3' - Siltstone - as last above, badly injected with mud.
2-23-45	Reamed 8½" core hole to 9-7/8" from 5650' to 5773'.				
5773	5782	9'	Cored	9'	Core #22 9' - Shale - as last above, silty, locally fair bedding, 12° dips, common forams and fish remains, occasional light tan phosphatic patches. Rather common tan chert interbeds with one 1" streak 1½' from top.
5782	5792	10'	"	10'	Core #23 10' - Same lithology and fauna - platy, common thin tan chert interbeds, locally clayey, appears rotten in places, good 11° dips, rare phosphatic spots and patches, includes 1½" streak gray, very fine grained silty sand 5½' from top.
5792	5801	9'	"	8½'	Core #24 8½' - Same lithology and fauna - well bedded, platy, good 10° dips, gas bubbles on mud sheath.
5801	5805	4'	"	4'	Core #25 4' - Same lithology and fauna - very hard with cherty laminae in top 1', good 10° dip, badly mudded in coring.
5805	5812	7'	"	1½'	Core #26 1½' - Same lithology and fauna.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5812	5816	4'	Cored	0'	Core #27 No recovery.
5816	5821	5'	"	½'	Core #28 ½' - Fragments siltstone - gray to brownish-gray, fine, hard, tight, massive, finely micaceous, occasional fish remains.
5821	5831	10'	"	0'	Core #29 No recovery.
5831	5833	2'	"	0'	Core #30 No recovery.
5833	5835	2'	"	0'	Core #31 No recovery.
5835	5839	4'	"	4½'	Core #32 - (1/2' pick-up) 4½' - Shale - as last above.
5839	5849	10'	"	9'	Core #33 9' - Same lithology - common shell fragments, fish remains, 10°-30° dips, top 2½' very hard and cherty.
5849	5859	10'	"	10'	Core #34 10' - Shale - as above, common forams, occasional shell fragments, good 11° dips, occasional cherty, rare laminae of fine, hard gray sand.
5859	5869	10'	"	10'	Core #35 10' - Shale - as above, abundant forams, common fish remains, platy, good 10° dips, occasional chert laminae, occasional carbonaceous fragments, includes 6" very fine grained gray sand streak with laminae of siltstone, as above.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5869	5879	10'	Cored	10'	Core #36 10' - Same lithology and fauna - good 10° dips, occasional pelecypod fragments, occasional phosphatic specks, includes 2" streak gray, silty, fine grained sand 2½' from top, no shows, gas bubbles on mud sheath.
5879	5889	10'	"	9'	Core #37 9' - Same lithology and fauna - 12° dips.
5889	5899	10'	"	10'	Core #38 10' - Same lithology - 10° dip. Includes 4" streak light tannish gray bentonite 1' from top.
5899	5905	6'	"	6'	Core #39 6' - Same lithology and fauna - occasional laminae tan clay, good 13° to 15° dips, platy.
5905	5915	10'	"	10'	Core #4 0 10' - Same lithology and fauna - locally clayey and platy, 10° dips, occasional cherty laminae, includes 2" gray, fine grained, fairly hard, sand streak 7' from top, low permeability.
5915	5925	10'	"	10'	Core #41 10' - Same lithology and fauna - occasional 1/4" streaks gray, fine grained, permeable sand & occasional thin interbeds of hard, tight, gray, fine grained sand. Common brownish bentonitic streaks to 6" thick.
5925	5933	8'	"	8'	Core #42 8' - Same lithology and fauna - occasional thin bentonitic streaks to ½".

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5933	5943	10'	Cored	10'	Core #43 6' - Same lithology and fauna - appears rotten, interbeds of gray, fine grained sand as above to 1/4" thick. 1½' - Bentonite - whitish-gray with tan cast, soft, massive, soapy. 2½' - Shale - as last above, locally brownish bengonitic streaks, occasional streaks gray, fine grained, permeable sand to ½".
5943	5950	7'	"	6'	Core #44 6' - Same lithology and fauna - good 13° dips, occasional nests gray, fine grained sand.
2-27-45	Reamed 8½" core hole to 9-7/8" from 5773-5950'.				
5950	5957	7'	Cored	7'	Core #45 3' - Shale - as above, becomes more silty and massive, bottom 1' cherty, approaches a shell, patch of brown color near top, probably clay. 1' - Bentonitic claystone - brownish-gray, fairly hard, tight, fine sandy in top 6". 3' - Gritty siltstone - brownish-gray, very hard and shell-like, pebbly, massive, tight.
5957	5963	6'	"	3'	Core #46 3' - Shale - as above, includes 3" streak sand, gray, fine grained as sand last above, no shows.
5963	5971	8'	"	8'	Core #47 8' - Same lithology and fauna - occasional carbonaceous fragments, occasional phosphatic inclusions, occasional thin interbeds and laminae of fine gray sand, locally siliceous

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					and cherty, abundant forams, good 10° dips, includes 1" gray, fine grained sand streak 3½' from top and ½" streak 4' from top which has a dark brown patch that may be an oil stain.
5971	5981	10'	Cored	5'	Core #48 5' - Shale - as above, good 10° dips, occasional laminae hard gray, fine grained sand and occasional thin interbeds of fine grained permeable sand, includes 1½" streak gray, fine grained permeable sand 3½' from top.
5981	5991	10'	"	9'	Core #49 2' - Shale - as above. 1' - Sand - gray, fine to medium grained, soft to fairly hard, massive, low to fair permeability, no cut or odor. 2' - Shale - as above, locally sandy, includes 2 interbeds ½" thick in top 1' containing good saturation dark brown oil, fair odor, good dark amber cut. 1' - Sand - gray with brown cast, fine to medium grained with scattered coarse grains and grits, fairly hard, low permeability, massive, appears lightly stained with brown oil, no cut or odor. 3' - Shale - as last above. Note: Gas bubbles on mud sheath.
5991	5995	4'	"	4'	Core #50 4' - Shale - as above, badly injected with drilling mud, bottom 3' appears bentonitic and rotten.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Bloemer" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5995	6000	5'	Cored	5'	Core #51 5' - Shale - as above, locally clayey, occasional lignitic material, occasional phosphatic specks, sporbitic.
6000	6004	4'	"	4'	Core #52 4' - Siltstone - as above, common forams, occasional brown clay patches, occasional carbonaceous fragments.
6004	6014	10'	"	10'	Core #53 10' - Same lithology - forams in flood, occasional brown bentonitic streaks, locally cherty and very hard.
6014	6024	10'	"	10'	Core #54 10' - Same lithology and fauna - occasional phosphatic patches.
6024	6025	1'	"	1'	Core #55 1' - Same lithology and fauna.
3-1-45	Ran Schlumberger from 632' to 6025'.				
TOTAL DEPTH 6025'					POINTS: Top Santa Margarita ..... 4200' (S) Top Wicker equivalent .... 5678' " Top Valv. flood..... 6000' (C)
3-2-45	Pumped in 170 sacks Victor Construction cement at 2600'. Pulled up to 680', pumped in 110 sacks Victor Construction cement in two stages, filling hole to 565'.				
3-3-45	Top of cement bridge located 565', witnessed and approved by the Division of Oil and Gas. Laid down drill pipe.				
	WELL ABANDONED March 3, 1945				
	Preparing to weld cap over top of 10-3/4" casing.				

FORM 103. 39946 11-44 25M
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR WESTERN GULF OIL COMPANY FIELD "WILDCAT"

Well No. 1 - "Bloemer", Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

Signed T. H. Wallace
T. H. WALLACE

Date March 15, 1945 Title Agent
(President, Secretary or Agent)

Use this form in reporting all important operations at the well, together with the dates thereof, in the order of their performance. Such operations include drilling, redrilling, deepening, plugging, or altering casing as by perforating, shooting, or pulling. Include in your report size of hole drilled, redrilled, or deepened; size, weight and length of casing landed, cemented, or removed, amount and location of perforations; number of sacks of cement used in cementing or plugging operations, number of feet of cement drilled out of casing, location of top and bottom of cement plugs. If the well was dynamited, give date, dimensions and weight of all shots. If tests were made give interval tested and results of tests, such as, amount and nature of fluids recovered.

Date	
3-14-45	Welded cap over top of 10-3/4" casing.

DIVISION OF OIL AND GAS
RECEIVED
APR 10 1945
BAKERSFIELD, CALIFORNIA

DIVISION OF OIL AND GAS
RECEIVED
MAR 16 1945
BAKERSFIELD, CALIFORNIA

cc: R. P. Huggins (4)
G. W. Ledingham (1)
File (3)

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 4-22645

Bakersfield, Calif. March 6, 1945.

Mr. T. H. Wallace
P. O. Box 1392, Bakersfield, Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Operations at your well No. 1-"Bloemer" Sec. 3, T. 30 S., R. 28 E., M.D. B. & M., Mt. View Field, in Kern County, were witnessed by S. H. Rook, representative of the supervisor, on March 5, 1945. There was also present J. Bray, Drilling Foreman
E. R. Viles, Drilling Foreman (Contractor)

Casing Record	Junk
10-3/4" cem. 632'; T.D. 6025', plugged with cement 3600'-2217'± and 680'-565'.	--

The operations were performed for the purpose of testing the location and hardness of a cement plug placed in the hole from 680' to 565' in the process of abandonment.

The inspector arrived at the well at 9:35 a.m. and Mr. Bray reported:

1. On March 2, 1945, 170 sacks of cement (calculated to fill to 2217') was pumped into the hole through 4½" drill pipe hung at 2600'. The top of the cement was not located.
2. On March 2, 1945, 110 sacks of cement was pumped into the hole, in two stages, with 4½" drill pipe hanging at 680' and 588'.
3. The top of the cement was located at 565'.

The inspector noted that the cement plug at the reported depth of 565' supported 2 points of the weight of the drill pipe.

The inspection was completed at 9:55 a.m.

THE LOCATION AND HARDNESS OF THE CEMENT PLUG AT THE REPORTED DEPTH OF 565' ARE APPROVED.

Surf. Abund. ok 10/24/45
Hole covered with surf. dirt.
No oil, water or gas escaping
RMB

CC-R. P. Huggins (3)
1221 Subway Term. Bldg., L.A., 13

SHR:VKS

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd Deputy

28381 10-43 15M
STATE PRINTING OFFICE

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

121

No. P 4-28259

Bakersfield, Calif. March 6, 1945.

MR. T. H. Wallace

P. O. Box 1392, Bakersfield, Calif.

Agent for Western Gulf Oil Company

DEAR SIR:

Your proposal to abandon Well No. 1-"Bloemer",

Section 3, T. 30 S., R. 28 E., M.D. B. & M., Mt. View Field, Kern County,

dated Mar. 2, 1945, received Mar. 3, 1945, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The present condition of the well is as follows:

1. Complete casing record.
   Total Depth: 6025'
   10-3/4" casing cemented at 632' with 460 sacks.
   9-7/8" hole was drilled and cored to 5950', 8-1/2" hole cored to 6025'
   Cored continuously from 5650' to 6024' thruout the equivalent of the Wicker sand - few very thin stringers of gray sand - no commercial showing of oil sand was encountered in the well.
2. Last produced. Dry Hole."

PROPOSAL:

"The proposed work is as follows:

1. Bridge with 170 sacks cement from 2600-2400'.
2. Bridge with 85 sacks cement from 650-550'.
3. Weld cap over top of 10-3/4" casing."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT THIS DIVISION SHALL BE NOTIFIED TO WITNESS the location and hardness of the cement plug at 550'.

CC-R. P. Huggins (3)
1221 Subway Term. Bldg., L. A., 13
-P. A.W.

Blanket Bond
SHR:VKS

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd Deputy

FORM 108. 30152 12-43 7500
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

RECEIVED
MAR 31 1945
BAKERSFIELD, CALIFORNIA

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin

Bakersfield, Calif. March 2, 1945

DIVISION OF OIL AND GAS

P4-28259

Bakersfield Calif.

In compliance with Secs. 3228, 3229, 3230, 3231 and 3232, Ch. 93, Stat. 1939, notice is hereby given that it is our intention to abandon well No. 1 - "Bloemer"

Sec. 3, T. 30-S, R. 28-E, M.D. B. & M. "WILDCAT" Field,

Kern County, commencing work on the Second day

of March 1945.

The present condition of the well is as follows:

1. Complete casing record.

Total Depth: 6025'
10-3/4" casing cemented at 632' with 450 sacks.
9-7/8" hole was drilled and cored to 5950', 8-1/2" hole cored to 6025'
Cored continuously from 5650' to 6024' thruout the equivalent of the Wicker sand - few very thin stringers of gray sand - no commercial showing of oil sand was encountered in the well.

2. Last produced. _____ (Date) DRY HOLE (Net oil) _____ (Gravity) _____ (Cut)

The proposed work is as follows:

1. Bridge with 170 sacks cement from 2600-2400'

2. Bridge with 85 sacks cement from 650-550'

3. Weld cap over top of 10-3/4" casing.

cc: R. P. Huggins (4)
G. W. Ledingham (1)
File (2)
im

Reference to file of data

Map & Book	U S G S	Bond	Card	Forms 114	Forms 121
	No	BLANKET		1074	2 Kds.

WESTERN GULF OIL COMPANY
(Name of Operator)
By Glen W. Ledingham

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

FORM 111
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

121

No. P 4-20178

Bakersfield, Calif. January 24, 1945.

MR. T. H. Wallace

P. O. Box 1392, Bakersfield, Calif.

Agent for Western Gulf Oil Company

DEAR SIR:

Your proposal to drill Well No. 1-"Eleanor",

Section 3, T. 30 S., R. 28 E., M.D.B. & M., Mt. View Field, Kern County,

dated Jan. 22, 1945, received Jan. 24, 1945, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The well is 330.0 feet S., and 998.52 feet W. from E/4 Cor. Sec. 3-30-28.
The elevation of the ground above sea level is 381.0 feet.
Well is to be drilled with rotary tools.
We estimate that the first productive oil or gas sand should be encountered at a depth of about 5670 feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
10-3/4"	40.5#	H-40	500'±	Cemented
7"	23#, 26#, & 29#	J-55 & N-80	6300'±	Cemented

(7" to be perforated for production)

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The 10-3/4" casing shall be cemented with sufficient cement to fill all the space back of the casing.
2. Mud fluid of sufficient weight and proper consistency to prevent blow-outs shall be used in drilling the well and the column of mud fluid shall be maintained to the surface at all times, particularly while pulling the drill pipe.
3. Adequate blow-out prevention equipment shall be provided and tested before drilling below the shoe of the 10-3/4" casing and maintained ready for use at all times thereafter.
4. THIS DIVISION SHALL BE CONSULTED regarding the exact cementing depth of the 7" casing after coring and/or making the electric log and before running the 7" casing into the hole.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS a test of the 7" water shut-off through gun-perforations above the highest oil sand that is to be open to production in the well prior to perforating the casing for production.

CC-R. P. Huggins (3)
1221 Subway Term. Bldg., L.A., 13
-P. A. No.

Blanket Bond
FEK:VKW

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd FEK Deputy

FORM 105.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins.

29-04739

Bakersfield, Calif. January 22, 1945

DIVISION OF OIL AND GAS

P4-28178

Bakersfield, Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. 1 - "Bloemer", Sec. 3, T. 30-S, R. 28-E, M.D. B. & M., "WILDCAT" Mt. View Field, Kern County.

Lease consists of

The well is 330.0 feet ~~XXXX~~ S., and 998.52 feet ~~XXXX~~ W. from E/4 Cor. Sec. 3-30-28
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the ~~XXXXXXXX~~ ground above sea level is 381.0 feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 5670 feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
10-3/4"	40.5#	H-40	500'+	Cemented
7"	23#, 26#, & 29#	J-55 & N-80	6300'+	Cemented
(7" to be perforated for production)				

Well is to be drilled with rotary ~~XXXX~~ tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address P.O.Box 1392,Bakersfield,Calif.

WESTERN GULF OIL COMPANY
(Name of Operator)

Telephone number 6-6031

By T. H. WALLACE, Agent

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

cc: R. P. Huggins (4)
G.W.Ledingham (1)
File (2)

Reference to file of data

Map & Book	U S G S	Bond	Card	Forms 114	Forms 121
1hal45 2EE	No	Blanket	✓	1068	LSH

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND
GEOTHERMAL RESOURCES

REPORT OF PROPERTY AND WELL TRANSFER

DATE: October 7, 2002

FORMER OWNER/OPERATOR: Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)

NEW OWNER/OPERATOR: ChevronTexaco Exploration & Production Company (C5680)
ADDRESS: P.O. Box 1392
Bakersfield, CA 93302

FIELD OR COUNTY: All wells in the state of California including all active, uncompleted, idle or previously abandoned wells

EFFECTIVE DATE OF TRANSFER: 08/22/2002

REPORTED BY: ChevronTexaco Exploration & Production Company (C5680)
CONFIRMED BY: Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)

NEW OPERATOR STATUS: ACTIVE
FORMER OPERATOR STATUS: INACTIVE

cc: ChevronTexaco Exploration & Production Company (C5680)
Chevron U.S.A. Inc. (C5650)
Texaco Exploration & Production Inc. (T1600)
Texaco California Inc. (T1575)
CONSERVATION COMMITTEE
EDP
KERN COUNTY ASSESSOR
BLM

HAL BOPP
DEPUTY SUPERVISOR

121 _____
WELL FILE _____
LOGS _____
ADDRESS CARD _____
COMP./121 _____
EDP _____
MAP _____
ABD. ROUTE SLIP _____

HB/RA/JP/jg

OGD156

ABANDONED

121 ✓
Blanket Bond
Card ✓
Map and Book

TRANSFER DATA

Former Owner Western Gulf Oil Co.
New Owner GULF OIL CORP OF CALIF
Transfer Date 10-10-60
Form 156 Dated 11-10-60

EARL WARREN
Governor

R. D. BUSH
State Oil and Gas Supervisor

H. V. DODD, Deputy

WARREN T. HANNUM
Director of Natural Resources

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

P. O. Box 1428
Bakersfield, California
November 21, 1945

Mr. T. H. Wallace, Agent
Eastern Gulf Oil Company
P. O. Box 1382
Bakersfield, California

Dear Sir:

Your report of abandonment of well No. 1-"Cohn Estate", Sec. 5, T. 30 S., R. 28 E., M. D. B. & M., Edison Field, Kern County, dated October 25, 1945, and submitted to this Division on our form 103, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have been fulfilled.

Yours truly,

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd
Deputy Supervisor

RD Bush-EH
cc:- R. P. Huggins (5)
1221 Subway Term. Bldg., L. A.

/EH

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 4-22902

Bakersfield, Calif. October 26, 19 45

Mr. T. H. Wallace
P.O. Box 1392, Bakersfield, Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Operations at your well No. 1-"Cohn Estate" Sec. 3, T. 30S., R. 28E., M.D. B. & M., Edison Field, in Kern County, were witnessed by R. M. Barger, representative of the supervisor, on Oct. 23 & 24, 19 45. There was also present A. L. Scott, Hoist Operator; and C. McClard, Helper

Casing Record 10-3/4" cem. 1005', 7" cem. 5898' 6 p. 5815' and 5818', 4 holes 5760' W.S.O., perf. 5785'-5805'; shot and pulled from 1419'; T.D. 6278' plugged with cement 5898'-5861', 8 sacks below 5814', 75 sacks below 5203', 1418'-1395'± and 1014'-994'.

Junk --

The operations were performed for the purpose of witnessing the cementing operations and the location and hardness of a cement plug placed in the hole from 1014' to 994' in the process of abandonment.

The inspector arrived at the well at 2:45 p.m. Oct. 23, 1945 and Mr. Scott reported:

1. An 8"x8"x3' wood plug could not be driven below 1014'.

The inspector noted that 13 sacks of a total of 23 sacks of cement to be used, was dumped by bailer at 1014'.

The inspection was completed at 3:30 p.m.

The inspector arrived at the well at 10:10 a.m. on October 24, and Mr. Scott reported that a total of 23 sacks of cement was dumped by bailer at 1014'.

The inspector noted that the bailer could not be spudded below 994' and brought up samples of set cement and approximately 40' of unset cement.

The inspection was completed at 10:40 a.m.

THE CEMENTING OPERATIONS AND THE LOCATION AND HARDNESS OF THE CEMENT PLUG AT 994' ARE APPROVED.

Surf. Aband 4/28/46
Could not get to the well because the road is cut by irrigation ditches.
RMB

CC-R. P. Huggins (3)
1221 Subway Terminal Bldg. L. A.

RMB:JC

R. D. BUSH
State Oil and Gas Supervisor

By K. V. Rood Deputy

43395 3-45 15M
STATE PRINTING OFFICE

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 4-22890

Bakersfield Calif. October 22 19 45

Mr. T. H. Wallace,
P. O. Box 1392, Bakersfield Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Operations at your well No. 1-"Cohn Estate" Sec. 3, T. 30S, R. 28E, M.D. B. & M., Edison Field, in Kern County, were witnessed by S. H. Rook, Engineer, representative of the supervisor, on October 20, 19 45. There was also present A. L. Scott, Contractor; C. McClard, Helper

Casing Record 10" cem. 1005'; 7" cem. 5898', c.p. 5815' and 5818'; 4 holes 5760' W.S.O. perf. 5795'-5805', shot at 1419', pulled up to 1397' T. D. 6278' plugged with cement 5893-5861', 8 sacks below 5814', 75 sacks below 5203' and 1419-1395'.

Junk 1407

The operations were performed for the purpose of witnessing plugging operations on the stub of the 7" casing in the process of abandonment.

The inspector arrived at the well at 10:15 a.m. and Mr. Scott reported:

1. The hole was open to at least 2300'.
2. The 7" casing was shot loose, with a collar shot, at 1419'. The 7" casing was pulled up 12' and a 4' wooden plug was driven to 1419'.

The inspector noted the following:
1. The hole was open to 1419'.
2. 12 sacks of cement, calculated to fill to 1395', was dumped at 1419'.

The inspection was completed at 11:30 a.m.

THE CEMENTING OPERATIONS ARE APPROVED.

CC-R. P. Huggins (3)
1221 Subway Term. Bldg., L. A.

SHR:EH

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd Deputy

43395 9-45 15M
STATE PRINTING OFFICE

FORM 111
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P4-28733

Bakersfield, Calif. October 22, 1945

Mr. T. H. Wallace
P. O. Box 1392, Bakersfield, Calif.

Agent for Western Gulf Oil Company

Dear Sir:

Your supplementary proposal to abandon Well No. 1 "Cohn Estate", Section 3, T. 30S, R. 28E, M.D. B. & M., Edison Field, Kern County, dated Oct. 18 1945, received Oct. 19 1945, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

RECORDS in addition to or at variance with those shown in the notice quoted below:
7" c.p. 5815' and 5818', 4 holes 5760', W.S.O.
The hole is plugged with cement 5898'-5861', 8 sacks below retainer at 5814' and 75 sacks below 5203'.

THE NOTICE STATES:
"The new conditions are as follows:
Total Depth 6278', plugged w/cmt. 5203'.
10-3/4" csg. cmtd. 1005' w/667 saxs.
7" csg. cmtd. 5898' w/450 sxs. Perforated w/6, 15/32" holes per foot from 5785-5805'.
Cap welded over top of 10-3/4"casing & abandoned 4/27-45."

PROPOSAL:
"We now propose:
1. Pull 7" casing from 1000', dump 20 sacks cement in stub of 7".
2. Fill hole with mud fluid prior to capping the 10-3/4 casing. "

On October 20, 1945, Mr. T. H. Wallace, Agent for Western Gulf Oil Company, during a telephone conversation with Engineer Kasline, amended the proposal asfollows:
1. Pull all 7" casing possible.
2. Cap stub of 7" casing with 20' of cement.
3. Plug hole with cement from 1025' to 985'.
4. Fill hole with mud fluid prior to capping the 10-3/4" casing.

DECISION: THE PROPOSAL AS ORALLY AMENDED IS APPROVED PROVIDED THAT THIS DIVISION SHALL BE NOTIFIED TO WITNESS the location and hardness of the cement plug at about 985'.

Note: In the event the above work is to be performed by a contractor THIS DIVISION SHALL BE NOTIFIED TO WITNESS all cementing operations.

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd Deputy

CC-R. P. Huggins (3)
1221 Subway Term. Bldg., L. A.
Blanket Bond
FEK:EH

FORM 123. 23777 5-43 6250
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

RECEIVED OCT 19 1945 BAKERSFIELD, CALIFORNIA

Bakersfield, Calif. October 18, 1945

DIVISION OF OIL AND GAS

Bakersfield, Calif.

Our Log & History to you dated May 4, 1945, ~~stating our intention to~~ Abandoning well No. 1 - "Cohn Estate"
(Drill, deepen, redrill, abandon)

Sec. 3, T. 30-S, R. 28-E, M.D. B. & M. Edison Field, Kern County, must be amended on account of changed or recently discovered conditions.

The new conditions are as follows:

Total Depth 6278', plugged w/cmt. 5203'.
10-3/4" csg. cmtd. 1005' w/667 saxs.
7" csg. cmtd. 5898' w/450 sxs. Perforated w/6, 15/32" holes per foot from 5785-5805'.
Cap welded over top of 10-3/4" casing & abandoned 4/27/45.

We now propose

1. Pull 7" casing from 1000', dump 20 sacks cement in stub of 7".
2. Fill hole with mud fluid prior to capping the 10-3/4" casing.

P.4.28738

Orig: Division of Oil & Gas
cc: R. P. Huggins (4)
T. H. Wallace
G. W. Ledingham

10/20/45 Wallace-Kashine will pull all 7" possible, ... cmt and plug 1025' ...

Reference to file of data

Map & Book	U S G S	Bond	Card	Forms 114	Forms 121
	NO	BLANKET	✓	1101	E.H.

WESTERN GULF OIL COMPANY
(Name of Operator)

By [signature]
T. H. WALLACE, Agent.

MOUNTAIN VIEW Kern County
Western Gulf Oil Co.-Cohn Est.#1

997'N.& 332'W. fr SE Cor. Sec.
3-30-28 El.385'

Spud Oct. 6, 1944
Comp Nov. 20, 1944
Depth 6278'

Casing Record

10 3/4" c. 1005' with 650 sax
7" c. 5898' with 450 sax
gun-perf.6-15/32" holes per foot 5805-5785
2 1/2" tubing 5778'

I.P.53 B/D-16.0 gr.-59.0 cut-
(7.0 water & 52.0 emulsion)
30/64" bn.-0/740#

Remarks -
11/25/44-Killed-2 1/2"tubing 5558'
12/2/44-Put on pump-180 B/15 1/2 hrs.-
19% cut-440# C.H.P.
Cut increased-Bailed & washed perfs.-Perf.6-9/16" holes 5785-5800, 2 1/2" tubing 5740'-On pump
1/1/45-133 B/D gross-Bailed again
1/18/45-Pumping 44 B/D-15.7 gr.-
76.0 cut

121
Elev.
Card H
Blanket Bond
Map 4-8 GEHC 6/28/45

UNCOMPLETED ABANDONED

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

P. O. Box 1428
Bakersfield, California
June 28, 1945

Mr. T. H. Wallace, Agent
Western Gulf Oil Company
P. O. Box 1392
Bakersfield, California

Dear Sir:

Your report of abandonment of well No. 1-"Cohn Estate", Sec. 3, T. 30 S., R. 28 E., M. D. B. & M., Edison field, dated May 4, 1945, and submitted to this Division on our form 103, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have now been fulfilled.

Yours truly,

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd
Deputy Supervisor

CC:-R. P. Huggins (3)
1221 Subway Terminal Bldg., L. A. 13

-R. D. Bush
SHR:LSH

WESTERN GULF OIL COMPANY

LOG OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R 28-E, M.D. B. & M.

Location 997.13'N & 331.97'W fr. SE Cor. Sec. Elevation of ~~derrick floor~~ ground above sea level 391.70 K.B. feet.
Gr.El. 379.8'; D.F. 389.26'

In compliance with the provisions of Chapter 718, Statutes of 1915, as amended, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date MAY 4, 1945 Signed G. T. Wallace.

~~Glen W. Ledingham~~ (Engineer or Geologist) ~~T. H. WALLACE~~ (Superintendent) Title Agent (President, Secretary or Agent)

Commenced drilling October 6, 1944 Completed drilling November 12, 1944 Drilling tools ~~Cable~~ Rotary

Total depth 6278' Plugged depth 5203' *

~~Junk~~: see body of report for details.

GEOLOGICAL MARKERS	DEPTH
Top Santa Margarita	4309' (S)
Top Wicker	5785' "

A B A N D O N E D April 27, 1945

Commenced producing December 2, 1944 (date) ~~Flowing/gas lift/pumping~~ (cross out unnecessary words)

	Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Initial production Dec. 2, 1944	142	15.7°	52.0%	———	———	30
Production after 30 days Apr. 23, 1945	6	17.9°	90.0%	———	———	120

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforations
10-3/4"	1005	0	40.5#	New	Smls.	J-55	15-1/2"	667	
7"	5898'	0	23#	New	Smls.	N-80 & J-55	9-7/8"	450	

PERFORATIONS

Size of Casing	From	To	Size of Perforations	Number of Rows	Distance Between Centers	Method of Perforations
7"	5785 ft.	5805 ft.	Shot 6, 15/32" holes per foot.			Gun perforated.
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				

RECEIVED JUN 1 6 1945

Electrical Log Depths 1002-6279' (Schlumberger measurements) (Attach Copy of Log)

FORM 103. 3834 8-41 27,500
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR WESTERN GULF OIL COMPANY FIELD Wildcat *Edison

Well No. 1 - "Cohn Estate", Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

Original signed by
Signed T. H. WALLACE
T. H. WALLACE

Date October 25, 1945 Title Agent
(President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. **Use this form in reporting the history of all important operations at the well, together with the dates thereof, prior to the first production.** Include in your report such information as size of hole drilled to cementing or landing depth of casings, number of sacks of cement used in the plugging, number of sacks or number of feet of cement drilled out of casing, depth at which cement plugs started, and depth at which hard cement encountered. If the well was dynamited, give date, size, position and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position and results of pumping or bailing.

Date

10/16/45 Rigged up to pull 7" casing from 1000'±.

10/18/45 Shot & pulled 7" casing from 1419'.
Put in 12 sacks cement at 1419'.

*23
10/19/45 Put in 23 sacks cement at 1014', found top of cement plug at 993', plug witnessed and approved by the Division of Oil and Gas.

10/24/45 Filled hole with mud, welded cap over top of 10-3/4" casing.

WELL ABANDONED.

Orig & 1 - Division of Oil & Gas
cc: R. P. Huggins - 4
T. H. Wallace - 1
G. W. Ledingham - 1

DIVISION OF OIL AND GAS
RECEIVED
OCT 26 1945

*shields - RMB

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					SPUDDED IN with 15-1/2" bit October 6th, 1944 and drilled as follows:
0	650	650'	Drilled		Sand
650	1030	380'	"		Sand and shale
10-7-44		Ran 1005' (25 joints) of 10-3/4", 40.5#, new, seamless, J-55, 8 thread Pittsburgh casing and cemented in 15-1/2" hole with 650 sacks Victor Construction cement, final pressure 700#. Cemented with an additional 17 sacks around casing from surface. (total of 667 sacks). Landed on Shaffer base plate. Connected Shaffer controls.			
10-10-44		Drilled out cement and shoe at 1005', cleaned out to 1030' and resumed drilling with a 9-7/8" bit.			
1030	3645	2615'	Drilled		Sand and shale
3645	3920	275'	"		Hard sandy shale
3920	4148	228'	"		Sand and shale
4148	4173	25'	Cored	25'	Core #1 6' - Claystone - dark, dull, olive green, fine, silty with scattered fine sand grains thruout, firm to hard, massive, finely micaceous, spauling, impervious. Grades into:- 1' - Sand - dark olive green, fine grained with scattered medium grains, firm, friable, massive, micaceous, very low permeability, dark color due to abundant clay and silt interstitial material. 8' - Claystone as last above. Grades into:- 2' - Sand - as last above. Very low permeability, no shows. Grades into:- 8' - Claystone - as above. Silty and sandy thruout. Bottom 2' approaches a silty, clayey sand, as last above.
4173	4198	25'	Cored	25'	Core #2 11' - Claystone - dull olive green, fine, hard, tight, as above. Top 3'

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCATS

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					very hard and calcareous. Balance sandy and silty thruout. 14' - Sand - light greenish-gray, medium to coarse with some fine grains, locally gritty, soft, easily friable to loose, massive, clean but with some clay coated grains, appears very permeable, biotitic. No shows.
4198	4209	11'	Cored	6'	Core #3 6' - Sand - light greenish-gray, medium to coarse, gritty, pebbly, unsorted, as above. Very good permeability. No oil shows.
4209	4235	26'	"	3'	Core #4 3' - Granitic boulders and a few fragments dark olive green, gritty claystone. Boulders to 4" diameter and larger.
4235	4245	10'	"	10'	Core #5 6' - Claystone - dull olive green to bluish-gray, very fine even texture, massive, rarely micromicaceous, firm to hard, calcareous, finely micaceous, massive, impervious, sticky, bentonitic. 2' - Sandstone - dark green, fine grained, very silty, hard, calcareous, micaceous, massive, impervious. 2' - Siltstone - olive green, to greenish gray, fine grained, clayey, hard, tight, finely micaceous, massive.
4245	4251	6'	"	6'	Core #6 4' - Gritty Claystone - dull greenish-gray, consists of medium to coarse, sub-rounded, quartz and black mineral grits set in green clay matrix. Hard massive, compact, tight. 2' - Sand - light gray with greenish cast, medium to coarse, gritty, unsorted

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T30-S, R.28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					firm to soft, easily friable, clean, micaceous, permeable. No shows.
4251	4262	11'	Cored	10'	Core #7 10' - Same lithology - clean, good permeability. Includes 10" streak hard, gritty claystone as above at 4252'.
4262	4272	10'	"	10'	Core #8 9½' - Siltstone - dull olive green, fine grained with common coarse grains and grits thruout, very clayey, hard, massive, tight. ½' - Sand - greenish-gray, fine to medium with scattered coarse grains, unsorted, abundant silt and clay interstitial material, soft, readily friable, massive, permeable. No shows.
4272	4279	7'	"	7'	Core #9 7' - Sand - as last above. Very clean, good permeability. No shows.
4279	4289	10'	"	10'	Core #10 1' - Same lithology. 9' - Siltstone - olive green, fine to coarse, very clayey, locally bentonitic, hard, tight, as above.
4289	4299	10'	"	10'	Core #11 8' - Same lithology 2' - Oil sand - dark brownish-gray, fine to coarse, silty, unsorted, massive, soft, easily friable, micaceous, permeable. Sand grains slightly coated with clay. Strong gasoline odor. Brown cut. Appears fair saturation of brown oil.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
4299	4309	10'	Cored	4½'	Core #12 1½' - Oil sand - as above. 2½' - Siltstone - olive green, fine grained with scattered coarse grains and grits, clayey, micaceous, hard, massive, tight. ½' - Sand - light gray with green cast, medium to coarse and gritty, soft, easily friable, massive, biotitic, good permeability. Faint odor. Very pale cut.
4309	4319	10'	"	10'	Core #13 4' - Sand - light gray with bluish-green cast, fine to coarse and gritty, clean but slightly kaolinitic, soft, easily friable, locally very carbonaceous with scattered carbonaceous fragments thruout, very good permeability. No oil 4' - Sand - greenish-gray, fine to locally medium grained, firm, easily friable, massive to local vague bedding, very silty and clayey, micaceous, scattered to abundant carbonaceous fragments. No oil. Indicated 3-5° dip 2' - Sand - light gray with greenish cast, coarse and gritty, clean, kaolinitic, easily friable, massive, very good permeability.
4319	4328	9'	"	2'	Core #14 1' - Same lithology. 1' - Fragments of claystone and granitic boulders. Clay is dark gray to black with green cast, fine, locally sandy, massive to vague bedding, firm to hard, carbonaceous. Granitic boulders to size of core barrel and larger.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
4328	4338	10'	Cored	1½'	Core #15 1½' - Fragments & nubbins of siltstone - bluish-gray, fine, locally sandy, hard, massive, micromicaceous, very clayey, one 2" streak coarse, bluish-gray, kaolinitic clean sand noted.
4338	4349	11'	"	1½'	Core #16 1½' - Sand - light bluish-gray, fine to coarse, kaolinitic but clean and permeable, soft, easily friable, massive, biotitic. Common carbonaceous streaks and clusters. Few fragments of hard, bluish-green, massive, carbonaceous, clayey silt at bottom of core.
4349	4359	10'	"	5'	Core #17 5' - Sand - as above. Occasional dark gray to black sticky, carbonaceous, clay streaks to 3" thick. Badly burned while coring.
4359	4369	10'	"	5'	Core #18 4' - Sandy siltstone-dull gray to black with slight green cast locally, fine with scattered medium and coarse sand grains, clayey, firm, massive, micaceous, tight. Abundant carbonaceous matter with occasional streaks pure lignitic material. 1' - Sand - light gray with green cast, fine to medium, firm to hard, massive, micaceous, appears low permeability. Abundant carbonaceous matter. Badly burned and mud injected.
4369	4377	8'	"	1½'	Core #19 1½' - Carbonaceous sandy silt - as last above. Very badly burned and mud injected while coring.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
4377	4387	10'	Cored	1'	Core #20 1' - Fragments siltstone - bluish-gray, fine, clayey, scattered sand grains and small grits. Core so badly mudded and burned that original character of silt is lost.
4387	4397	10'	"	1½'	Core #21 1½' - Sand - dull to light gray with bluish cast, fine to medium with scattered coarse grains, slightly silty, firm, friable to locally hard, biotitic, kaolinitic, abundantly carbonaceous. Low permeability. No shows.
4397	4400	3'	"	1'	Core #22 1' - Fragments of large granitic and quartz boulders with few fragments bluish-gray clay. Clay badly burned while coring.
4400	4410	10'	"	½'	Core #23 ½' - Same lithology.
4410	4417	7'	"	3'	Core #24 1' - Siltstone - dark gray to black, fine, clayey, massive to vaguely bedded, firm, micromicaceous. Vague 5° bedding plane partings. 2' - Sand - light greenish-gray, fine to coarse, gritty, kaolinitic but clean, soft, easily friable, massive, biotitic, permeable. No oil.
4417	4420	3'	"	2½'	Core #25 2½' - Siltstone - dark gray to black, fine sandy, firm, massive, micaceous, clayey, tight, highly carbonaceous.
4420	4430	10'	"	1'	Core #26 1' - Sand - tan, fine grained, clean, well sorted, soft, crumbly to loose,

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R8-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					massive, permeable. Negative cut. Tan color due to very thin coating of clay around sand grains.
4430	4440	10'	Cored	10'	Core #27 10' - Sandy siltstone - dark gray with bluish cast, fine grained, firm to soft, massive, finely micaceous, locally very clayey, tight. Scattered carbonaceous fragments thruout.
4440	4450	10'	"	8'	Core #28 8' - Siltstone - bluish gray, fine grained, fine sandy thruout, locally clayey, firm, finely micaceous, massive, tight. Common to abundant carbonaceous matter. Scattered pelecypod and gastropod shells thruout, in flood 4442-4443'.
4450	4460	10'	"	10'	Core #29 10' - Same lithology and fauna.
4460	4470	10'	"	10'	Core #30 10' - Same lithology and fauna.
4470	4480	10'	"	10'	Core #31 10' - Same lithology and fauna. Very sandy thruout. Includes 4" streak sandy, calcareous siltstone, at 4471' and 4" streak, at 4476'.
4480	5021	541'	Drilled		Sticky shale
5021	5548	527'	"		Shale
5548	5555	7'	Cored	7'	Core #32 7' - Siltstone - brown, very fine grained, clayey, firm, hard, massive to poorly bedded, locally shaly, micromicaceous. Very abundant forams and fish remains. Poor indicated 5° dip. Pullvinulinellas common, Globigerina bulloides flood.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5555	5565	10'	Cored	5'	Core #33 5' - Siltstone - brown, shaly, fine grained, clayey, firm to hard, fair bedding, micromicaceous, local thin streaks and patches of sand, common forams and fish remains. Occasional brown phosphatic nodules.
5565	5575	10'	"	10'	Core #34 10' - Same lithology and fauna. Positive flame test.
5575	5585	10'	"	10'	Core #35 10' - Clay shale - same lithology as above except less fine sand and silty material, more pronounced bedding, very sticky and clayey. Scattered forams and fish remains. Occasional very thin, tight, fine grained sandy streaks. Burned while coring.
5585	5595	10'	"	10'	Core #36 10' - Same lithology and fauna.
5595	5605	10'	"	8'	Core #37 8' - Same lithology and fauna.
5605	5611	6'	"	½'	Core #38 ½' - Clay shale - medium to dark brown, very fine, sticky, firm to hard, fairly well bedded, micromicaceous, locally silty. Scattered forams and fish remains.
5611	5616	5'	"	1'	Core #39 1' - Same lithology and fauna.
5616	5624	8'	"	3½'	Core #40 3½' - Same lithology and fauna.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5624	5634	10'	Cored	8'	Core #41 8' - Same lithology - with a few very small lenses and patches of fine, gray, hard, tight, sand in bottom 4". Sand lenses to 1/16" thick.
5634	5641	7'	"	7'	Core #42 7' - Same lithology and fauna.
5641	5642	1'	"	1'	Core #43 1' - Shale - as last above. Very clayey and sticky. Includes 1/4' very hard, dark gray, medium to coarse, impervious, sandstone shell 2" from base.
5642	5651	9'	Drilled		Sticky shale
5651	5654	3'	Cored	10"	Core #44 10" - Same lithology - scattered forams and fish remains.
5654	5665	11'	Drilled		Sticky shale.
5665	5671	6'	Cored	5'	Core #45 5' - Same lithology and fauna. Very well bedded, local streaks very silty, rather soft but firm. Common gas bubbles on mud sheath. Good 3° to 4° dip.
5671	5700	29'	Drilled		Sticky shale
5700	5703	3'	Cored	3'	Core #46 3' - Siltstone - dull gray, fine grained, hard, shaly, slightly clayey, fine sandy, poorly to well bedded, micromicaceous. Scattered forams. Common very thin streaks of very fine, hard, tight sand showing well defined cross-bedding. Dip 5° to 6°.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5703	5711	8'	Cored	8'	Core #47 8' - Same lithology - very clayey, shaly, and platey thruout. Mostly well bedded with good 3° dip. Includes occasional very thin laminae of fine, hard, gray, cross bedded, tight sand. Common forams. Occasional fish remains.
5711	5745	34'	Drilled		Siltstone.
5745	5752	7'	Cored	3'	Core #48 3' - Same lithology and fauna. Badly burned while coring.
5752	5762	10'	"	10'	Core #49 1' - Sand - light gray with faint greenish cast, fine to medium with occasional coarse grains, poorly sorted, soft, easily friable, massive, permeable. No oil shows. 9' - Shaley siltstone - as last above. Common irregular very thin streaks and patches of fine, hard, tight sand. Scattered forams and rare fish remains.
5762	5772	10'	"	2'	Core #50 2' - Same lithology with common very thin streaks of fine, hard, light gray sandstone. Streaks to 1/8" thick.
5772	5782	10'	"	10'	Core #51 10' - Silty shale - as above with common interbeds of fine gray, tight sand to 1/4" thick. Contains a 2" streak of sand at 5780'. Sand is gray, fine to medium grained, fairly clean and well sorted, slightly kaolinitic, soft, easily friable, micaceous, permeable. No shows. Includes 2" fine grained hard, calcareous sandstone shell at 5781'.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M. D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
5782	5792	10'	Cored	3'	Core #52 3' - Same lithology with 4" streak sand as described last above 2' from top. Also common thin interbeds of sand as above to 1/4" thick thruout.
5792	5802	10'	"	4"	Core #53 4" - Sand - brownish-gray, fine to coarse, gritty and pebbly, massive, unsorted, soft, easily friable, permeable, micaceous. Fair odor. Amber cut. Badly injected with mud and burned while coring. Appears stained with brown oil.
5802	5807	5'	"	6"	Core #54 6" - Same lithology - Irregularly spotted with heavy brown oil. Looks wet.
5807	5812	5'	"	4'	Core #55 4' - Oil sand - brownish-gray, fine to medium with scattered coarse grains, rather poorly sorted but clean, soft, easily friable, micaceous, massive, good permeability. Strong but burned odor. Brown cut. Badly injected with mud so estimation of saturation is impossible.
5812	5832	20'	"	20'	Core #56 7' - Oil sand - brownish-gray, fine to coarse, gritty and pebbly, unsorted, soft, readily friable, massive, permeable. Strong oil to gasoline odor. Appears fair saturation of brown oil. 2' - Sand - lithology as above. Weak odor. Occasional spots of brown oil. wet. 1' - Shale - dark brown, fine, hard, well bedded, platey, micromicaceous. Abundant forams, occasional fish remains.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					10' - Sand - gray, mottled with brownish gray, fine to medium with occasional coarse grains, firm, friable, massive, micaceous. Appears low to fair permeability. Top 3' irregularly stained with brown oil giving strong odor. Next 6' appears low permeability with no oil stains. Bottom 1' has strong odor. Irregularly stained with brown oil.
5832	5849	17'	Cored	13'	Core #57 1' - Sandstone - light gray, fine to medium, very hard, calcareous, massive, compact, heavy, impervious. 6' - Sand - gray, mottled with light brownish-gray, fine to medium, soft, readily friable, massive, finely micaceous, slightly kaolinitic. Appears low permeability. Weak, oily, gasoline odor. Poorly and spottedly stained with brownish-gray oil. Wet. 1½' - Sandstone - as last above 4½' - Sand - gray, mottled with light brownish-gray, soft, fine to medium as above. Weak odor. Wet. Includes bottom 6" hard and interbedded with dark brownish-gray, clayey siltstone with common forams.
11-6-44	Ran Schlumberger Electric Log from 1002-5851'				
5849	5859	10'	Cored	0'	Core #58 No recovery.
5859	5869	10'	"	9'	Core #59 9' - Sand - as last above. Weak odor thruout. Includes 8" coarse gritty streak at top that appears well saturated with brown oil and has strong odor, amber cut. Also 6" streak saturated with oil at 5862'. Bottom 4" coarse

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					and gritty and saturated with oil. Balance poor to fair permeability with no shows.
5869	5879	10'	Cored	4'	Core #60 4' - Sand - light bluish-gray with greenish cast, fine to medium, fairly clean, fair sorting, soft, easily friable, massive, finely micaceous. Lithology as above. Sand is sharp with occasional well rounded small grits. Appears fair permeability. No shows.
5879	5889	10'	"	10'	Core #61 10' - Same lithology - occasional very poor oil spots thruout.
5889	5899	10'	"	1½'	Core #62 1½' - Same lithology.
5899	5909	10'	"	9'	Core #63 9' - Cavings and mud with scattered sections of sand, oil stained sand and gritty sand, as above. Very badly burned while coring.
5909	5919	10'	"	9'	Core #64 9' - Sand - light gray with bluish-green cast, fine to medium with scattered coarse grains and small grits, unsorted, firm, easily friable, massive, finely micaceous, permeable. No shows.
5919	5929	10'	"	4"	Core #65 4" - Siltstone - dark brownish-gray, fine, clayey, hard, massive, brittle, compact, micromicaceous, impervious Occasional forams.
5929	5939	10'	"	5'	Core #66 5' - Sand - as last above. Badly mud

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					injected. Occasional thin streaks dark brown siltstone, as above.
5939	5949	10'	Cored	5'	Core #67 5' - Same lithology
5949	5959	10'	"	9'	Core #68 9' - Sand - light gray, fine to medium grained, firm to soft, easily friable, massive, finely micaceous, fairly well sorted, clean, slightly kaolinitic, appears permeable. No shows.
5959	5969	10'	"	5'	Core #69 5' - Same lithology - no shows.
5969	5979	10'	"	10'	Core #70 10' - Same lithology.
5979	5989	10'	"	3'	Core #71 3' - Same lithology.
5989	5999	10'	"	9'	Core #72 9' - Same lithology.
5999	6009	10'	"	½'	Core #73 ½' - Same lithology. Small pebbles to 3/4" diameter.
6009	6015	6'	"	2"	Core #74 2" - Sand - light gray, fine to medium friable, massive as above. Pebbles to ½".
6015	6101	86'	Drilled		Sand and streaks of shale
6101	6197	96'	"		Sand and shale
6197	6217	20'	Cored	0'	Core #75 No recovery.
6217	6278	61'	Drilled		Shale.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
					TOTAL DEPTH 6278'
					POINTS:
					Top Santa Margarita ..... 4309' (S)
					Top Wicker Sand ..... 5785' "
					11-12-44 Ran Schlumberger Electric Log 5851-6279'.
					Ran 5898' (140 joints) of 7", 23#, new, seamless, N-80 & J-55 casing, with Baker float shoe at 5898', Baker float collar at 5861', and cemented in 9-7/8" hole with 450 sacks Construction cement, final pressure 1500#.
					CASING DATA:
					5898.00' - bottom of Baker float shoe 5898.00' - 4598.96' - 33 joints, N-80, Pittsburgh casing. 4598.96' - 871.22' - 85 joints, J-55, Youngstown casing. 871.22' - Surface - 22 joints, J-55, Pittsburgh casing.
					11-15-44 Landed casing on Shaffer base plate, installed Shaffer control gates. Made up tubing.
					11-16-44 to 11-17-44 Top of cement found at 5836', drilled out to top of float collar at 5861'. Shot 4, 1/2" holes at 5818' with Lane-Wells gun. Squeezing Shot Holes at 5818' Ran Halliburton shoe squeeze tool, failed to go below 5721', scraped casing from 5500-5861' with casing scraper, re-ran squeeze tool, set at 5760', broke down thru shot holes at 5818'; pumped in 50 sacks, put away approximately 3 sacks, tool failed to hold; back scuttled excess cement. Found top of cement at 5620', drilled cement to 5840', cleaned out to 5861'.
					11-18-44 Shot 4, 1/2" holes at 5760' with Lane-Wells gun.
					11-19-44 Water Shut-Off Test at 5760': Ran Halliburton tester with packer set at 5742', tail pipe including 3/8" bean, 10' of 120-mesh perforations & 2 pressure bombs to 3764'. Valve open one hour; strong blow 8 minutes, light diminishing blow 20 minutes, dead remainder of hour. Pulled tester and recovered 75' medium mud in 2½" tubing. Test witnessed and approved by the Division of Oil and Gas.
					Ran Lane-Wells gun, shot 6, 15/32" holes per for for production from 5785-5805' Scraped over perforations. Landed 2½" E.U. tubing at 5778'.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
11-20-44 to 12-1-44					Installed Xmas tree. Swabbed well 3 hours; started flowing to sump. Flowed approximately 100 barrels fluid, 50.0%, 20/64" bean. Tested well 10 days, installed pumping unit.
12-2-44					Well put on pump 4:30 p.m. (tubing landed 5790', pump shoe 5740') Initial production 142 net barrels, 52.0%, 30# CP, 900 g/g.
12-3-44					10 net, 52.0%, 30# CP.
12-4-44					12 B/D, 52.0%, 30# CP, 1566 g/g.
12-5-44					4 B/D, 50.0%, 30# CP.
12-6-44					2 B/D, 56.0%, 60# CP, 1604 g/g.
12-7-44					22 B/D, 29.0%, 20# CP, 1628 g/g. (cut 0.4 mud, 8.6 emulsion, 20.0 water).
12-8-44					Pulled tubing, bailed sand 5766-5771'. Fluid level 5012'
12-9-44 to 12-12-44					Washed perforations, found partially plugged and tight. Washed with 400# to 2000# pressure.
12-13-44 to 12-27-44					Re-ran 183 joints of 2½" E.U. tubing, landed 5790', Fluid pack pump shoe at 5740', 2 joints of gas anchor below shoe; ran 181, 3/4" rods and Fluid Pack pump. Well on pump at 5:00 a.m. Produced at 8 B/D rate from 12-14-44 to 12-27-44.
12-28-44					Reperforated from 5785-5800', 6, 9/16" holes per foot with Lane-Wells gun.
12-29-44					Bailed sand and mud. Washed perforations with 200# to 400# pressure.
12-30-44					Bailed sand and mud.
1-1-45					Ran rods and pump. Produced 58 net, 48.0%, 200# CP.
1-2-45					121 B/D, 62.0%, 300# CP
1-3-45					109 B/D, 62.0%, 500# CP.
1-4-45					11 B/D, 80.0%, 500# CP.
1-5-45					136 B/D, 48.0%, 590# CP.

WESTERN GULF OIL COMPANY

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator WESTERN GULF OIL COMPANY Field WILDCAT

Well No. 1 - "Cohn Estate" Sec. 3, T. 30-S, R. 28-E, M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
1-6-45 to 1-8-45					Production dropped to 13 B/D rate, cut rose to 76.0%. Well sanded up.
1-10-45					Pulled rods and tubing, bailed sand from 5860' for 10 hours.
1-17-45					Rigged up to run water witch.
1-23-45 to 1-31-45					Located water entry at 5785', filled 7" casing with sand to 5855' for bridge plug, ran squeeze tool to 5711', pumped in 25 sacks cement, 14 sacks away at 3500#, drilled out cement 5701-5861'. Washed perforations, failed to open at 3000# pressure.
2-1-45					Reperforated 5790-5805', 4, 1/2" holes per foot with Lane-Wells gun. Washed perforations. Fluid level at top. Bailed sand. Ran tubing and rods.
2-2-45					Well on pump 5:00 a.m.
2-11-45					Well produced periodically from 2-245 to 2-10-45 a total of 81 barrels oil. Sanded up.
2-27-45					Circulated out sand 5770-5822'. Ran water witch, located entry 5801-5805'. Shot 4, 1/2" holes with McCullough gun at 5815', to squeeze.
2-28-45					Squeeze tool stopped at 5785, rolled out casing with casing roller from 5786-5788'. Milled bullets 5788-5790'. Re-ran squeeze tool, set at 5815', pumped in 10 sacks cement, 8 sacks away at 3000#. Top of cement at 5814'.
3-16-45					Put well on pump at 5:00 a.m.
3-17-45 to 4-25-45					Well produced periodically from March 17 to April 25th a total of 164 net barrels oil, 92.8% average cut.
4-27-45					Plugged hole with 75 sacks cement thru 2½" tubing hung at 5805'. Top of cement was located at 5203', plug witnessed and approved by the Division of Oil and Gas. WELL ABANDONED 4-27-45
4-29-45					Welded cap over top of 10-3/4" casing.

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 4-22643

Bakersfield, Calif. April 27, 1945.

Mr. T. H. Wallace
P. O. Box 1892, Bakersfield, Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Operations at your well No. 1-"Cohn Estate" Sec. 3, T. 30 S., R. 28 E., M. D. B. & M., Edison Field, in Kern County, were witnessed by S. H. Rook, representative of the supervisor, on April 27, 1945. There was also present J. N. Douglas, Production Superintendent M. L. Teague, Driller.

Casing Record 10-3/4" cem. 1005'; 7" cem. 5886', s.p. 5815' and 5818', 4 holes at 5760', W.S.O. perf. 5785'-5805' T.D. 6278', plugged with cement 5898'-5861', 8 sacks below cement retainer at 5814' and 75 sacks below 6203'.

Junk None

The operations were performed for the purpose of testing the location and hardness of a cement plug placed in the hole from 5814' to 6203' in the process of abandonment.

The inspector arrived at the well at 8:00 a.m. and Mr. Douglas reported:

1. On April 26, 1945, 75 sacks of cement was pumped into the hole through 2½" tubing hung at 5806'.
2. The top of the set cement was located at 6203'.

The inspector noted that the cement plug at the reported depth of 6203' supported all of the weight of the 2½" tubing.

The inspection was completed at 9:20 a.m.

THE LOCATION AND HARDNESS OF THE CEMENT PLUG AT THE REPORTED DEPTH OF 6203' ARE APPROVED.

CC-R. P. Huggins (3)
1221 Subway Terminal Bldg., L.A., 13

SHR:VKS

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dodd TEK Deputy

28381 10-43 15M
STATE PRINTING OFFICE

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

121

No. P 4-28557

Bakersfield, Calif. April 25, 1945.

MR. T. H. Wallace

P. O. Box 1392, Bakersfield, Calif.

Agent for Western Gulf Oil Company

DEAR SIR:

Your proposal to abandon Well No. 1-"Cohn Estate",

Section 3, T. 30 S., R. 28 E., M.D.B. & M., Edison Field, Kern County,

dated Apr. 24, 1945, received Apr. 25, 1945, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The present condition of the well is as follows:

1. Complete casing record.
   10-3/4" csg. cmtd. 1095'.
   7" csg. cmtd. 5898' w/450 sxs; perfd. 4 holes 5818' & squeezed w/cmt; 4 holes 5760' W.S.O.; 6 holes per foot 5785-5805'.
   Total Depth 6278'; plugged w/cmt. 5898-5861'; perfd. 4 holes 5815' & squeezed w/cmt. Baker cmt. retainer 5814'.
   Well has failed to produce commercially.
2. Last produced. April 23, 1945 (Date) | 6 (Net Oil) | ____ (Gravity) | 99.0." (Cut)

PROPOSAL:

"The proposed work is as follows:

1. Plug w/75 sacks cement from 5814'.
2. Weld cap over top of 10-3/4" casing."

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. THIS DIVISION SHALL BE NOTIFIED TO WITNESS the location and hardness of the cement plug at 5407'±.
2. The 7" casing shall be filled from 5407'± to the surface with dirt and/or mud fluid prior to capping the 10-3/4" casing.

CC-R. P. Huggins (3)
1221 Subway Terminal Bldg., L.A., 13
-P. A. W.

Blanket Bond
FEK:VKS

R. D. BUSH
State Oil and Gas Supervisor

By _____ Deputy

FORM 108. 30152 12-43 7500
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

RECEIVED
APR 25 1945
BAKERSFIELD, CALIF.

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin

Bakersfield Calif. April 24 19 45

DIVISION OF OIL AND GAS

P4-28357

Bakersfield Calif.

In compliance with Secs. 3228, 3229, 3230, 3231 and 3232, Ch. 93, Stat. 1939, notice is hereby given that it is our intention to abandon well No. 1 - "Cohn Estate"

Sec. 3, T. 30-S, R. 28-E, M.D. B. & M. "Wildcat" Field,

Kern County, commencing work on the 25th day

of April 1945.

The present condition of the well is as follows:

1. Complete casing record.

10-3/4" csg. cmtd. 1005'.
7" csg. cmtd. 5898' w/450 sxs; perfd. 4 holes 5818' & squeezed w/cmt; 4 holes 5760' W.S.O.; 6 holes per foot 5785-5805'.
Total Depth 6278'; plugged w/cmt. 5898-5861'; perfd. 4 holes 5815' & squeezed w/cmt. Baker cmt. retainer 5814'.

Well has failed to produce commercially.

2. Last produced. April 23, 1945 (Date) 6 (Net oil) ____ (Gravity) 90.0 (Cut)

The proposed work is as follows:

1. Plug w/75 sacks cement from 5814'.
2. Weld cap over top of 10-3/4" casing.

cc: R.P.Huggins (4)
T.H.Wallace (1)
G.W.Ledingham (1)
File (1)

Reference to file of data

Map & Book	U S G S	Bond	Card	Forms 114	Forms 121
	No	Blanket	✓	1081	45H

WESTERN GULF OIL COMPANY
(Name of Operator)

By J. N. Douglas
J. N. DOUGLAS, Prod. Supt.

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

FORM 109-A

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
(FORMATION TESTER)

No. T 4-22363

Bakersfield, Calif. November 24, 1944.

Mr. T. H. Wallace
P. O. Box 1392, Bakersfield, Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Your well No. 1-"Cohn Estate", Sec. 3, T. 30 S., R. 28 E., M. D. B. & M. Mt. View Field, in Kern County, was tested for water shut-off on November 19, 1944. Mr. R. M. Barger, Inspector, designated by the supervisor, was present as prescribed in Sec. 3222 and 3223, Ch. 93, Stat. 1939; there were also present John Bray and M. F. Siedenburg, Drilling Foremen; and E. C. Fry, Tester Operator

Shut-off data: 7 in. 23 lb. casing was cemented at 5898 ft. on November 12 & 17, 1944 in 9-7/8" rotary hole with 500 sacks of cement of which 52 sacks was left in casing. Casing record of well: 10-3/4" cem. 1005'; 7" cem. 5898' with 450 sacks of cem. around shoe, 4 holes 5818' squeezed with 50 sacks of cem., 4 holes 5760' W.S.O.

Reported total depth 6276 ft. Bridged with cement from 5861 ft. to 5890 ft. Cleaned out to 5861 ft. for this test. A pressure of 750 lb. was applied to the inside of casing for 15 min. without loss after cleaning out to 5861 ft. A Halliburton tester was run into the hole on 2-7/8 in. tubing/drill pipe, with -- ft. of water cushion, and packer set at 5742 ft. with tailpiece to 5764 ft. Tester valve, with 3/8" bean, was opened at 6:20 a.m. and remained open for 1 hr. and -- min. During this interval there was a strong blow for 8 min., dimishing to a weak blow in the next 26 min., and then no blow for the rest of the test.

The inspector arrived at the well at 10:30 a.m. and Mr. Bray reported:

1. On Nov. 12, 1944, the 7" casing was cemented at 5898' with 450 sacks of cement.
2. The cement, top at 5836, was drilled out to 5861'.
3. The 7" casing was gun-perforated with four 1/2" holes at 5818'.
4. On Nov. 17, a Halliburton squeeze tool was set at 5760' and 50 sacks of cement was forced below the tool under a final pressure of 4000 lb.
5. Set cement was drilled out from 5620' to 5840', in cleaning the hole out down to 5861'.
6. The 7" casing was gun perforated at 5760' with four 1/2" holes for a test of water shut-off.

The inspector noted the following:

1. The 120' of 2-7/8" tubing remaining to be pulled contained 75' of mud fluid above the tester valve.
2. The pressure charts indicated that the tester functioned properly.

The inspection was completed at 11:00 a.m.

THE SHUT-OFF IS APPROVED.

4/24/45 Douglas-RMB
Baker plug at 5814'
perf. 5785'-5805'
water entry 5801'-5805'
perf. 4-½" holes @ 5815', set cem. ret at 5814' & squeezed away 8 sax cem.
Prod. - 1-4 bbl. cut 90% Well will produce only 1 day out of 4-5 days
Aband. - 75 sax cem. 5814'-5407'± We will witness top.

R. D. BUSH, State Oil and Gas Supervisor

By V. T. Wood, Deputy

cc-R. P. Huggins (5)
1221 Subway Term. Bldg., L.A., 13
RMB:VKW

96194 7-44 7500
STATE PRINTING OFFICE

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 4-22305

Bakersfield, Calif. October 17, 1944.

Mr. T. H. Wallace
P. O. Box 1392, Bakersfield, Calif.
Agent for Western Gulf Oil Company

DEAR SIR:

Operations at your well No. 1-"Cohn Estate" Sec. 3, T. 30 S., R. 28 E., M. D. B. & M., Mt. View Field, in Kern County, were witnessed by R. M. Barger, representative of the supervisor, on October 11, 1944. There was also present M. F. Siedenburg, Drilling Foreman; and L. Conner, Driller.

Casing Record	Junk
10-3/4" cem. 1005'; T.D. 1325'.	None.

The operations were performed for the purpose of inspecting the blow-out prevention equipment.

The inspector arrived at the well at 2:00 p.m. and Mr. Siedenburg reported:

1. On Sept. 8, 1944, the 10-3/4" 40.5 lb. casing was cemented at 1005' in a 15½" rotary hole with 650 sacks of cement around the shoe.
2. 17 sacks of cement was placed around the casing from the surface.
3. The Shaffer complete shut-off gate was tested under 750 lb. pressure for 15 min. without loss.
4. The Shaffer ram-type gate was tested under 750 lb. pressure without loss.
5. The Hosmer type packer was tested under 250 lb. pressure without loss.
6. A 9-7/8" rotary hole was being drilled ahead at 1325' at the time of this inspection.

The inspector noted that the well was equipped with the following blow-out prevention equipment:

1. A Shaffer master gate. The control for operating this gate was located at the edge of the derrick.
2. A Shaffer ram-type gate. The control for operating this gate was located at the edge of the derrick.
3. A high pressure mud fill-up line, with a high pressure gate, into the 10-3/4" casing below the master gate.
4. A high pressure gate on the mud flow line.
5. A Hosmer type head and packer.

The inspection was completed at 2:15 p.m.

THE BLOW-OUT PREVENTION EQUIPMENT IS APPROVED AS BEING ADEQUATE FOR THIS AREA.

11/18/44 Bray - RMB
T.D. 6278' 7"-23# cem. 5898' with 450 sax in 9⅞" hole
Oil Zone 5785'-5805'
4-½" holes @ 5818' squeezed with cement.
Holes for W.S.O. @ 5760'

CC:-R. P. Huggins (3)
1221 Subway Term. Bldg., L.A., 13
RMB:VKW

R. D. BUSH
State Oil and Gas Supervisor

By [signature] Deputy

28381 10-43 15M
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FORM 111
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

121

No. P 4-25903

Bakersfield, Calif. September 15, 1944.

MR. T. H. Wallace

P. O. Box 1392, Bakersfield, Calif.

Agent for Western Gulf Oil Company

DEAR SIR:

Your proposal to drill Well No. 1-"Cohn Estate",

Section 3, T. 30 S., R. 28 E., M.D. B. & M., Mt. View Field, Kern County,

dated Sept. 13, 1944, received Sept. 15, 1944, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The well is 997.13 feet N., and 331.97' feet W. from SE Corner of Section 3.
The elevation of the ground above sea level is 379.80' feet.
Well is to be drilled with rotary tools.
We estimate that the first productive oil or gas sand should be encountered at a depth of about 4350' feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
10-3/4"	40.50#	J-55	1000'±	Cemented
7"	23#	J-55 & N-80	7000'±	Cemented

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The 10-3/4" casing shall be cemented with sufficient cement to fill all the space back of the casing.
2. Mud fluid of sufficient weight and proper consistency to prevent blow-outs shall be used in drilling the well and thecolumn of mud fluid shall be maintained to the surface at all times, particularly while pulling the drill pipe.
3. Adequate blow-out prevention equipment shall be provided and tested before drilling below the shoe of the 10-3/4" casing and maintained ready for use at all times thereafter.
4. If an examination of the oil zone at 4350' indicates that it needs protection sufficient cement shall be pumped around the shoe of the 7" casing to fill all the space behind the casing up to 4100'.
5. THIS DIVISION SHALL BE CONSULTED regarding the exact cementing depth of the 7" casing after coring and/or making the electric log and before running the 7" casing into the hole.
6. THIS DIVISION SHALL BE NOTIFIED:
   a. TO INSPECT the blow-out prevention equipment before reaching a depth of 2000' below the shoe of the 10-3/4" casing.
   b. TO WITNESS a test of the 7" water shut-off with the hole open not more than 5' below the casing shoe.

R. D. BUSH
State Oil and Gas Supervisor

By H. C. Dodd Deputy

A

cc-R. P. Huggins (3)
1221 Subway Term. Bldg., L.A., 13
-P. A. W.
Blanket Bond
RMB:VKW

FORM 105.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
RECEIVED
SEP 15 1944
BAKERSFIELD, CALIF.

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

29-04740

Bakersfield, Calif. September 13, 1944

DIVISION OF OIL AND GAS

P4-25903

Bakersfield, Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. 1 - "Cohn Estate", Sec. 3, T. 30-S, R. 28-E, M.D. B. & M., "Wildcat" Field, Kern County.

Lease consists of SE¼ of SE¼ of Section 3

The well is 997.13 feet N. ~~XXX~~ and 331.97' feet ~~XXX~~ W. from SE Corner of Section 3
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the ~~XXXXX~~ ground floor above sea level is 379.80' feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 4350' feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
10-3/4"	40.50#	J-55	1000'+	Cemented
7"	23#	J-55 & N-80	7000'+	Cemented

Well is to be drilled with rotary ~~XXXXX~~ tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address P.O.Box 1392, Bakersfield, Calif.

WESTERN GULF OIL COMPANY
(Name of Operator)

Telephone number 6-6031

By T. H. Wallace
T. H. WALLACE, Agent

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

cc: R.P.Huggins (4)
T.H.Wallace (1)
E.W.Ledingham (1)
File (1)

Reference to file of data

Map & Book	U S G S	Bond	Card	Forms 114	Forms 121
9/15/44 RMB	No	Blanket	V	1049	LSH.

TABLE 1
Composite & Discrete Soil Sample Analytical Results
Results for Potential School Site #5
SW of Oswell St. & Zephyr Lane in Bakersfield, CA

CONSTITUENTS				COMPOSITE ON-SITE SOIL SAMPLES (0 to 6" depth)								Discrete Soil Samples (0 to 6", 2' to 2.5' depths)																										East Dirt Berm Samples		
Chlorinated Pesticides (EPA 8081A)	**PQL (ug/kg)**	**DTSC SLs or EPA RSLs Cancer Endpoint (ug/kg)**	**DTSC SLs or EPA RSLs, Non-Cancer Endpoint (ug/kg)**	**C1-3" (A,B,C, D)**	**C2-3" (A,B,C, D)**	**C3-3" (A,B,C, D)**	**C4-3" (A,B,C, D)**	**C5-3" (A,B,C, D)**	**C6-3" (A,B,C,D)**	**C7-3" (A,B,C, D)**	**C8-3" (A,B,C, D)**	**C1B-3"**	**C1B-2'**	**C2B-3"**	**C2B-2'**	**C3B-3"**	**C3E-3" (Dup of C3B-3")**	**C3B-2'**	**C4B-3"**	**C5A-3"**	**C5A-2'**	**C5B-3"**	**C5C-3"**	**C5C-2'**	**C6B-3"**	**C6B-2'**	**C6C-3"**	**C6C-2'**	**C7B-3"**	**C7B-2'**	**C7D-3"**	**C7D-2**	**C8A-3"**	**C8A-2'**	**C8B-3"**	**C8B-2'**	**C8C-3"**	**C8C-2'**	**C8D-3"**	**C8D-2'**	**BM-1**	**BM-2**	**BM-3**
Aldrin	4	39	2300**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Alpha-BHC	4	86	510000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-BHC	4	300		<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Delta-BHC	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Gamma-BHC, Lindane	4	570	21000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Technical Chlordane	20	1700	35000	<20	<20	<20	<20	<20	<20	<20	<20	NA	NA	NA	NA	<20	<20	<20	NA	<20	NA	NA	<20	<20	NA	NA	<20	NA	NA	NA	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
4,4'-DDD	4	2300	1900	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	6.08	<4	NA	NA	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	19.2	<4	<4	5.85	5.37
4,4'-DDE	8	2000	23000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	16.1	<8	<8	<8	<8	<8	23.6	<8	<8	10.9	15.4
4,4'-DDT	8	1900	37000	<8	<8	<8	11.7	17.5	<8	<8	72.9	NA	NA	NA	NA	<8	<8	13.7	NA	<8	NA	NA	44.4	41.1	NA	NA	<8	NA	NA	NA	48.5	<8	<8	8.89	27.3	<8	125	<8	12.1	20.3	17.8	50.2	22.2
Dieldrin	4	34	3200**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	8.18	<4	<4	<4	<4
Endosulfan I	8		450000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
Endosulfan II	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endosulfan Sulfate	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin	4		19000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Aldehyde	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Ketone	10			<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Heptachlor	4	130	38000**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Heptachlor epoxide	4	70	990**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methoxychlor	10		320000**	<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxaphene	60	450**	5700	<60	<60	<60	<60	<60	<60	<60	<60	NA	NA	NA	NA	<60	<60	<60	NA	<60	NA	NA	<60	<60	NA	NA	<60	NA	NA	NA	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60
Metals (EPA 6010)	**mg/kg**	**mg/kg**	**mg/kg**																																						
Antimony	2		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	2.29	NA	<2	<2	<2
Arsenic	2	0.11 *	0.41**	NA	NA	NA	NA	NA	NA	NA	NA	**13.8**	7.19	**17.5**	**12.2**	**15.3**	**17.8**	10	10	**15.7**	6.91	8.95	11.6	NA	**12.6**	11.4	**15.7**	6.48	**13.1**	10.4	**13.1**	5.03	NA	NA	11.3	NA	NA	NA	11.5	NA	**15.5**	**14.1**	10.5
Barium	1		15000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	182	NA	NA	221	NA	NA	NA	302	NA	NA	NA	211	NA	NA	NA	208	NA	NA	NA	393	NA	245	278	185
Beryllium	1	1600	15**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Cadmium	1	2100	7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Chromium	1			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.5	NA	NA	26.6	NA	NA	NA	15.4	NA	NA	NA	22.6	NA	NA	NA	21.3	NA	NA	NA	16.6	NA	21.9	24.8	18.7
Cobalt	1	420	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.39	NA	NA	9.28	NA	NA	NA	7.62	NA	NA	NA	8.23	NA	NA	NA	8.77	NA	NA	NA	6.8	NA	7.77	9.94	7.59
Copper	1		3100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.2	NA	NA	22.3	NA	NA	NA	10.2	NA	NA	NA	18.6	NA	NA	NA	15.9	NA	NA	NA	11.2	NA	14.4	17.3	14.1
Lead	1		80**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.7	NA	NA	23.7	NA	NA	NA	2.23	NA	NA	NA	10.1	NA	NA	NA	4.59	NA	NA	NA	1.97	NA	5.96	5.75	7.86
Molybdenum	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	1.39	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	2.31	1.56
Nickel	1	15000	820**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.1	NA	NA	17.4	NA	NA	NA	12.1	NA	NA	NA	14.9	NA	NA	NA	20	NA	NA	NA	12	NA	13.8	15	11.3
Selenium	2		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	<2	<2	<2
Silver	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Thallium	2		0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	<2	<2	<2
Vanadium	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.5	NA	NA	50.6	NA	NA	NA	37.5	NA	NA	NA	43.1	NA	NA	NA	49.8	NA	NA	NA	37.5	NA	47.6	49.8	36.9
Zinc	5		23000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.5	NA	NA	95.2	NA	NA	NA	29.8	NA	NA	NA	68.2	NA	NA	NA	55.4	NA	NA	NA	34	NA	53.3	60.5	50.8
EPA 7471 -Mercury	0.1		1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	<0.1	<0.1	<0.1
TPH (EPA 8015B)	**mg/kg**	**mg/kg**	**mg/kg**																																						
C5-C12	0.5		82-520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	<0.5	<0.5
C13-C22	2.5		96-110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.5	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	<2.5	<2.5	<2.5
C23-C40	100		2500-11000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	<100	<100	<100
Volatile Organic Compounds (VOCs) by EPA 8260B	**mg/kg**	**mg/kg**	**mg/kg**																																						
Benzene	0.002	0.330*	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Toluene	0.002		1100*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Ethylbenzene	0.002	5.8		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Xylenes	0.002		580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Other VOCs	varies	Chem Specific	Chem Specific	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	All ND	All ND	All ND
pH (EPA 9045C)	0-14			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	8.6	8.2

Note : Results in ppb unless otherwise noted, ppb = parts per billion (ug/kg), ppm= parts per million (mg/kg), ND = None Detected, NA = Not Analyzed, PQL = Practical Quantitation Limit For Reporting Purposes. Bold = concentration > RSLs, RSLs = EPA Regional Screening Levels May 2022, * = compare arsenic concentrations to ambient background. ** = HHRA Note #3 June DTSC Screening Levels (SLs). TPH = Total Petroleum Hydrocarbons, BTEX = Benzene, Toluene, Ethylbenzene & Xylenes, VOCs - Volatile Organic Compounds

TABLE 2
COMPARISON OF ARSENIC CONCENTRATIONS
AT SCHOOL SITES IN EASTERN BAKERSFIELD, ARVIN & LAMONT
UNDERGOING OR HAVE COMPLETED PEA's

SITE NAME (Location is East Bakersfield Area unless otherwise noted)	ON-Site Total Arsenic Range (mg/kg)	On-Site Mean Concentration (mg/kg)	Background Range (mg/kg) Most at 5' Depth
KHSD - Mira Monte HS - Fairfax & Redbank	6.03 to **24.6**	10.74	8.6 to 15.7
KHSD - Mira Monte Expansion - S. Fairfax & E. Wilson	11.7 to 27.6	13.98	13.4 to 22.3
Arvin SD - Myers & El Camino Elementary-Arvin	9.9 to 19.8	12.82	12 to18
KHSD - Cont. HS, E. Belle Terrace & Mt. Vernon	8.93 to 12.6	11.44	8.62 to 15.7
GUSD - Mid #4 & Elem, Cottonwood & Panama Ln	2.7 to 8.75	5.95	3.5 to 5.6
Fairfax & Zephyr Elementary School	3.06 to 16.3	5.52	8.6 to 15.7
Lamont SD - Proposed School Site Habecker Rd.	9.21 to **30.2**	**20.4**	9.1 to 14 (6')
Edison SD - Orangewood Elem Site	9.37 to 14	11.14	NA
Previous FSD Site #5 - E. Wilson & S. Fairfax	4.71 to 34	11.77	4.5 to 15 (7' or 10')
Current FSD Site #5 - S. Oswell & Zephyr	5.03 to 17.8	11.9	9.2 to 11.5 (6')
Overall PEA Site Averages & Ranges	1 to **30.2**	11.57	3.5 to 18
Bold = Elevated Concentration Requiring Remedial Action or Above Normal Background			

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

August 17, 2022

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2208092
Project Name: 18503 FSD / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 10, 2022.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C1A-3", C1B-3", C1C-3", C1D-3" - Composite Soil (2208092-01) Sampled: 08/09/22 08:07 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*72.6 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*76.7 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Sample ID: C2A-3", C2B-3", C2C-3", C2D-3" - Composite Soil (2208092-02) Sampled: 08/09/22 08:33 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C2A-3", C2B-3", C2C-3", C2D-3" - Composite Soil (2208092-02) Sampled: 08/09/22 08:33 Received: 08/10/22

Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*74.0 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*81.1 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Sample ID: C3A-3", C3B-3", C3C-3", C3D-3" - Composite Soil (2208092-03) Sampled: 08/09/22 08:58 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*76.3 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*85.4 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Sample ID: C4A-3", C4B-3", C4C-3", C4D-3" - Composite Soil (2208092-04) Sampled: 08/09/22 09:20 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	**11.7**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C4A-3", C4B-3", C4C-3", C4D-3" - Composite Soil (2208092-04) Sampled: 08/09/22 09:20 Received: 08/10/22

Endrin aldehyde	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND	1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*75.5 %*		*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*81.0 %*		*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Sample ID: C5A-3", C5B-3", C5C-3", C5D-3" - Composite Soil (2208092-05) Sampled: 08/09/22 11:07 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	**17.5**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*72.5 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*69.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Sample ID: C6A-3", C16B-3", C6C-3", C6D-3" - Composite Soil (2208092-06) Sampled: 08/09/22 10:40 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C6A-3", C16B-3", C6C-3", C6D-3" - Composite Soil (2208092-06) Sampled: 08/09/22 10:40 Received: 08/10/22

Endosulfan I	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND	1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND	1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*67.4 %*		*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*79.2 %*		*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Sample ID: C7A-3", C7B-3", C7C-3", C7D-3" - Composite Soil (2208092-07) Sampled: 08/09/22 10:17 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*62.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*69.9 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Sample ID: C8A-3", C8B-3", C8C-3", C8D-3" - Composite Soil (2208092-08) Sampled: 08/09/22 09:50 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632

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Certificate of Analysis

Soils Engineering Inc.
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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8A-3", C8B-3", C8C-3", C8D-3" - Composite Soil (2208092-08) Sampled: 08/09/22 09:50 Received: 08/10/22

gamma-Chlordane	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	**72.9**	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND	1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND	1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*60.8 %*		*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*61.1 %*		*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Sample ID: C1B-3" Soil (2208092-09) Sampled: 08/09/22 08:07 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**13.8**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C2B-3" Soil (2208092-10) Sampled: 08/09/22 08:33 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**17.5**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C3B-3" Soil (2208092-11) Sampled: 08/09/22 08:58 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102

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Certificate of Analysis

Soils Engineering Inc.
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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) B31-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C3B-3" Soil (2208092-11) Sampled: 08/09/22 08:58 Received: 08/10/22

Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*74.2 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*81.7 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**15.3**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C3E-3" Soil (2208092-12) Sampled: 08/09/22 08:58 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDE	NO		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	al	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	al	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*78.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*94.4 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**17.8**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C4B-3" Soil (2208092-13) Sampled: 08/09/22 09:20 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**10.0**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C5A-3" Soil (2208092-14) Sampled: 08/09/22 10:54 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*111 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112

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File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C5A-3" Soil (2208092-14) Sampled: 08/09/22 10:54 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test	Method	Prepared	Analyzed	By	Batch
Surrogate: n-Tetracosane	*87.6 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21112*
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*97.4 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*100 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*98.4 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test	Method	Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*73.9 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*66.4 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test	Method	Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**15.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**182**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**22.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**8.39**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**16.2**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**3.73**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**15.1**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C5A-3" Soil (2208092-14) Sampled: 08/09/22 10:54 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**77.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**51.5**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: C5B-3" Soil (2208092-15) Sampled: 08/09/22 10:48 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**8.95**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C5C-3" Soil (2208092-16) Sampled: 08/09/22 11:00 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*98.7 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/11/22	08/11/22	lk	BH21112
Surrogate: n-Tetracosane	*89.2 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21112*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*96.5 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*101 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*97.0 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDD	**6.08**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDT	**44.4**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C5C-3" Soil (2208092-16) Sampled: 08/09/22 11:00 Received: 08/10/22

Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*88.5 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*70.3 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**11.6**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**221**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**26.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**9.28**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**22.3**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**23.7**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**17.4**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**50.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**95.2**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: C6B-3" Soil (2208092-17) Sampled: 08/09/22 10:22 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**12.6**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

Sample ID: C6C-3" Soil (2208092-18) Sampled: 08/09/22 10:35 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*117 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*96.2 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*96.9 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*101 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*99.3 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*

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File #:73443
Report Date: 08/17/22
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PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C6C-3" Soil (2208092-18) Sampled: 08/09/22 10:35 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*68.6 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*69.1 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**15.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**302**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**15.4**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**7.62**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**10.2**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**2.23**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	**1.39**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**12.1**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**37.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**29.8**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: C7B-3" Soil (2208092-19) Sampled: 08/09/22 09:55 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**13.1**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C7D-3" Soil (2208092-20) Sampled: 08/09/22 10:00 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*109 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*88.2 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*98.5 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*99.7 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*97.7 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	**16.1**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	**48.5**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*65.1 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*80.6 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**13.1**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**211**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

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Certificate of Analysis

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4400 Yeager Way
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File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C7D-3" Soil (2208092-20) Sampled: 08/09/22 10:00 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**22.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**8.23**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**18.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**10.1**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**14.9**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**43.1**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**68.2**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: C8B-3" Soil (2208092-21) Sampled: 08/09/22 09:30 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*97.2 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*98.6 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*100 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*100 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*101 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4'-DDT	**27.3**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8B-3" Soil (2208092-21) Sampled: 08/09/22 09:30 Received: 08/10/22

Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*67.5 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*71.5 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**11.3**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**208**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**21.3**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**8.77**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**15.9**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**4.59**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**20.0**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**49.8**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**55.4**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: C8D-3" Soil (2208092-22) Sampled: 08/09/22 09:35 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/11/22	08/11/22	lk	BH21108
Surrogate: a,a,a-Trifluorotoluene	*113 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/11/22*	*08/11/22*	*lk*	*BH21108*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*99.9 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Toluene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Xylenes, total	ND		1	ug/kg	2.00	EPA 5030B	EPA 8260B	08/11/22	08/11/22	mb	BH21525
Surrogate: Dibromofluoromethane	*99.5 %*			*74-121*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: Toluene-d8	*102 %*			*80-120*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*
Surrogate: 4-Bromofluorobenzene	*98.0 %*			*74-126*		*EPA 5030B*	*EPA 8260B*	*08/11/22*	*08/11/22*	*mb*	*BH21525*

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8D-3" Soil (2208092-22) Sampled: 08/09/22 09:35 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
4,4´-DDT	**12.1**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/15/22	ai	BH21632
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*63.1 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*
Surrogate: Decachlorobiphenyl	*73.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/15/22*	*ai*	*BH21632*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	**2.29**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**11.5**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**393**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**16.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**6.80**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**11.2**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**1.97**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**12.0**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**37.5**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**34.0**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Sample ID: BM1 Soil (2208092-23) Sampled: 08/09/22 07:00 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/10/22	08/10/22	lk	BH21024

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File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM1 Soil (2208092-23) Sampled: 08/09/22 07:00 Received: 08/10/22

Surrogate: a,a,a-Trifluorotoluene	*101 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/10/22*	*08/10/22*	*lk*	*BH21024*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*91.1 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl chloride (Chloroethylene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromomethane (Methyl bromide)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichlorofluoromethane (FC-11)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Carbon disulfide	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methylene chloride (Dichloromethane)	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Acetone	ND		1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methyl tert-butyl ether (MTBE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-butyl alcohol	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Di-isopropyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethyl tert-butyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl acetate	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroform	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Carbon tetrachloride	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,1-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Butanone (MEK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Benzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-amyl methyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichloroethene (TCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromomethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromodichloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dioxane	ND	TIC	1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Toluene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tetrachloroethene (PCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Methyl-2-pentanone (MIBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromoethane (EDB)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730

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Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM1 Soil (2208092-23) Sampled: 08/09/22 07:00 Received: 08/10/22

2-Hexanone (MBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,1,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
m,p-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
o-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Styrene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromoform (Tribromomethane)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Isopropylbenzene (Cumene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Propylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3,5-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
tert-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
sec-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Isopropyltoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Hexachlorobutadiene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Naphthalene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Surrogate: Dibromofluoromethane	*97.1 %*			*74-121*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: Toluene-d8	*98.9 %*			*80-120*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: 4-Bromofluorobenzene	*95.9 %*			*74-126*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDT	**17.8**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102

POSITIVE LAB SERVICE

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM1 Soil (2208092-23) Sampled: 08/09/22 07:00 Received: 08/10/22

Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*77.6 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*84.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**15.5**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**245**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**21.9**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**7.77**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**14.4**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**5.96**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**13.8**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**47.6**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**53.3**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	**8.0**		1	pH Units	0.1	-	EPA 9045C	08/17/22	08/17/22	vc	BH21733

Sample ID: BM2 Soil (2208092-24) Sampled: 08/09/22 06:55 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/10/22	08/10/22	lk	BH21024
Surrogate: a,a,a-Trifluorotoluene	*112 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/10/22*	*08/10/22*	*lk*	*BH21024*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*84.0 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl chloride (Chloroethylene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromomethane (Methyl bromide)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichlorofluoromethane (FC-11)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730

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Certificate of Analysis

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4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM2 Soil (2208092-24) Sampled: 08/09/22 06:55 Received: 08/10/22

Carbon disulfide	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methylene chloride (Dichloromethane)	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Acetone	ND		1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methyl tert-butyl ether (MTBE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-butyl alcohol	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Di-isopropyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethyl tert-butyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl acetate	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroform	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Carbon tetrachloride	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,1-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Butanone (MEK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Benzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-amyl methyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichloroethene (TCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromomethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromodichloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dioxane	ND	TIC	1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Toluene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tetrachloroethene (PCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Methyl-2-pentanone (MIBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromoethane (EDB)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Hexanone (MBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,1,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
m,p-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
o-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Styrene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromoform (Tribromomethane)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Isopropylbenzene (Cumene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Propylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3,5-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM2 Soil (2208092-24) Sampled: 08/09/22 06:55 Received: 08/10/22

4-Chlorotoluene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
tert-Butylbenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trimethylbenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
sec-Butylbenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Isopropyltoluene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Butylbenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichlorobenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromo-3-chloropropane (DBCP)	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Hexachlorobutadiene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Naphthalene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichlorobenzene	ND	1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Surrogate: Dibromofluoromethane	*99.9 %*		*74-121*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: Toluene-d8	*105 %*		*80-120*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: 4-Bromofluorobenzene	*100 %*		*74-126*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDD	**5.85**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDE	**10.9**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4´-DDT	**50.2**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*73.8 %*		*44-115*		*EPA 3550C*	*EPA 8081A*		*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*82.5 %*		*40-148*		*EPA 3550C*	*EPA 8081A*		*08/10/22*	*08/12/22*	*ai*	*BH21102*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**14.1**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**278**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

POSITIVE LAB SERVICE

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM2 Soil (2208092-24) Sampled: 08/09/22 06:55 Received: 08/10/22

Chromium	**24.8**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**9.94**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**17.3**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**5.75**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	**2.31**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**15.0**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**49.8**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**60.5**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	**8.6**		1	pH Units	0.1	-	EPA 9045C	08/17/22	08/17/22	vc	BH21733

Sample ID: BM3 Soil (2208092-25) Sampled: 08/09/22 09:20 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C5 - C12	ND		1	mg/kg	0.500	EPA 5030B	EPA 8015B	08/10/22	08/10/22	lk	BH21024
Surrogate: a,a,a-Trifluorotoluene	*102 %*			*41-131*		*EPA 5030B*	*EPA 8015B*	*08/10/22*	*08/10/22*	*lk*	*BH21024*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
TPH C13 - C22	ND		1	mg/kg	2.50	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C23 - C32	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
TPH C33 - C36	ND		1	mg/kg	100	EPA 3550C	EPA 8015B	08/12/22	08/13/22	lk	BH21217
Surrogate: n-Tetracosane	*94.5 %*			*46-149*		*EPA 3550C*	*EPA 8015B*	*08/12/22*	*08/13/22*	*lk*	*BH21217*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Dichlorodifluoromethane (FC-12)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl chloride (Chloroethylene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromomethane (Methyl bromide)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichlorofluoromethane (FC-11)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Carbon disulfide	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methylene chloride (Dichloromethane)	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Acetone	ND		1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Methyl tert-butyl ether (MTBE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-butyl alcohol	ND		1	ug/kg	20.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Di-isopropyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethyl tert-butyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Vinyl acetate	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,2-Dichloroethene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chloroform	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Carbon tetrachloride	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730

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Certificate of Analysis

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4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM3 Soil (2208092-25) Sampled: 08/09/22 09:20 Received: 08/10/22

1,1,1-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Butanone (MEK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Benzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tert-amyl methyl ether	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Trichloroethene (TCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromomethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromodichloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dioxane	ND	TIC	1	ug/kg	80.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
cis-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Toluene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Tetrachloroethene (PCE)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Methyl-2-pentanone (MIBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
trans-1,3-Dichloropropene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2-Trichloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Dibromochloromethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromoethane (EDB)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Hexanone (MBK)	ND		1	ug/kg	40.0	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Chlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Ethylbenzene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,1,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
m,p-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
o-Xylene	ND		1	ug/kg	2.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Styrene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromoform (Tribromomethane)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Isopropylbenzene (Cumene)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Bromobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Propylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,1,2,2-Tetrachloroethane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
2-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichloropropane	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3,5-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Chlorotoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
tert-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trimethylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
sec-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
4-Isopropyltoluene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,3-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,4-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
n-Butylbenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,4-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Hexachlorobutadiene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
Naphthalene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730
1,2,3-Trichlorobenzene	ND		1	ug/kg	4.00	EPA 5035	EPA 8260B	08/12/22	08/12/22	mb	BH21730

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PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM3 Soil (2208092-25) Sampled: 08/09/22 09:20 Received: 08/10/22

Surrogate: Dibromofluoromethane	*99.5 %*			*74-121*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: Toluene-d8	*97.9 %*			*80-120*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Surrogate: 4-Bromofluorobenzene	*98.5 %*			*74-126*		*EPA 5035*	*EPA 8260B*	*08/12/22*	*08/12/22*	*mb*	*BH21730*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
4,4´-DDD	**5.37**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
4,4´-DDE	**15.4**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
4,4´-DDT	**22.2**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/11/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*73.5 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*83.7 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/11/22*	*08/12/22*	*ai*	*BH21102*
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Arsenic	**10.5**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Barium	**185**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cadmium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Chromium	**18.7**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Cobalt	**7.59**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Copper	**14.1**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Lead	**7.86**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Molybdenum	**1.56**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Nickel	**11.3**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Selenium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Thallium	ND		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Vanadium	**36.9**		1	mg/kg	1.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Zinc	**50.8**		1	mg/kg	5.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21718
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	ND		1	mg/kg	0.100	EPA 7471A	EPA 7471A	08/16/22	08/16/22	jks	BH21720

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Soils Engineering Inc.
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File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: BM3 Soil (2208092-25) Sampled: 08/09/22 09:20 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	**8.2**		1	pH Units	0.1	-	EPA 9045C	08/17/22	08/17/22	vc	BH21733

Sample ID: C3B-2' Soil (2208092-26) Sampled: 08/09/22 09:00 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
4,4'-DDT	**13.7**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/10/22	08/12/22	ai	BH21102
Surrogate: 2,4,5,6 Tetrachloro-m-xyler	*76.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*
Surrogate: Decachlorobiphenyl	*97.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/10/22*	*08/12/22*	*ai*	*BH21102*

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**10.0**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/16/22	08/16/22	RP/JK	BH21719

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21024 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/10/22**									
TPH C5 - C12	ND	0.500	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	*0.0279*		mg/kg	*0.03000*		*93.0*	*41-131*			
LCS	**Prepared & Analyzed: 08/10/22**									
Gasoline	0.798	0.500	mg/kg	0.9096		87.7	58-116			
Matrix Spike **Source: 2208085-01**	**Prepared & Analyzed: 08/10/22**									
Gasoline	1.35	0.500	mg/kg	1.819	ND	74.2	48-118			
Matrix Spike Dup **Source: 2208085-01**	**Prepared & Analyzed: 08/10/22**									
Gasoline	1.38	0.500	mg/kg	1.819	ND	75.9	48-118	2.24	30	
Batch BH21108 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/11/22**									
TPH C5 - C12	ND	0.500	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	*0.0223*		mg/kg	*0.03000*		*74.4*	*41-131*			
LCS	**Prepared & Analyzed: 08/11/22**									
Gasoline	0.768	0.500	mg/kg	0.9096		84.4	58-116			
Matrix Spike **Source: 2208090-01**	**Prepared & Analyzed: 08/11/22**									
Gasoline	1.27	0.500	mg/kg	1.819	ND	69.7	48-118			
Matrix Spike Dup **Source: 2208090-01**	**Prepared & Analyzed: 08/11/22**									
Gasoline	1.22	0.500	mg/kg	1.819	ND	67.2	48-118	3.61	30	
Batch BH21112 - EPA 3550C										
Blank	**Prepared & Analyzed: 08/11/22**									
TPH C13 - C22	ND	2.50	mg/kg							
TPH C23 - C32	ND	100	mg/kg							
TPH C33 - C36	ND	100	mg/kg							
Surrogate: n-Tetracosane	*17.2*		mg/kg	*20.83*		*82.8*	*46-149*			
LCS	**Prepared & Analyzed: 08/11/22**									
Diesel	695	12.5	mg/kg	554.7		125	55-140			
Surrogate: n-Tetracosane	*20.0*		mg/kg	*20.83*		*96.0*	*49-168*			
Matrix Spike **Source: 2208095-05**	**Prepared: 08/11/22 Analyzed: 08/12/22**									
Diesel	106	2.50	mg/kg	110.9	4.89	91.3	35-143			
Surrogate: n-Tetracosane	*20.8*		mg/kg	*20.83*		*99.7*	*48-155*			
Matrix Spike Dup **Source: 2208095-05**	**Prepared: 08/11/22 Analyzed: 08/12/22**									
Diesel	104	2.50	mg/kg	110.9	4.89	89.8	35-143	1.65	30	
Surrogate: n-Tetracosane	*20.5*		mg/kg	*20.83*		*98.4*	*48-155*			
Batch BH21217 - EPA 3550C										
Blank	**Prepared & Analyzed: 08/12/22**									

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File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
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Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21217 - EPA 3550C										
TPH C13 - C22	ND	2.50	mg/kg							
TPH C23 - C32	ND	100	mg/kg							
TPH C33 - C36	ND	100	mg/kg							
Surrogate: n-Tetracosane	*18.7*		mg/kg	*20.83*		*89.9*	*46-149*			
LCS	**Prepared & Analyzed: 08/12/22**									
Diesel	731	12.5	mg/kg	554.7		132	55-140			
Surrogate: n-Tetracosane	*23.0*		mg/kg	*20.83*		*110*	*49-168*			
Matrix Spike **Source: 2208110-01**	**Prepared & Analyzed: 08/12/22**									
Diesel	108	2.50	mg/kg	110.9	22.6	77.1	35-143			
Surrogate: n-Tetracosane	*22.2*		mg/kg	*20.83*		*106*	*48-155*			
Matrix Spike Dup **Source: 2208110-01**	**Prepared & Analyzed: 08/12/22**									
Diesel	101	2.50	mg/kg	110.9	22.6	70.4	35-143	9.08	30	
Surrogate: n-Tetracosane	*21.8*		mg/kg	*20.83*		*105*	*48-155*			
Batch BH21525 - EPA 5030B										
Blank	**Prepared & Analyzed: 08/11/22**									
Benzene	ND	2.00	ug/kg							
Toluene	ND	2.00	ug/kg							
Ethylbenzene	ND	2.00	ug/kg							
Xylenes, total	ND	2.00	ug/kg							
Surrogate: Dibromofluoromethane	*14.9*		ug/kg	*15.00*		*99.6*	*74-121*			
Surrogate: Toluene-d8	*14.6*		ug/kg	*15.00*		*97.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.6*		ug/kg	*15.00*		*97.0*	*74-126*			
LCS	**Prepared & Analyzed: 08/11/22**									
1,1-Dichloroethene	19.8	4.00	ug/kg	20.00		98.8	64-137			
Methyl tert-butyl ether (MTBE)	18.9	4.00	ug/kg	20.00		94.6	62-123			
Benzene	20.7	2.00	ug/kg	20.00		103	65-120			
Trichloroethene (TCE)	21.2	4.00	ug/kg	20.00		106	72-120			
Toluene	21.3	2.00	ug/kg	20.00		106	69-120			
Chlorobenzene	21.0	4.00	ug/kg	20.00		105	67-123			
Surrogate: Dibromofluoromethane	*14.4*		ug/kg	*15.00*		*96.1*	*79-120*			
Surrogate: Toluene-d8	*15.3*		ug/kg	*15.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.5*		ug/kg	*15.00*		*96.9*	*80-120*			
Matrix Spike **Source: 2208098-03**	**Prepared & Analyzed: 08/12/22**									
1,1-Dichloroethene	18.9	4.00	ug/kg	20.00	ND	94.4	63-144			
Benzene	19.4	2.00	ug/kg	20.00	ND	96.8	63-124			
Trichloroethene (TCE)	19.8	4.00	ug/kg	20.00	ND	99.1	61-136			
Toluene	20.0	2.00	ug/kg	20.00	ND	100	57-132			
Chlorobenzene	19.0	4.00	ug/kg	20.00	ND	95.1	46-157			
Surrogate: Dibromofluoromethane	*14.5*		ug/kg	*15.00*		*96.9*	*76-120*			

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File #:73443
Report Date: 08/17/22
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PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21525 - EPA 5030B										
Surrogate: Toluene-d8	*15.6*		ug/kg	*15.00*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.7*		ug/kg	*15.00*		*97.7*	*80-120*			
Matrix Spike Dup Source: 2208098-03	**Prepared & Analyzed: 08/12/22**									
1,1-Dichloroethene	19.0	4.00	ug/kg	20.00	ND	95.0	63-144	0.686	30	
Benzene	19.2	2.00	ug/kg	20.00	ND	96.1	63-124	0.674	30	
Trichloroethene (TCE)	19.5	4.00	ug/kg	20.00	ND	97.4	61-136	1.73	30	
Toluene	19.7	2.00	ug/kg	20.00	ND	98.6	57-132	1.66	30	
Chlorobenzene	19.0	4.00	ug/kg	20.00	ND	94.8	46-157	0.316	30	
Surrogate: Dibromofluoromethane	*14.8*		ug/kg	*15.00*		*98.5*	*76-120*			
Surrogate: Toluene-d8	*15.2*		ug/kg	*15.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.6*		ug/kg	*15.00*		*97.2*	*80-120*			
Batch BH21730 - EPA 5035										
Blank	**Prepared & Analyzed: 08/11/22**									
Dichlorodifluoromethane (FC-12)	ND	4.00	ug/kg							
Chloromethane	ND	4.00	ug/kg							
Vinyl chloride (Chloroethylene)	ND	4.00	ug/kg							
Bromomethane (Methyl bromide)	ND	4.00	ug/kg							
Chloroethane	ND	4.00	ug/kg							
Trichlorofluoromethane (FC-11)	ND	4.00	ug/kg							
1,1-Dichloroethene	ND	4.00	ug/kg							
Carbon disulfide	ND	40.0	ug/kg							
Methylene chloride (Dichloromethane)	ND	20.0	ug/kg							
Acetone	ND	80.0	ug/kg							
trans-1,2-Dichloroethene	ND	4.00	ug/kg							
Methyl tert-butyl ether (MTBE)	ND	4.00	ug/kg							
Tert-butyl alcohol	ND	20.0	ug/kg							
Di-isopropyl ether	ND	4.00	ug/kg							
1,1-Dichloroethane	ND	4.00	ug/kg							
Ethyl tert-butyl ether	ND	4.00	ug/kg							
Vinyl acetate	ND	40.0	ug/kg							
2,2-Dichloropropane	ND	4.00	ug/kg							
cis-1,2-Dichloroethene	ND	4.00	ug/kg							
Bromochloromethane	ND	4.00	ug/kg							
Chloroform	ND	4.00	ug/kg							
Carbon tetrachloride	ND	4.00	ug/kg							
1,1,1-Trichloroethane	ND	4.00	ug/kg							
1,1-Dichloropropene	ND	4.00	ug/kg							
2-Butanone (MEK)	ND	40.0	ug/kg							
Benzene	ND	2.00	ug/kg							
Tert-amyl methyl ether	ND	4.00	ug/kg							

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Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21730 - EPA 5035										
1,2-Dichloroethane	ND	4.00	ug/kg							
Trichloroethene (TCE)	ND	4.00	ug/kg							
Dibromomethane	ND	4.00	ug/kg							
1,2-Dichloropropane	ND	4.00	ug/kg							
Bromodichloromethane	ND	4.00	ug/kg							
1,4-Dioxane	ND	80.0	ug/kg							
cis-1,3-Dichloropropene	ND	4.00	ug/kg							
Toluene	ND	2.00	ug/kg							
Tetrachloroethene (PCE)	ND	4.00	ug/kg							
4-Methyl-2-pentanone (MIBK)	ND	40.0	ug/kg							
trans-1,3-Dichloropropene	ND	4.00	ug/kg							
1,1,2-Trichloroethane	ND	4.00	ug/kg							
Dibromochloromethane	ND	4.00	ug/kg							
1,3-Dichloropropane	ND	4.00	ug/kg							
1,2-Dibromoethane (EDB)	ND	4.00	ug/kg							
2-Hexanone (MBK)	ND	40.0	ug/kg							
Chlorobenzene	ND	4.00	ug/kg							
Ethylbenzene	ND	2.00	ug/kg							
1,1,1,2-Tetrachloroethane	ND	4.00	ug/kg							
m,p-Xylene	ND	2.00	ug/kg							
o-Xylene	ND	2.00	ug/kg							
Styrene	ND	4.00	ug/kg							
Bromoform (Tribromomethane)	ND	4.00	ug/kg							
Isopropylbenzene (Cumene)	ND	4.00	ug/kg							
Bromobenzene	ND	4.00	ug/kg							
n-Propylbenzene	ND	4.00	ug/kg							
1,1,2,2-Tetrachloroethane	ND	4.00	ug/kg							
2-Chlorotoluene	ND	4.00	ug/kg							
1,2,3-Trichloropropane	ND	4.00	ug/kg							
1,3,5-Trimethylbenzene	ND	4.00	ug/kg							
4-Chlorotoluene	ND	4.00	ug/kg							
tert-Butylbenzene	ND	4.00	ug/kg							
1,2,4-Trimethylbenzene	ND	4.00	ug/kg							
sec-Butylbenzene	ND	4.00	ug/kg							
4-Isopropyltoluene	ND	4.00	ug/kg							
1,3-Dichlorobenzene	ND	4.00	ug/kg							
1,4-Dichlorobenzene	ND	4.00	ug/kg							
n-Butylbenzene	ND	4.00	ug/kg							
1,2-Dichlorobenzene	ND	4.00	ug/kg							
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.00	ug/kg							
1,2,4-Trichlorobenzene	ND	4.00	ug/kg							

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Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21730 - EPA 5035										
Hexachlorobutadiene	ND	4.00	ug/kg							
Naphthalene	ND	4.00	ug/kg							
1,2,3-Trichlorobenzene	ND	4.00	ug/kg							
Surrogate: Dibromofluoromethane	*14.5*		ug/kg	*15.00*		*96.5*	*74-121*			
Surrogate: Toluene-d8	*14.8*		ug/kg	*15.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.3*		ug/kg	*15.00*		*95.3*	*74-126*			
LCS	**Prepared & Analyzed: 08/11/22**									
1,1-Dichloroethene	17.7	4.00	ug/kg	20.00		88.3	64-137			
Methyl tert-butyl ether (MTBE)	18.7	4.00	ug/kg	20.00		93.6	62-123			
Benzene	18.1	2.00	ug/kg	20.00		90.6	65-120			
Trichloroethene (TCE)	18.9	4.00	ug/kg	20.00		94.6	72-120			
Toluene	19.2	2.00	ug/kg	20.00		95.8	69-120			
Chlorobenzene	18.2	4.00	ug/kg	20.00		91.2	67-123			
Surrogate: Dibromofluoromethane	*14.7*		ug/kg	*15.00*		*98.1*	*79-120*			
Surrogate: Toluene-d8	*15.5*		ug/kg	*15.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.3*		ug/kg	*15.00*		*95.3*	*80-120*			
LCS Dup	**Prepared & Analyzed: 08/11/22**									
1,1-Dichloroethene	18.2	4.00	ug/kg	20.00		91.0	64-137	3.07	20	
Methyl tert-butyl ether (MTBE)	20.5	4.00	ug/kg	20.00		103	62-123	9.32	20	
Benzene	18.7	2.00	ug/kg	20.00		93.6	65-120	3.20	20	
Trichloroethene (TCE)	19.4	4.00	ug/kg	20.00		97.1	72-120	2.61	20	
Toluene	19.4	2.00	ug/kg	20.00		96.8	69-120	1.14	20	
Chlorobenzene	19.0	4.00	ug/kg	20.00		94.8	67-123	3.82	20	
Surrogate: Dibromofluoromethane	*14.6*		ug/kg	*15.00*		*97.5*	*79-120*			
Surrogate: Toluene-d8	*15.0*		ug/kg	*15.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*14.5*		ug/kg	*15.00*		*96.6*	*80-120*			
Batch BH21102 - EPA 3550C										
Blank	**Prepared & Analyzed: 08/10/22**									
Aldrin	ND	2.00	ug/kg							
alpha-BHC	ND	2.00	ug/kg							
beta-BHC	ND	2.00	ug/kg							
delta-BHC	ND	2.00	ug/kg							
gamma-BHC (Lindane)	ND	2.00	ug/kg							
alpha-Chlordane	ND	2.00	ug/kg							
gamma-Chlordane	ND	2.00	ug/kg							
4,4´-DDD	ND	2.00	ug/kg							
4,4´-DDE	ND	4.00	ug/kg							
4,4´-DDT	ND	4.00	ug/kg							
Dieldrin	ND	2.00	ug/kg							

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21102 - EPA 3550C										
Endosulfan I	ND	4.00	ug/kg							
Endosulfan II	ND	2.00	ug/kg							
Endosulfan sulfate	ND	2.00	ug/kg							
Endrin	ND	2.00	ug/kg							
Technical Chlordane	ND	10.0	ug/kg							
Endrin aldehyde	ND	2.00	ug/kg							
Endrin ketone	ND	5.00	ug/kg							
Heptachlor	ND	2.00	ug/kg							
Heptachlor epoxide	ND	2.00	ug/kg							
Methoxychlor	ND	5.00	ug/kg							
Toxaphene	ND	30.0	ug/kg							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.4*		ug/kg	*12.50*		*83.2*	*44-115*			
Surrogate: Decachlorobiphenyl	*10.9*		ug/kg	*12.50*		*87.1*	*40-148*			
LCS	**Prepared & Analyzed: 08/10/22**									
Aldrin	14.2	2.00	ug/kg	10.00		142	49-150			
gamma-BHC (Lindane)	10.7	2.00	ug/kg	10.00		107	42-148			
4,4´-DDT	15.0	4.00	ug/kg	10.00		150	55-142			
Dieldrin	15.1	2.00	ug/kg	10.00		151	55-137			
Endrin	20.2	2.00	ug/kg	10.00		202	47-155			
Heptachlor	15.5	2.00	ug/kg	10.00		155	50-171			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*11.1*		ug/kg	*12.50*		*88.9*	*54-115*			
Surrogate: Decachlorobiphenyl	*11.7*		ug/kg	*12.50*		*93.4*	*54-133*			
Matrix Spike Source: 2208085-02	**Prepared & Analyzed: 08/10/22**									
Aldrin	9.51	2.00	ug/kg	12.50	ND	76.1	31-119			
gamma-BHC (Lindane)	7.71	2.00	ug/kg	12.50	ND	61.7	26-115			
4,4´-DDT	19.6	4.00	ug/kg	25.00	ND	78.4	7-151			
Dieldrin	19.0	2.00	ug/kg	25.00	ND	76.0	30-141			
Endrin	26.6	2.00	ug/kg	25.00	ND	107	25-161			
Heptachlor	10.1	2.00	ug/kg	12.50	ND	81.2	28-163			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.83*		ug/kg	*12.50*		*78.6*	*40-117*			
Surrogate: Decachlorobiphenyl	*10.8*		ug/kg	*12.50*		*86.2*	*35-152*			
Matrix Spike Dup Source: 2208085-02	**Prepared & Analyzed: 08/10/22**									
Aldrin	9.19	2.00	ug/kg	12.50	ND	73.6	31-119	3.37	30	
gamma-BHC (Lindane)	7.18	2.00	ug/kg	12.50	ND	57.4	26-115	7.13	30	
4,4´-DDT	19.8	4.00	ug/kg	25.00	ND	79.4	7-151	1.21	30	
Dieldrin	18.3	2.00	ug/kg	25.00	ND	73.4	30-141	3.54	30	
Endrin	26.0	2.00	ug/kg	25.00	ND	104	25-161	2.42	30	
Heptachlor	9.98	2.00	ug/kg	12.50	ND	79.9	28-163	1.63	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.30*		ug/kg	*12.50*		*74.4*	*40-117*			
Surrogate: Decachlorobiphenyl	*10.2*		ug/kg	*12.50*		*81.4*	*35-152*			

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21632 - EPA 3550C										
Blank	**Prepared: 08/11/22 Analyzed: 08/15/22**									
Aldrin	ND	2.00	ug/kg							
alpha-BHC	ND	2.00	ug/kg							
beta-BHC	ND	2.00	ug/kg							
delta-BHC	ND	2.00	ug/kg							
gamma-BHC (Lindane)	ND	2.00	ug/kg							
alpha-Chlordane	ND	2.00	ug/kg							
gamma-Chlordane	ND	2.00	ug/kg							
4,4'-DDD	ND	2.00	ug/kg							
4,4'-DDE	ND	4.00	ug/kg							
4,4'-DDT	ND	4.00	ug/kg							
Dieldrin	ND	2.00	ug/kg							
Endosulfan I	ND	4.00	ug/kg							
Endosulfan II	ND	2.00	ug/kg							
Endosulfan sulfate	ND	2.00	ug/kg							
Endrin	ND	2.00	ug/kg							
Technical Chlordane	ND	10.0	ug/kg							
Endrin aldehyde	ND	2.00	ug/kg							
Endrin ketone	ND	5.00	ug/kg							
Heptachlor	ND	2.00	ug/kg							
Heptachlor epoxide	ND	2.00	ug/kg							
Methoxychlor	ND	5.00	ug/kg							
Toxaphene	ND	30.0	ug/kg							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.4*		ug/kg	*12.50*		*83.0*	*44-115*			
Surrogate: Decachlorobiphenyl	*8.76*		ug/kg	*12.50*		*70.1*	*40-148*			
LCS	**Prepared: 08/11/22 Analyzed: 08/15/22**									
Aldrin	8.78	2.00	ug/kg	10.00		87.8	49-150			
gamma-BHC (Lindane)	7.04	2.00	ug/kg	10.00		70.4	42-148			
4,4'-DDT	8.27	4.00	ug/kg	10.00		82.7	55-142			
Dieldrin	8.40	2.00	ug/kg	10.00		84.0	55-137			
Endrin	11.8	2.00	ug/kg	10.00		118	47-155			
Heptachlor	9.60	2.00	ug/kg	10.00		96.0	50-171			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.3*		ug/kg	*12.50*		*82.6*	*54-115*			
Surrogate: Decachlorobiphenyl	*9.14*		ug/kg	*12.50*		*73.2*	*54-133*			
Matrix Spike Source: 2208092-18	**Prepared: 08/11/22 Analyzed: 08/15/22**									
Aldrin	9.30	2.00	ug/kg	12.50	ND	74.4	31-119			
gamma-BHC (Lindane)	6.95	2.00	ug/kg	12.50	ND	55.6	26-115			
4,4'-DDT	21.9	4.00	ug/kg	25.00	4.82	68.2	7-151			
Dieldrin	18.9	2.00	ug/kg	25.00	ND	75.4	30-141			
Endrin	25.2	2.00	ug/kg	25.00	ND	101	25-161			

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Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21632 - EPA 3550C										
Heptachlor	9.45	2.00	ug/kg	12.50	ND	75.6	28-163			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*8.38*		ug/kg	*12.50*		*67.0*	*40-117*			
Surrogate: Decachlorobiphenyl	*8.26*		ug/kg	*12.50*		*66.1*	*35-152*			
Matrix Spike Dup Source: 2208092-18	**Prepared: 08/11/22 Analyzed: 08/15/22**									
Aldrin	9.26	2.00	ug/kg	12.50	ND	74.1	31-119	0.431	30	
gamma-BHC (Lindane)	6.96	2.00	ug/kg	12.50	ND	55.7	26-115	0.0719	30	
4,4´-DDT	20.6	4.00	ug/kg	25.00	4.82	63.0	7-151	7.99	30	
Dieldrin	18.8	2.00	ug/kg	25.00	ND	75.1	30-141	0.447	30	
Endrin	25.0	2.00	ug/kg	25.00	ND	100	25-161	0.852	30	
Heptachlor	9.41	2.00	ug/kg	12.50	ND	75.3	28-163	0.371	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*8.43*		ug/kg	*12.50*		*67.4*	*40-117*			
Surrogate: Decachlorobiphenyl	*8.83*		ug/kg	*12.50*		*70.6*	*35-152*			
Batch BH21718 - EPA 3050B										
Blank	**Prepared & Analyzed: 08/16/22**									
Antimony	ND	2.00	mg/kg							
Arsenic	ND	2.00	mg/kg							
Barium	ND	1.00	mg/kg							
Beryllium	ND	1.00	mg/kg							
Cadmium	ND	1.00	mg/kg							
Chromium	ND	1.00	mg/kg							
Cobalt	ND	1.00	mg/kg							
Copper	ND	1.00	mg/kg							
Lead	ND	1.00	mg/kg							
Molybdenum	ND	1.00	mg/kg							
Nickel	ND	1.00	mg/kg							
Selenium	ND	2.00	mg/kg							
Silver	ND	1.00	mg/kg							
Thallium	ND	2.00	mg/kg							
Vanadium	ND	1.00	mg/kg							
Zinc	ND	5.00	mg/kg							
LCS	**Prepared & Analyzed: 08/16/22**									
Antimony	47.0	2.00	mg/kg	49.40		95.1	60-140			
Arsenic	47.8	2.00	mg/kg	49.33		96.9	80-120			
Barium	192	1.00	mg/kg	198.1		97.0	80-120			
Beryllium	4.53	1.00	mg/kg	5.000		90.6	80-120			
Cadmium	4.88	1.00	mg/kg	5.000		97.7	80-120			
Chromium	20.5	1.00	mg/kg	19.91		103	80-120			
Cobalt	50.7	1.00	mg/kg	50.00		101	80-120			
Copper	23.5	1.00	mg/kg	25.10		93.7	80-120			

POSITIVE LAB SERVICE

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21718 - EPA 3050B										
Lead	51.2	1.00	mg/kg	49.97		102	80-120			
Molybdenum	47.2	1.00	mg/kg	49.85		94.7	80-120			
Nickel	50.0	1.00	mg/kg	50.00		100	80-120			
Selenium	48.2	2.00	mg/kg	49.60		97.1	80-120			
Silver	4.88	1.00	mg/kg	5.000		97.7	80-120			
Thallium	50.6	2.00	mg/kg	49.80		102	80-120			
Vanadium	46.9	1.00	mg/kg	50.10		93.6	80-120			
Zinc	46.5	5.00	mg/kg	49.82		93.4	80-120			
Matrix Spike **Source: 2208143-01**	**Prepared & Analyzed: 08/16/22**									
Antimony	42.5	2.00	mg/kg	49.40	ND	86.1	60-140			
Arsenic	46.1	2.00	mg/kg	49.33	1.67	90.1	75-125			
Barium	262	1.00	mg/kg	198.1	78.6	92.5	75-125			
Beryllium	4.90	1.00	mg/kg	5.000	0.427	89.4	75-125			
Cadmium	4.30	1.00	mg/kg	5.000	ND	85.9	75-125			
Chromium	31.9	1.00	mg/kg	19.91	13.5	92.6	75-125			
Cobalt	53.3	1.00	mg/kg	50.00	7.83	91.0	75-125			
Copper	37.0	1.00	mg/kg	25.10	12.7	96.9	75-125			
Lead	56.1	1.00	mg/kg	49.97	9.87	92.6	75-125			
Molybdenum	43.1	1.00	mg/kg	49.85	0.276	85.8	75-125			
Nickel	53.8	1.00	mg/kg	50.00	8.32	91.0	75-125			
Selenium	43.2	2.00	mg/kg	49.60	ND	87.1	75-125			
Silver	4.37	1.00	mg/kg	5.000	ND	87.4	75-125			
Thallium	40.9	2.00	mg/kg	49.80	ND	82.1	75-125			
Vanadium	78.9	1.00	mg/kg	50.10	32.5	92.6	75-125			
Zinc	89.8	5.00	mg/kg	49.82	45.0	90.0	75-125			
Matrix Spike Dup **Source: 2208143-01**	**Prepared & Analyzed: 08/16/22**									
Antimony	43.1	2.00	mg/kg	49.40	ND	87.2	60-140	1.25	30	
Arsenic	47.8	2.00	mg/kg	49.33	1.67	93.6	75-125	3.81	30	
Barium	266	1.00	mg/kg	198.1	78.6	94.5	75-125	2.16	30	
Beryllium	4.98	1.00	mg/kg	5.000	0.427	91.1	75-125	1.84	30	
Cadmium	4.37	1.00	mg/kg	5.000	ND	87.4	75-125	1.71	30	
Chromium	32.5	1.00	mg/kg	19.91	13.5	95.4	75-125	2.93	30	
Cobalt	54.5	1.00	mg/kg	50.00	7.83	93.3	75-125	2.53	30	
Copper	37.0	1.00	mg/kg	25.10	12.7	96.8	75-125	0.148	30	
Lead	57.2	1.00	mg/kg	49.97	9.87	94.6	75-125	2.22	30	
Molybdenum	44.0	1.00	mg/kg	49.85	0.276	87.8	75-125	2.24	30	
Nickel	54.2	1.00	mg/kg	50.00	8.32	91.8	75-125	0.894	30	
Selenium	43.4	2.00	mg/kg	49.60	ND	87.6	75-125	0.553	30	
Silver	4.60	1.00	mg/kg	5.000	ND	92.0	75-125	5.13	30	
Thallium	42.6	2.00	mg/kg	49.80	ND	85.5	75-125	4.08	30	

POSITIVE LAB SERVICE

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Certificate of Analysis

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4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/17/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte		Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH21718 - EPA 3050B											
Vanadium		78.7	1.00	mg/kg	50.10	32.5	92.2	75-125	0.411	30	
Zinc		90.7	5.00	mg/kg	49.82	45.0	91.8	75-125	1.92	30	
Batch BH21719 - EPA 3050B											
Blank		**Prepared & Analyzed: 08/16/22**									
Arsenic		ND	2.00	mg/kg							
LCS		**Prepared & Analyzed: 08/16/22**									
Arsenic		46.0	2.00	mg/kg	49.33		93.3	80-120			
Matrix Spike	**Source: 2208092-09**	**Prepared & Analyzed: 08/16/22**									
Arsenic		57.9	2.00	mg/kg	49.33	13.8	89.4	75-125			
Matrix Spike Dup	**Source: 2208092-09**	**Prepared & Analyzed: 08/16/22**									
Arsenic		58.9	2.00	mg/kg	49.33	13.8	91.6	75-125	2.38	30	
Batch BH21720 - EPA 7471A											
Blank		**Prepared & Analyzed: 08/16/22**									
Mercury		ND	0.100	mg/kg							
LCS		**Prepared & Analyzed: 08/16/22**									
Mercury		0.862	0.100	mg/kg	0.8258		104	80-120			
Matrix Spike	**Source: 2208143-01**	**Prepared & Analyzed: 08/16/22**									
Mercury		0.921	0.100	mg/kg	0.8258	ND	112	75-125			
Matrix Spike Dup	**Source: 2208143-01**	**Prepared & Analyzed: 08/16/22**									
Mercury		0.780	0.100	mg/kg	0.8258	ND	94.4	75-125	16.6	25	
Batch BH21733 - -											
Duplicate	**Source: 2208092-23**	**Prepared & Analyzed: 08/17/22**									
pH		8.0	0.1	pH Units		8.0			0.250	5	

Notes and Definitions

TIC	Estimated Concentration for Tentatively Identified Compound
NA	Not Applicable
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Rick Owen Parlier

Authorized Signature(s)

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 1 OF 5
FILE NO.: _____ LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO: *

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111

SAMPLER NAME: Robert Becker SIGNATURE:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- --- ---

COOLER TEMP: _____

<----PRESERVATION *

REMARKS: Use 1/2 for Composites Save Remainder for additional analyses

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	7:45	C1A-3"		X			N	1	B									
		8:07	C1B-3" (Comp)								X1	⊗-9							
		7:55	C1C-3"																
		8:00	C1D-3"																
		8:15	C2A-3"																
		8:33	C2B-3" (Comp)								X2	⊗-10							
		8:20	C2C-3"																
		8:27	C2D-3"																① OBSERV. TEMP: 2.5 °C CORREC. TEMP: 2.2 °C THERMO ID: 66 BY: stat
		8:40	C3A-3"																
		8:58	C3B-3"								⊗	⊗-11							② OBSERV. TEMP: 5.5 °C CORREC. TEMP: 5.0 °C THERMO ID: 69 BY: stat
		8:45	C3C-3" (Comp)																
		8:52	C3D-3"								X3								
		8:58	C3E-3"								⊗	⊗-12							
	↓	7:43	C1A-2'		↓			↓	↓	↓									Hold

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka
Date: 8/10/22 Time: 939 am

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 Days Frozen.

By: _____ Date: 8/9/22

SPECIAL INSTRUCTION: X = Comp analysis ⊗ = discrete analysis

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

*UPS: ① 1Z9578050148349104 2.5°C
& ② 1Z9578050148471033

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 2 OF 5

FILE NO.: LAB NO.: 2208012

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: ____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5700 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: Same as Pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: ---

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	BTEX (8260B)*		SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	9:02	C4A-3"		X			N	1	B									*8.10.22@2:32PM Verbal OK to change SM0 to 8260B. -Per Bob Becker.
		9:20	C4B-3"									X	-13						
		9:10	C4C-3" Comp								X4								
		9:15	C4D-3"																
		10:54	C5A-3"								X		X			X	X	-14	
		10:48	C5B-3"									X						-15	
		11:00	C5C-3" Comp								X5		X			X	X	-16	
		11:07	C5D-3"																
		10:40	C6A-3"																
		10:22	C6B-3"									X						-17	
		10:35	C6C-3" Comp								X6		X			X	X	-18	
		10:30	C6D-3"																
		8:09	C1B-2'																Hold
		7:57	C1C-2'																Hold

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka
Date: 8/10/22 Time: 929 am

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: 8/9/22 Date:

SPECIAL INSTRUCTION: Same as Pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 3 OF 5
FILE NO.: LAB NO.: 2205092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: ____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: Samples pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	pH	BTEX (8260B)*	SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:17	C7A-3"		X			N	1	B									*See pg 2 of 5
		9:55	C7B-3"									⊗							19
		10:10	C7C-3" Comp								X7								
		10:00	C7D-3"								⊗		⊗			⊗		⊗	20
		9:50	C8A-3"																
		9:30	C8B-3" Comp								X8		⊗			⊗		⊗	21
		9:40	C8C-3"																
		9:35	C8D-3"						↓	↓	⊗		⊗			⊗		⊗	22
		7:00	BM1						1	B	⊗		⊗	⊗		⊗	⊗		23
		6:55	BM2						↓	↓	⊗		⊗	⊗		⊗	⊗		24
		9:20	BM3					↓	↓	↓	⊗		⊗	⊗		⊗	⊗		25
		8:02	C1D-2'						1	B									Hold
		8:17	C2A-2'						↓	↓									Hold
	↓	8:35	C2B-2		↓				↓	↓									Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: 09:29 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: Date: 8/9/22

SPECIAL INSTRUCTION: Samples pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 4 OF 5

FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: _____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS:_____

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	8:22	C2C-2'		X				1	B									Hold
		8:29	C2D-2'																Hold
		8:42	C3A-2'																Hold
		9:00	C3B-2'					N			X	X						-16	~~Hold~~
		8:47	C3C-2'																Hold
		8:54	C3D-2'																Hold
		9:04	C4A-2'																Hold
		9:22	C4B-2'																Hold
		9:12	C4C-2'																Hold
		9:17	C4D-2'																Hold
		10:56	C5A-2'																Hold
		10:50	C5B-2'																Hold
		11:02	C5C-2'																Hold
		11:09	C5D-2'																Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: 0734 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: _____ Date: 8/9/22

SPECIAL INSTRUCTION: Same as pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 5 OF 5

FILE NO.: LAB NO.: 1108092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: _____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:42	C6A-2'		X				1	B									Hold
		10:24	C6B-2'																Hold
		10:37	C6C-2'																Hold
		10:32	C6D-2'																Hold
		10:19	C7A-2'																Hold
		9:57	C7B-2'																Hold
		10:12	C7C-2'																Hold
		10:02	C7D-2'																Hold
		9:52	C8A-2'																Hold
		9:32	C8B-2'																Hold
		9:42	C8C-2'																Hold
		9:37	C8D-2'																Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: 9:29 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: _____ Date: 8/9/22

SPECIAL INSTRUCTION:

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

August 25, 2022

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2208092
Project Name: 18503 FSD / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 10, 2022.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8A-3" Soil (2208092-27) Sampled: 08/09/22 09:50 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*75.9 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*80.6 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C8C-3" Soil (2208092-28) Sampled: 08/09/22 09:40 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDD	**19.2**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDE	**23.6**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDT	**125**		10	ug/kg	80.0	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Dieldrin	**8.18**		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8C-3" Soil (2208092-28) Sampled: 08/09/22 09:40 Received: 08/10/22

Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*75.6 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*90.4 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C2B-2' Soil (2208092-29) Sampled: 08/09/22 08:35 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**12.2**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22417

Sample ID: C5A-2' Soil (2208092-30) Sampled: 08/09/22 10:56 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**6.91**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22417

Sample ID: C5C-2' Soil (2208092-31) Sampled: 08/09/22 11:02 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDT	**41.1**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*86.1 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*101 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C6C-2' Soil (2208092-32) Sampled: 08/09/22 10:37 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**6.48**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22417

Sample ID: C7D-2' Soil (2208092-33) Sampled: 08/09/22 10:02 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415

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Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C7D-2' Soil (2208092-33) Sampled: 08/09/22 10:02 Received: 08/10/22

gamma-BHC (Lindane)	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
alpha-Chlordane	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
gamma-Chlordane	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
4,4´-DDD	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
4,4´-DDE	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
4,4´-DDT	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Dieldrin	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endosulfan I	ND	1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endosulfan II	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endosulfan sulfate	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endrin	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Technical Chlordane	ND	1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endrin aldehyde	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Endrin ketone	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Heptachlor	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Heptachlor epoxide	ND	1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Methoxychlor	ND	1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Toxaphene	ND	1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/23/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*75.0 %*		*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/23/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*80.2 %*		*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/23/22*	*ai*	*BH22415*

Sample ID: C8A-2' Soil (2208092-34) Sampled: 08/09/22 09:52 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4´-DDT	**8.89**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*86.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*88.7 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C8B-2' Soil (2208092-35) Sampled: 08/09/22 09:32 Received: 08/10/22

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Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8B-2' Soil (2208092-35) Sampled: 08/09/22 09:32 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*84.0 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*83.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C8C-2' Soil (2208092-36) Sampled: 08/09/22 09:42 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDT	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C8C-2' Soil (2208092-36) Sampled: 08/09/22 09:42 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*82.0 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*86.4 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

Sample ID: C8D-2' Soil (2208092-37) Sampled: 08/09/22 09:37 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Aldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
beta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
delta-BHC	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-BHC (Lindane)	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
alpha-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
gamma-Chlordane	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDD	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDE	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
4,4'-DDT	**20.3**		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Dieldrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan I	ND		1	ug/kg	8.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan II	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endosulfan sulfate	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Technical Chlordane	ND		1	ug/kg	20.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin aldehyde	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Endrin ketone	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Heptachlor epoxide	ND		1	ug/kg	4.00	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Methoxychlor	ND		1	ug/kg	10.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Toxaphene	ND		1	ug/kg	60.0	EPA 3550C	EPA 8081A	08/19/22	08/22/22	ai	BH22415
Surrogate: 2,4,5,6 Tetrachloro-m-xyler.	*77.8 %*			*44-115*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*
Surrogate: Decachlorobiphenyl	*74.0 %*			*40-148*		*EPA 3550C*	*EPA 8081A*	*08/19/22*	*08/22/22*	*ai*	*BH22415*

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22415 - EPA 3550C										
Blank	**Prepared: 08/19/22 Analyzed: 08/22/22**									
Aldrin	ND	2.00	ug/kg							
alpha-BHC	ND	2.00	ug/kg							
beta-BHC	ND	2.00	ug/kg							
delta-BHC	ND	2.00	ug/kg							
gamma-BHC (Lindane)	ND	2.00	ug/kg							
alpha-Chlordane	ND	2.00	ug/kg							
gamma-Chlordane	ND	2.00	ug/kg							
4,4´-DDD	ND	2.00	ug/kg							
4,4´-DDE	ND	4.00	ug/kg							
4,4´-DDT	ND	4.00	ug/kg							
Dieldrin	ND	2.00	ug/kg							
Endosulfan I	ND	4.00	ug/kg							
Endosulfan II	ND	2.00	ug/kg							
Endosulfan sulfate	ND	2.00	ug/kg							
Endrin	ND	2.00	ug/kg							
Technical Chlordane	ND	10.0	ug/kg							
Endrin aldehyde	ND	2.00	ug/kg							
Endrin ketone	ND	5.00	ug/kg							
Heptachlor	ND	2.00	ug/kg							
Heptachlor epoxide	ND	2.00	ug/kg							
Methoxychlor	ND	5.00	ug/kg							
Toxaphene	ND	30.0	ug/kg							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*12.0*		ug/kg	*12.50*		*95.6*	*44-115*			
Surrogate: Decachlorobiphenyl	*10.4*		ug/kg	*12.50*		*82.8*	*40-148*			
LCS	**Prepared: 08/19/22 Analyzed: 08/22/22**									
Aldrin	9.23	2.00	ug/kg	10.00		92.3	49-150			
gamma-BHC (Lindane)	9.03	2.00	ug/kg	10.00		90.3	42-148			
4,4´-DDT	6.36	4.00	ug/kg	10.00		63.6	55-142			
Dieldrin	9.30	2.00	ug/kg	10.00		93.0	55-137			
Endrin	10.0	2.00	ug/kg	10.00		100	47-155			
Heptachlor	9.51	2.00	ug/kg	10.00		95.1	50-171			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*11.8*		ug/kg	*12.50*		*94.0*	*54-115*			
Surrogate: Decachlorobiphenyl	*10.4*		ug/kg	*12.50*		*82.8*	*54-133*			
Matrix Spike Source: 2208092-31	**Prepared: 08/19/22 Analyzed: 08/22/22**									
Aldrin	10.3	2.00	ug/kg	12.50	ND	82.3	31-119			
gamma-BHC (Lindane)	8.42	2.00	ug/kg	12.50	ND	67.4	26-115			
4,4´-DDT	55.0	4.00	ug/kg	25.00	41.1	55.6	7-151			
Dieldrin	23.5	2.00	ug/kg	25.00	ND	94.1	30-141			
Endrin	25.6	2.00	ug/kg	25.00	ND	102	25-161			

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Certificate of Analysis

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Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/25/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22415 - EPA 3550C										
Heptachlor	11.8	2.00	ug/kg	12.50	ND	94.7	28-163			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*10.7*		ug/kg	*12.50*		*85.8*	*40-117*			
Surrogate: Decachlorobiphenyl	*12.3*		ug/kg	*12.50*		*98.2*	*35-152*			
Matrix Spike Dup Source: 2208092-31	**Prepared: 08/19/22 Analyzed: 08/23/22**									
Aldrin	10.6	2.00	ug/kg	12.50	ND	84.7	31-119	2.86	30	
gamma-BHC (Lindane)	8.04	2.00	ug/kg	12.50	ND	64.3	26-115	4.59	30	
4,4´-DDT	35.7	4.00	ug/kg	25.00	41.1	NR	7-151	NR	30	V-2
Dieldrin	21.1	2.00	ug/kg	25.00	ND	84.3	30-141	11.0	30	
Endrin	27.6	2.00	ug/kg	25.00	ND	111	25-161	7.54	30	
Heptachlor	10.6	2.00	ug/kg	12.50	ND	85.2	28-163	10.6	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	*9.80*		ug/kg	*12.50*		*78.4*	*40-117*			
Surrogate: Decachlorobiphenyl	*11.4*		ug/kg	*12.50*		*91.0*	*35-152*			
Batch BH22417 - EPA 3050B										
Blank	**Prepared & Analyzed: 08/23/22**									
Arsenic	ND	2.00	mg/kg							
LCS	**Prepared & Analyzed: 08/23/22**									
Arsenic	53.2	2.00	mg/kg	49.33		108	80-120			
Matrix Spike Source: 2208235-01	**Prepared & Analyzed: 08/23/22**									
Arsenic	50.0	2.00	mg/kg	49.33	4.70	91.9	75-125			
Matrix Spike Dup Source: 2208235-01	**Prepared & Analyzed: 08/23/22**									
Arsenic	50.8	2.00	mg/kg	49.33	4.70	93.4	75-125	1.59	30	

Notes and Definitions

V-2	Out-of-Range recovery was due to sample Heterogeneity.
NA	Not Applicable
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 1 OF 5
FILE NO.: _____ LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO: *

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111

SAMPLER NAME: Robert Becker SIGNATURE:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

COOLER TEMP: _____

<----PRESERVATION *

REMARKS: Use 1/2 for Composites Save Remainder for additional analyses

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	7:45	C1A-3"		X			N	1	B									
		8:07	C1B-3"								X1	⊗-9							
		7:55	C1C-3"																
		8:00	C1D-3"																
		8:15	C2A-3"																
		8:33	C2B-3"								X2	⊗-10							
		8:20	C2C-3"																
		8:27	C2D-3"																① OBSERV. TEMP: 2.5 °C CORREC. TEMP: 2.5 °C THERMO ID: 66 BY: SM
		8:40	C3A-3"																
		8:58	C3B-3"								⊗	⊗-11							② OBSERV. TEMP: 5.5 °C CORREC. TEMP: 5.0 °C THERMO ID: 69 BY: SM
		8:45	C3C-3"								X3								
		8:52	C3D-3"																
		8:58	C3E-3"								⊗	⊗-12							
	↓	7:49	C1A-2'		↓			↓	↓	↓									Hold

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka Date: 8/10/22 Time: 939 am

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

SAMPLE DISPOSITION
1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 Days Frozen.
By: Date: 8/9/22

SPECIAL INSTRUCTION: X = Comp analysis ⊗ = discrete analysis

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

* UPS: ① 1Z 957 805 01 4834 9140 2.5°C
& ② 1Z 957 805 01 4847 1833

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 2 OF 5

FILE NO.: ______ LAB NO.: 22081042

CLIENT NAME: Soils Engineering Inc.	PROJECT NAME/NO. FSD/18503	P.O.NO. 18503-POS	AIRBILL NO:
ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313		ANALYSES REQUESTED	COOLER TEMP: ______
PROJECT MANAGER: R. Becker	PHONE NO: 661-831-5100 FAX NO: 661-831-2111		<----PRESERVATION *
SAMPLER NAME: Robert Becker	SIGNATURE: [signature]		REMARKS: Same as pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y N (circled) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER #	CONTAINER TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	BTEX (8020) 8260B*		SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	9:02	C4A-3" (Comp)		X			N	1	B									*8.10.22 @ 2:32 PM Verbal OK'D to change 8020 to 8260B. - Per Bob. Becker.
		9:20	C4B-3" (Comp)									X						-13	
		9:10	C4C-3" (Comp)								X4								
		9:15	C4D-3" (Comp)																
		10:54	C5A-3" (Comp)								X		X			X	X	-14	
		10:48	C5B-3" (Comp)								X5	X						-15	
		11:00	C5C-3" (Comp)								X		X			X	X	-16	
		11:07	C5D-3" (Comp)																
		10:40	C6A-3" (Comp)																
		10:22	C6B-3" (Comp)								X6	X						-17	
		10:35	C6C-3" (Comp)								X		X			X	X	-18	
		10:30	C6D-3" (Comp)																
		8:09	C1B-2'																Hold
	↓	7:57	C1C-2'		↓			↓	↓	↓									Hold

Relinquished by (Signature& Name): [signature] Robert J. Becker	Received by (Signature & Name): Guadalupe Tanaka [signature]	Date: 8/10/22 @	Time: 929 am	**SAMPLE DISPOSITION**
Relinquished by (Signature& Name):	Received by (Signature & Name):	Date:	Time:	1. Samples returned to client? Yes No 2. Samples will not be stored over 30 days, unless additional storage time is requested.
Relinquished by (Signature& Name):	Received by (Signature & Name):	Date:	Time:	3. Storage time requested: 60 Days Frozen. By: 8/9/22 Date: [signature]

SPECIAL INSTRUCTION: Same as pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 3 OF 5
FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: _____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: Same as pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	pH	BTEX (8260)	SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:17	C7A-3"		X			N	1	B									* See Pg 2 of 5
		9:55	C7B-3"									⊗							-19
		10:10	C7C-3"								X								
		10:00	C7D-3"								⊗		⊗			⊗		⊗	-20
		9:50	C8A-3"								⊗	-27							Added 08/18 NTAT
		9:30	C8B-3"								X		⊗			⊗		⊗	-21
		9:40	C8C-3"								X	⊗ -28							Added 08/18 NTAT
		9:35	C8D-3"						↓	↓	⊗		⊗			⊗		⊗	-22
		7:00	BM1						1	B	⊗		⊗	⊗		⊗	⊗		-23
		6:55	BM2								⊗		⊗	⊗		⊗	⊗		-24
		9:20	BM3						↓	↓	⊗		⊗	⊗		⊗	⊗		-25
		8:02	C1D-2'						1	B									Hold
		8:17	C2A-2'																Hold
	↓	8:35	C2B-2		↓			↓	↓	↓		⊗ -29							~~Hold~~ off Hold 08/18 NTAT

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka
Date: 8/10/22 Time: 0929 am

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: _____ Date: 8/9/22

SPECIAL INSTRUCTION: Same as pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 4 OF 5

FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP:

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	8:22	C2C-2'		X				1	B									Hold
		8:29	C2D-2'																Hold
		8:42	C3A-2'																Hold
		9:00	C3B-2'					N			⊗	⊗						-26	~~Hold~~
		8:47	C3C-2'																Hold
		8:54	C3D-2'																Hold
		9:04	C4A-2'																Hold
		9:22	C4B-2'																Hold
		9:12	C4C-2'																Hold
		9:17	C4D-2'																Hold
		10:56	C5A-2'									⊗	-30						~~Hold~~ off Hold 08/18 NTAT
		10:50	C5B-2'																Hold
		11:02	C5C-2'								⊗	-31							~~Hold~~ off Hold 08/18 NTAT
		11:09	C5D-2'																Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: 0734 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: Date: 8/9/22

SPECIAL INSTRUCTION: Same as pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, ~~4-Zinc Acetate~~, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 5 OF 5

FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP:

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:42	C6A-2'		X				1	B									Hold
		10:24	C6B-2'																Hold
		10:37	C6C-2'									⊗-32							~~Hold~~ off Hold 08/18 NTAT
		10:32	C6D-2'																Hold
		10:19	C7A-2'																Hold
		9:57	C7B-2'																Hold
		10:12	C7C-2'																Hold
		10:02	C7D-2'								⊗-33								~~Hold~~ Off Hold 08/18 NTAT
		9:52	C8A-2'								⊗-34								~~Hold~~ Off Hold 08/18 NTAT
		9:32	C8B-2'								⊗-35								~~Hold~~ off Hold 08/18 NTAT
		9:42	C8C-2'								⊗-36								~~Hold~~ off Hold 08/18 NTAT
		9:37	C8D-2'								⊗-37								~~Hold~~ off Hold 08/18 NTAT

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka Date: 8/10/22 Time: 9:29 am

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: Date: 8/9/22

SPECIAL INSTRUCTION:

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

August 26, 2022

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2208234
Project Name: 18503 / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 23, 2022.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 08/26/22
Submitted: 08/23/22
PLS Report No.: 2208234

Project: 18503 / P.O. # 18503-POS

Sample ID: B-1 @ 6' Soil (2208234-01) Sampled: 08/18/22 08:20 Received: 08/23/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**11.5**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22417

Sample ID: B-2 @ 6' Soil (2208234-02) Sampled: 08/18/22 11:30 Received: 08/23/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**9.02**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/23/22	08/23/22	RP/JK	BH22417

Quality Control Data

Analyte		Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BH22417 - EPA 3050B											
Blank		**Prepared & Analyzed: 08/23/22**									
Arsenic		ND	2.00	mg/kg							
LCS		**Prepared & Analyzed: 08/23/22**									
Arsenic		53.2	2.00	mg/kg	49.33		108	80-120			
Matrix Spike	**Source: 2208235-01**	**Prepared & Analyzed: 08/23/22**									
Arsenic		50.0	2.00	mg/kg	49.33	4.70	91.9	75-125			
Matrix Spike Dup	**Source: 2208235-01**	**Prepared & Analyzed: 08/23/22**									
Arsenic		50.8	2.00	mg/kg	49.33	4.70	93.4	75-125	1.59	30	

Notes and Definitions

NA	Not Applicable
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)

108705

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/22/22 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 208734

CLIENT NAME: Soils Engineering, Inc. Project Name/No. 18503 P.O. NO. 18503-Pos

AIRBILL NO: _____

ADDRESS: 4400 Teager Way, Bakersfield, CA

OBSERV. TEMP: 1.7c
CORREC. TEMP: 1.5c
THERMO ID: 16 BY: [illegible]

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111

SAMPLER NAME: Carlos Enriquez-Villegas (Printed) [signature] (Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y (N) - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ANALYSES REQUESTED: Arsenic

REMARKS:

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	Arsenic	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		8/11/22	8:20	B-1 @ 6'		X			3	1	B	X	
2		↓	11:30	B-2 @ 6'		X			3	1	B	X	
3													
4													
5													
6													
7													
8													
9													
10													

Relinquished By: (Signature and Printed Name) [signature] Robert Becker — Received By: (Signature and Printed Name) [signature] — Date: 8/23/22 — Time: 9:55

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS: UPS: 1Z 957 805 01 4269 8337

SAMPLE DISPOSITION:
1. Samples returned to client? (YES) NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 Days Frozen days

By [signature] Date 8/22/22

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

POSITIVE
LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

September 01, 2022

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2208092
Project Name: 18503 FSD / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 10, 2022.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 09/01/22
Submitted: 08/10/22
PLS Report No.: 2208092

Project: 18503 FSD / P.O. # 18503-POS

Sample ID: C7D-2' Soil (2208092-33) Sampled: 08/09/22 10:02 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**5.03**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/29/22	08/31/22	RP/JK	BI20101

Sample ID: C1B-2' Soil (2208092-38) Sampled: 08/09/22 08:09 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**7.19**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/29/22	08/31/22	RP/JK	BI20101

Sample ID: C6B-2' Soil (2208092-39) Sampled: 08/09/22 10:24 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**11.4**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/29/22	08/31/22	RP/JK	BI20101

Sample ID: C7B-2' Soil (2208092-40) Sampled: 08/09/22 09:57 Received: 08/10/22

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**10.4**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	08/29/22	08/31/22	RP/JK	BI20101

Quality Control Data

Analyte		Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BI20101 - EPA 3050B											
Blank		**Prepared: 08/29/22 Analyzed: 08/31/22**									
Arsenic		ND	2.00	mg/kg							
LCS		**Prepared: 08/29/22 Analyzed: 08/31/22**									
Arsenic		49.8	2.00	mg/kg	49.33		101	80-120			
Matrix Spike	**Source: 2208290-01**	**Prepared: 08/29/22 Analyzed: 08/31/22**									
Arsenic		47.5	2.00	mg/kg	49.33	2.77	90.6	75-125			
Matrix Spike Dup	**Source: 2208290-01**	**Prepared: 08/29/22 Analyzed: 08/31/22**									
Arsenic		47.2	2.00	mg/kg	49.33	2.77	90.2	75-125	0.496	30	

Notes and Definitions

NA	Not Applicable
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Rick Owen Parker

Authorized Signature(s)

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 1 OF 5
FILE NO.: _____ LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO: *

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: _____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: _____

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

Use 1/2 for Composites
Save Remainder for additional analyses

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	7:45	C1A-3"		X			N	1	B									
		8:07	C1B-3" (Comp)								X	⊗	9						
		7:55	C1C-3"																
		8:00	C1D-3"																
		8:15	C2A-3"																
		8:33	C2B-3" (Comp)								X	⊗	10						
		8:20	C2C-3"																
		8:27	C2D-3"																① OBSERV. TEMP: 2.5 °C CORREC. TEMP: 2.2 °C THERMO ID: 66 BY: SM
		8:40	C3A-3"																
		8:58	C3B-3"								⊗	⊗	11						② OBSERV. TEMP: 5.5 °C CORREC. TEMP: 5.0 °C THERMO ID: 66 BY: SM
		8:45	C3C-3" (Comp)																
		8:52	C3D-3"								X		3						
		8:58	C3E-3"								⊗	⊗	12						
	↓	7:49	C1A-2'		↓			↓	↓	↓									Hold

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka Date: 8/10/22 Time: 939 am

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

Relinquished by (Signature& Name): Received by (Signature & Name): Date: Time:

SAMPLE DISPOSITION
1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 Days Frozen.
By: Date: 8/9/22

SPECIAL INSTRUCTION: X = Comp analysis ⊗ = discrete analysis

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

* UPS: ① 1Z 957 805 01 4834 9140 2.5°C
& ② 1Z 957 805 01 4847 1033

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 2 OF 5
FILE NO.: LAB NO.: 22080012

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP:

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5700 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: Same as Pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	BTEX (8260B)*		SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	9:02	C4A-3"		X			N	1	B									*8.10.22@2:32PM Verbal OK'D to change SOP to 8260B. -Per Bob Becker.
		9:20	C4B-3"									X	-13						
		9:10	C4C-3" Comp								X4								✓ 8/10/22 Add on 3day TAT for B. Becker
		9:15	C4D-3"																
		10:54	C5A-3"															-14	
		10:48	C5B-3"								X5	X						-15	
		11:00	C5C-3" Comp															-16	
		11:07	C5D-3"																
		10:40	C6A-3"																
		10:22	C6B-3"								X6	X						-17	
		10:35	C6C-3" Comp															-18	
		10:30	C6D-3"																
		8:09	C1B-2'									✓	58						off Hold 8/10/22 ~~Hold~~
	↓	7:57	C1C-2'	↓				↓	↓	↓									Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: @ 929 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 Days Frozen.

By: 8/9/22 Date:

SPECIAL INSTRUCTION: Same as Pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 3 OF 5
FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP: _____

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS: Samples pg 1

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)	pH	BTEX (8260)	SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:17	C7A-3"		X			N	1	B									* See Pg 2 of 5
		9:55	C7B-3"									⊗							-19
		10:10	C7C-3" Comp								X								
		10:00	C7D-3"								⊗		⊗			⊗		⊗	-20
		9:50	C8A-3"								⊗	-27							Added 08/18 NTAT
		9:30	C8B-3"								⊗		⊗			⊗		⊗	-21
		9:40	C8C-3" Comp								⊗	-28							Added 08/18 NTAT
		9:35	C8D-3"						↓	↓	⊗		⊗			⊗		⊗	-22
		7:00	BM1						1	B	⊗		⊗	⊗		⊗	⊗		-23
		6:55	BM2								⊗		⊗	⊗		⊗	⊗		-24
		9:20	BM3					↓	↓	↓	⊗		⊗	⊗		⊗	⊗		-25
		8:02	C1D-2'						1	B									Hold
		8:17	C2A-2'						↓	↓									Hold
		8:35	C2B-2		↓				↓	↓		⊗	-29						~~Hold~~ off Hold 08/18 NTAT

Relinquished by (Signature& Name): Robert J. Becker
Received by (Signature & Name): Guadalupe Tanaka
Date: 8/10/22 Time: 0929 am

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

Relinquished by (Signature& Name):
Received by (Signature & Name):
Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? Yes No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: Date: 8/9/22

SPECIAL INSTRUCTION: Samples pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 4 OF 5

FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS AIRBILL NO:

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313 COOLER TEMP:

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111 <----PRESERVATION *

SAMPLER NAME: Robert Becker SIGNATURE: REMARKS:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

ANALYSES REQUESTED

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	8:22	C2C-2'		X				1	B									Hold
		8:29	C2D-2'																Hold
		8:42	C3A-2'																Hold
		9:00	C3B-2'					N			X	X						-16	~~Hold~~
		8:47	C3C-2'																Hold
		8:54	C3D-2'																Hold
		9:04	C4A-2'																Hold
		9:22	C4B-2'																Hold
		9:12	C4C-2'																Hold
		9:17	C4D-2'																Hold
		10:56	C5A-2'									X	-30						~~Hold~~ off Hold 08/18 NTAT
		10:50	C5B-2'																Hold
		11:02	C5C-2'								X	-31							~~Hold~~ off Hold 08/18 NTAT
		11:09	C5D-2'																Hold

Relinquished by (Signature& Name): Robert J. Becker — Received by (Signature & Name): Guadalupe Tanaka — Date: 8/10/22 — Time: 9:34 am

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

Relinquished by (Signature& Name): — Received by (Signature & Name): — Date: — Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

By: Date: 8/9/22

SPECIAL INSTRUCTION: Same as Pg 1

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, ~~4-Zinc Acetate~~, 5-NaOH, 6-NH_4 Buffer, 7-Other

CHAIN OF CUSTODY AND ANALYSIS REQUEST

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 8/9/22 PAGE: 5 OF 5

FILE NO.: LAB NO.: 2208092

CLIENT NAME: Soils Engineering Inc. PROJECT NAME/NO. FSD/18503 P.O.NO. 18503-POS

ADDRESS: 4400 Yeager Way, Bakersfield, CA 93313

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111

SAMPLER NAME: Robert Becker SIGNATURE:

TAT (Turn-Around-Time): 0=Same Day; 1 = 1 Day; 2 = 2 Days, 3 = 3 Days, N = Normal (5-7 Working Days)

CONTAINER TYPES: B=Brass; E=Encore/Easy Draw; P=Plastic; G=Glass; V=VOA Vial; O=Other

UST PROJECT: Y (N) GLOBAL ID#: --- --- --- --- --- --- --- --- --- ---

AIRBILL NO:

COOLER TEMP: _____

<----PRESERVATION *

REMARKS: _____

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	OCPs	Arsenic	CAM 17 Metals	VOCs (5035/8260)	PAHs (8270SIM)	TPH C5 to C36 (8015B)			SAMPLE CONDITIONS/ CONTAINER/COMMENTS
	8/9/22	10:42	C6A-2'		X				1	B									Hold
		10:24	C6B-2'									✓	31						~~Hold~~ off HOLD 08/26/22
		10:37	C6C-2'									⊗	32						~~Hold~~ off Hold 08/18 NTAT
		10:32	C6D-2'																Hold
		10:19	C7A-2'																Hold
		9:57	C7B-2'									✓	40						~~Hold~~ off Hold 08/26/22
		10:12	C7C-2'																Hold
		10:02	C7D-2'								⊗	✓	33						~~Hold~~ Off Hold 08/18 NTAT
		9:52	C8A-2'								⊗	34							~~Hold~~ off Hold 08/18 NTAT
		9:32	C8B-2'								⊗	35							~~Hold~~ off Hold 08/18 NTAT
		9:42	C8C-2'								⊗	36							~~Hold~~ off Hold 08/18 NTAT
		9:37	C8D-2'								⊗	37							~~Hold~~ off Hold 08/18 NTAT

Relinquished by (Signature& Name): Robert J. Becker

Received by (Signature & Name): Guadalupe Tanaka

Date: 8/10/22 Time: 9:29 am

Relinquished by (Signature& Name):

Received by (Signature & Name):

Date: Time:

Relinquished by (Signature& Name):

Received by (Signature & Name):

Date: Time:

SAMPLE DISPOSITION

1. Samples returned to client? **Yes** No
2. Samples will not be stored over 30 days, unless additional storage time is requested
3. Storage time requested: 60 Days Frozen.

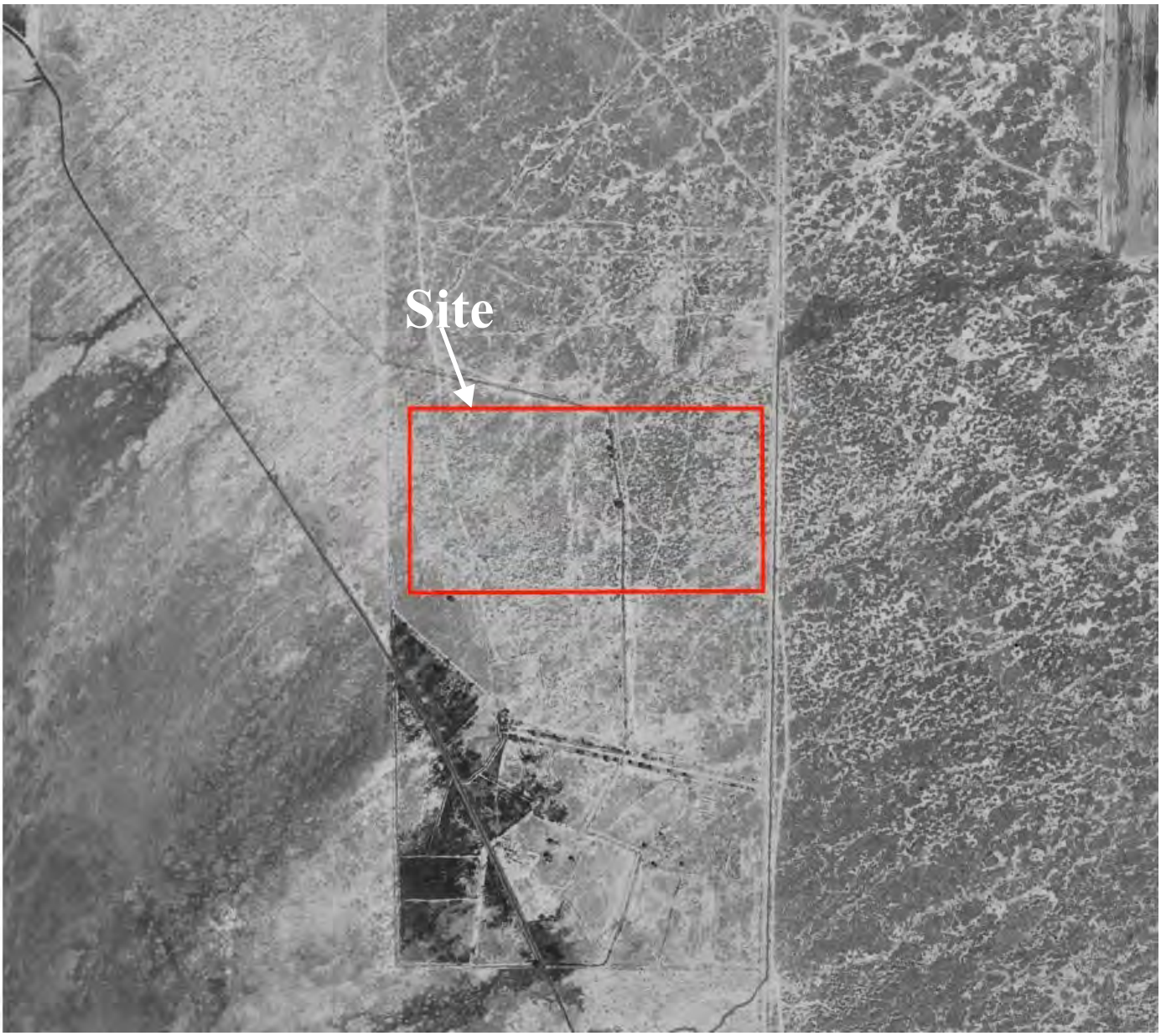
By: Date: 8/9/22

SPECIAL INSTRUCTION:

* PRESERVATION: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

Appendix C

Aerial Photographs



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 7/22
PROJECT: #18503

Proposed School Site #5
SW of Oswell St. and Zephyr Lane
Bakersfield, CA

1937 Aerial Photograph

PLATE

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 7/22
PROJECT: #18503

Proposed School Site #5
SW of Oswell St. and Zephyr Lane
Bakersfield, CA

1942 Aerial Photograph

PLATE

N

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **1952 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **1957 Aerial Photograph**	**PLATE**

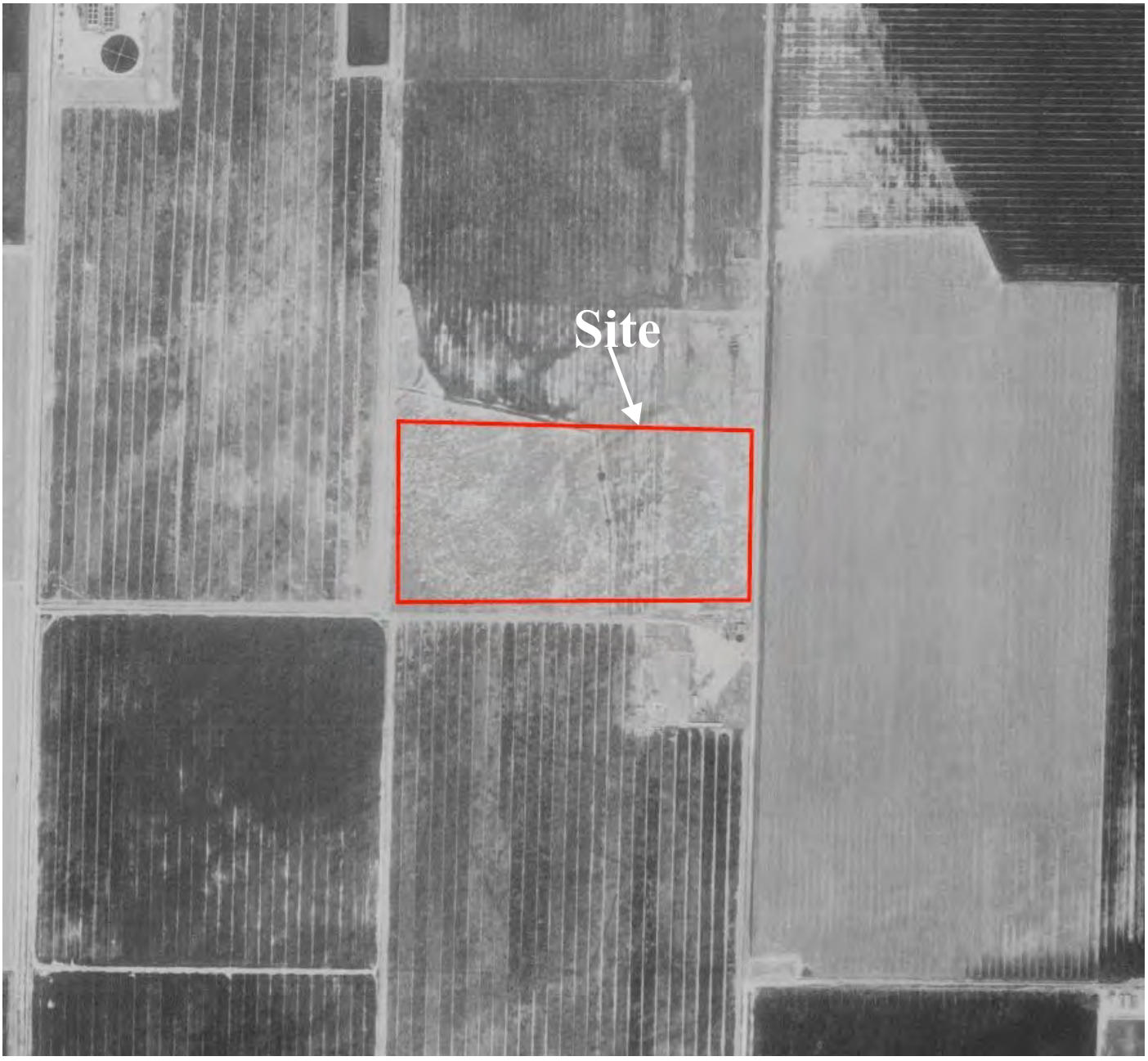
SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 7/22
PROJECT: #18503

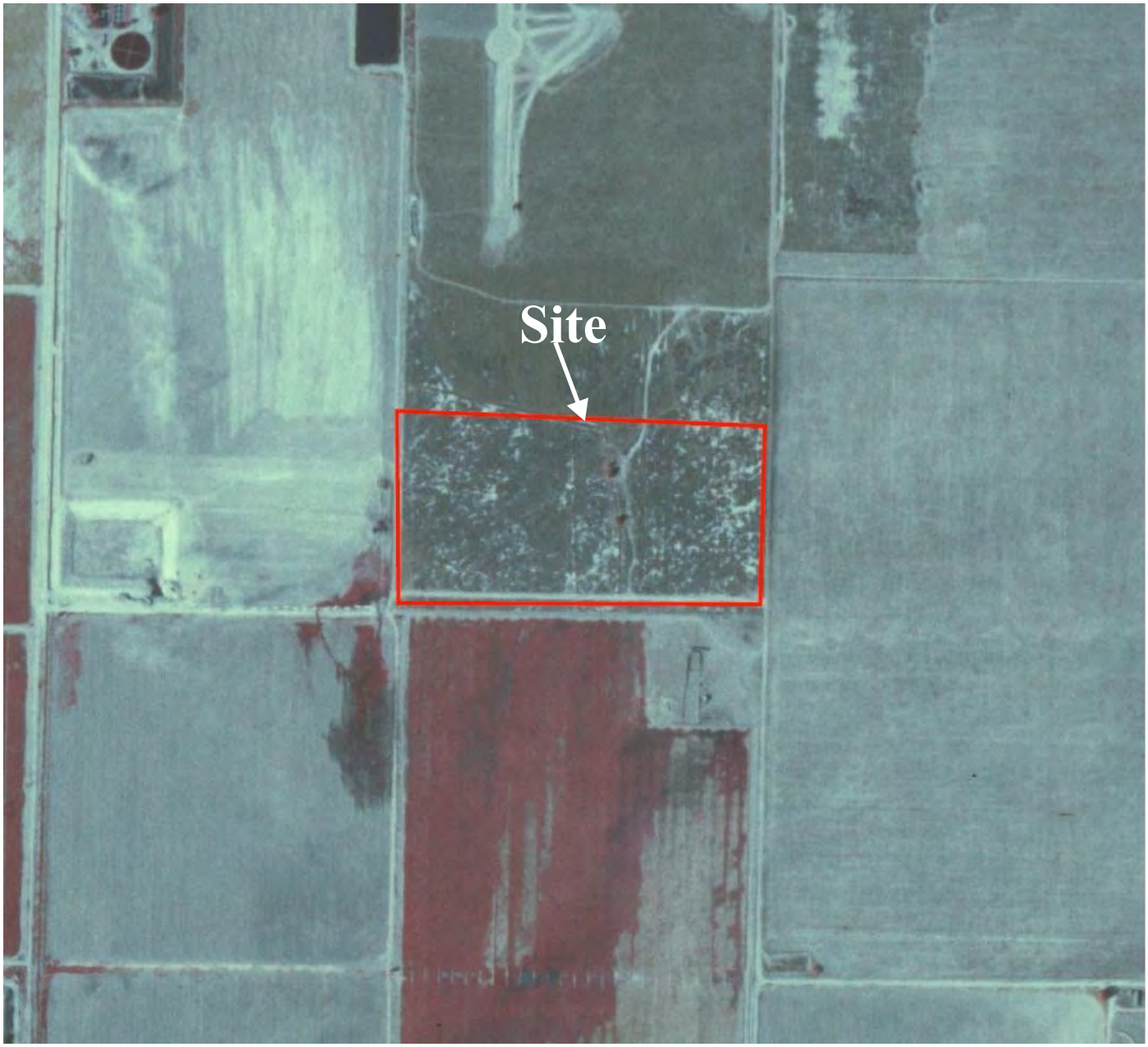
Proposed School Site #5
SW of Oswell St. and Zephyr Lane
Bakersfield, CA

1968 Aerial Photograph

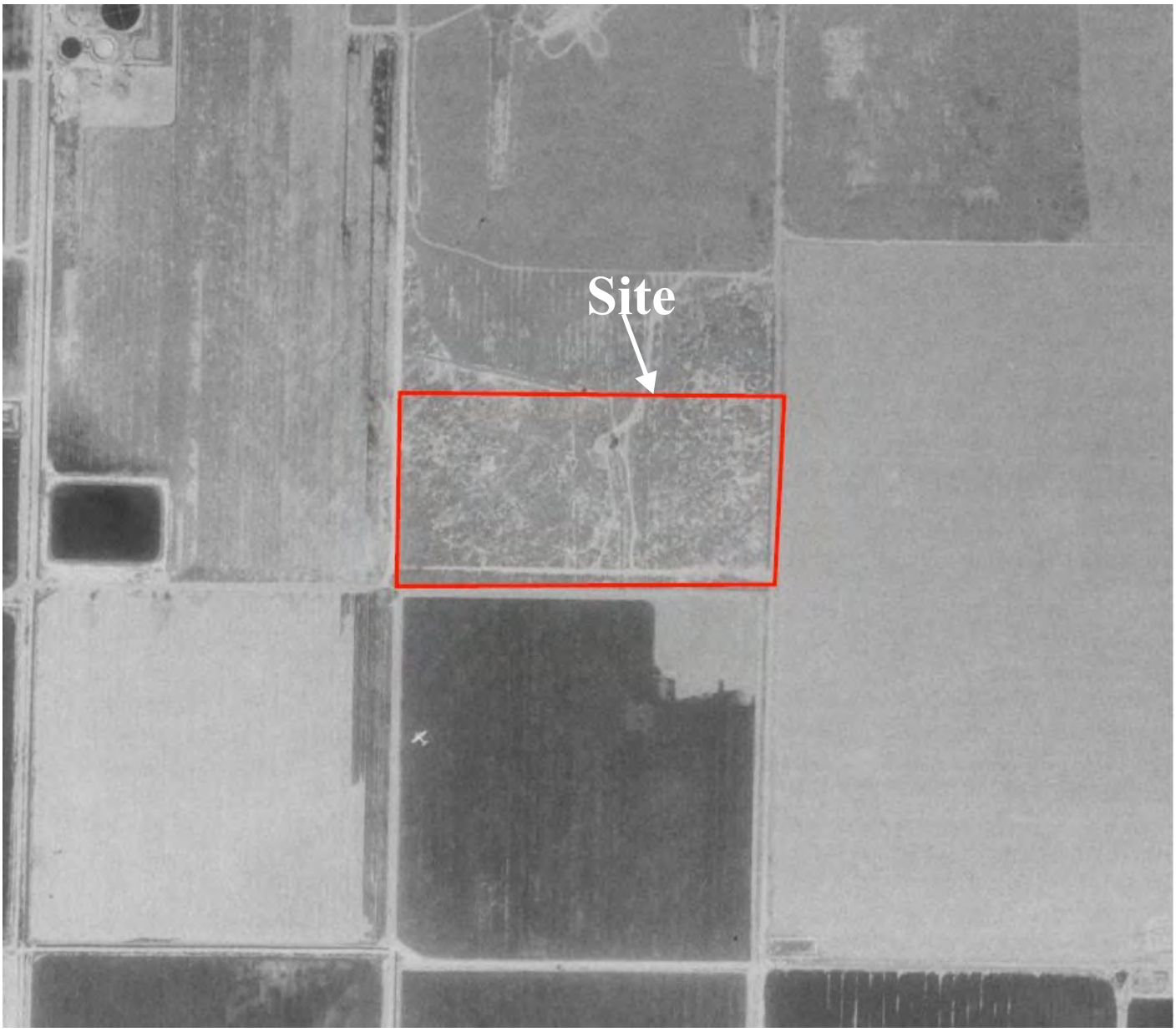
PLATE



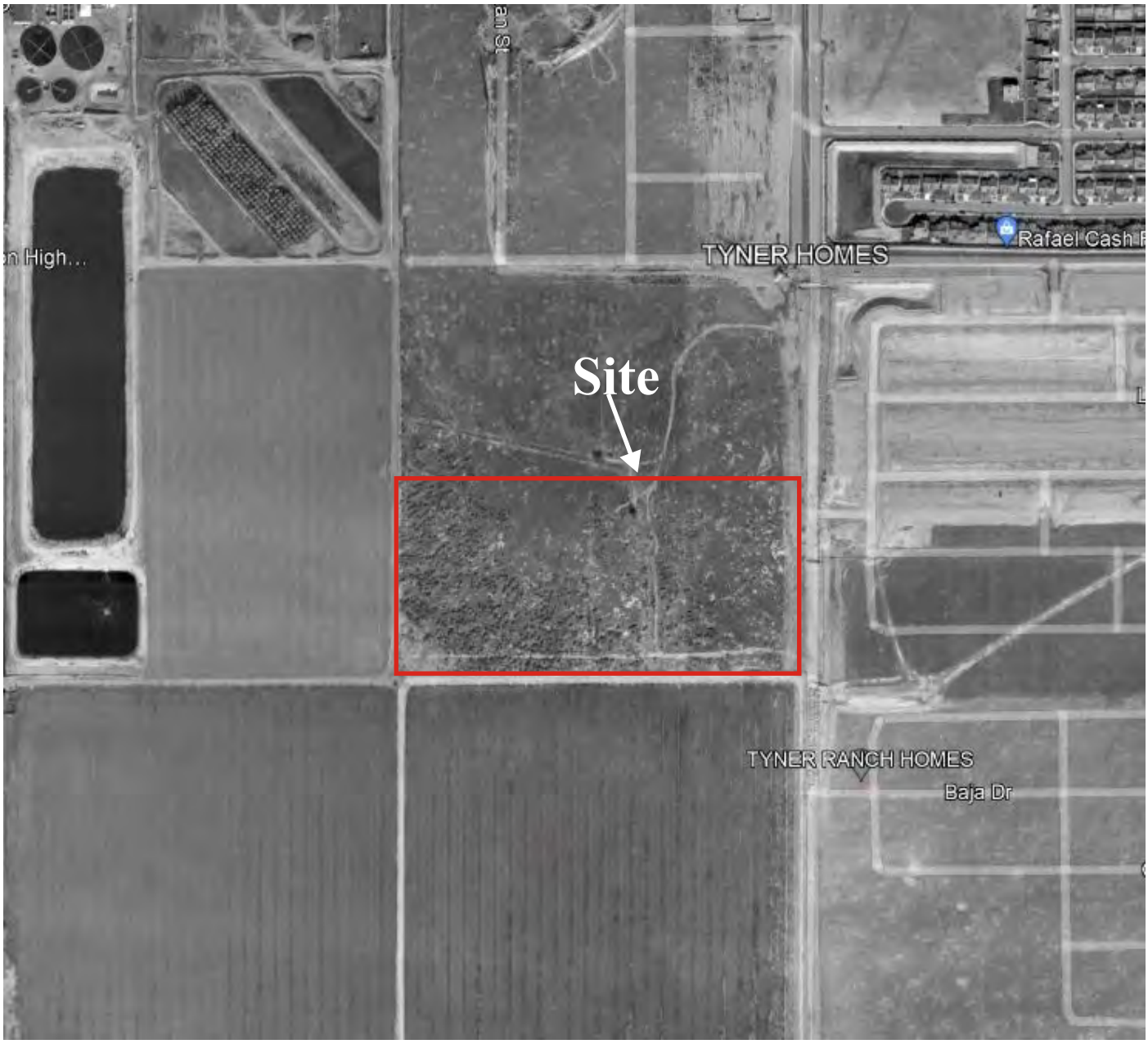
SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **1973 Aerial Photograph**	**PLATE**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **1984 Aerial Photograph**	**PLATE**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **1992 Aerial Photograph**	**PLATE**



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 7/22
PROJECT: #18503

Proposed School Site #5
SW of Oswell St. and Zephyr Lane
Bakersfield, CA

2003 Aerial Photograph

PLATE

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 7/22
PROJECT: #18503

Proposed School Site #5
SW of Oswell St. and Zephyr Lane
Bakersfield, CA

2006 Aerial Photograph

PLATE

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **2009 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **2012 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **2016 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 7/22 PROJECT: #18503	**Proposed School Site #5** **SW of Oswell St. and Zephyr Lane** **Bakersfield, CA** **2021 Aerial Photograph**	**PLATE**

Appendix D

QA/QC Sheets

QA/QC - FORM D-1
Specific Issues

Y/N	Issue	Y/N	Issue
N	Above Ground Storage Tank(s)	N	Underground Storage Tank(s)
N	Clarifiers (wash rack areas)	Y	Fill (Earth Berms)
N	Vent Pipes (irrigation lines)	N	Fuel Islands (former)
N	Drums	N	Other Containers (Oil Tanks, Pipelines)
N	Surface Staining	N	Solid Waste Disposal
N	Sump	N	Pits
N	Ponds	N	Lagoons
Y	Stockpiled Soils (Miscellaneous Piles)	N	Distressed Vegetation
N	Oil or Gas Wells (Abandoned)	N	Monitoring Wells
N	Water Well (abandoned)	N	Dry Wells
N	Possible Underground irrigation lines	N	Chemical Process
N	Waste Treatment	N	Hazardous Waste Discharge
N	Septic Systems	N	Wastewater Discharge
N	Dry Cleaners	N	Repair or Servicing Facilities
N	Photo Processing	N	Manufacturing
N	Distribution Warehouse	N	Asbestos Containing Materials
N	High Radon Levels (See Geocheck Version2.1)	N	Suspect Lead Containing Paint
N	Lead in Water	N	Others (Stand-pipe) See Footnote
N	Is/was heating fuel provided by on-site storage fuel oil?		
N	On-site use, disposal, treatment, storage, or emission, of significant quantities of hazardous materials or wastes.		
N	Evidence of any on-site release of hazardous materials which could impact the subject site?		
N	Evidence of any off-site release of hazardous materials which could impact the subject site?		

Source/Year	2022	2018	2016	2012	2009	2006	2002	1994	1984	1973	1968	1956	1952	1942	1937	OTHER
Title Search	X															
Aerial Photos	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Building Department Permits	X															
Building Department Plans																
Planning Department Records																
Fire Insurance Maps	X															
Oil and Gas Maps	X	X	X	X	X	X	X	X	X	X	X					
Fire Department Records	X	X	X	X	X	X	X	X	X	X	X					
UST Permits and Registrations	X	X	X	X	X	X	X	X	X	X	X					
Street Directories	X															
Observation (2022)	X															
Personal knowledge (2022)	X															
Others: Building Department	X															
Personnel Interviews	X															

QA/QC FORM D-3
AERIAL PHOTOGRAPH REVIEW

Concern	On-Site	Off-Site
Improvements	Vacant Land, Miscellaneous Piles, Drainage Ditch, Former Agricultural (Portion), Debris, Vegetation	Vacant Land, Farmland, Residential, Oil Wells, Sanitation District
USE - Note evidence of:		
Above Ground Storage Tanks	N	N
Fuel Islands & USTs	N	N
Drums	N	N
Other Containers	N	N
Surface Staining (Minor)	N	N
Solid Waste Disposal/Land Fill	N	N
Pits, Ponds, Lagoons (former)	N	Y
Stockpiled Soils (Miscellaneous Piles)	Y	N
Distressed Vegetation	N	N
Oil Wells (Abandoned)	N	Y
Repair or Servicing Facilities	N	N
Industrial/Manufacturing	N	N
Warehouse	N	N
Gas Station	N	N
Others: Agricultural	Y	Y

Note: Not found where left blank

QA/QC - FORM D-4
Exception Items

Areas Not Available and Restrictions on Accessibility to Environmental. Data		Status of Documents and Agency Reviews	
Areas	**Restrictions**	**List of Documents Requested**	**Status of Availability**
None		None	

No Restrictions

GEOLOGICAL HAZARD STUDY

For

Proposed School Site #5

SW of S. Oswell Street & Zephyr Lane

in

Bakersfield, California

Prepared For:

Fairfax School District
1500 S. Fairfax Rd.
Bakersfield, CA 93307
Attention: Mr. David Mack

File No. 22-18503

Prepared By:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA. 93313

September 2022

Soils Engineering Inc.

September 6, 2022 File No. 22-18503

Fairfax School District
1500 S. Fairfax Rd.
Bakersfield, CA 93307

Attention: Mr. David Mack

Subject: Geological Hazard Study
FSD Proposed Elementary School Site #5
SW of S. Oswell St. & E. Zephyr Ln. – ~20.25 Acres
in Bakersfield, CA
Southern Portion of APN#: 173-191-01

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed a Geological Hazards Study for the above described subject property in Bakersfield, California (site). This study was conducted in compliance with the California Code of Regulations, Title 24, Chapters 16, 18 and 33 of the new 2019 California Building Code and per the California Education Code.

Our Geological Hazards Assessment indicates that there is a low to moderate probability for liquefaction to occur during a major earthquake at the site and that the maximum peak ground acceleration at the site would be 0.297g for a 7.3 magnitude earthquake on the White Wolf Fault approximately 21.7 kilometers away. The computer-modeling program Eqsearchwin estimated that a ground motion of 0.344g occurred at the site from a 6.1 magnitude earthquake (aftershock) on the White Wolf Fault on July 23, 1952. The proposed structures should be built to withstand this magnitude of an earthquake and ground motions.

The site-specific design acceleration values to be utilized for the proposed improvements should be 0.714g for short periods (S_{Ds}) and 0.450g for the 1 second period (S_{D1}). The seismic design category is a D for both short and 1-second periods per the 2019 CBC.

In the event of a major earthquake, there is a very low potential for rock falls or landslides to impact the site. The site is located outside of the potential flood zone of an upstream disaster (dam failure). The estimated amount of total dynamic settlement that would occur at this site during a major earthquake is approximately 1" to 2.48" and the range of differential settlement is 0.5" to 1.242" utilizing a conservative depth to groundwater of 16.5'. These estimated settlements appear to be appropriate for a school site with no mitigation required beyond the Geotechnical Engineers recommendations in the upcoming Geotechnical Investigation once the building locaations are determined.

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Bakersfield, CA 93313-2019
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info@soilsengineering.com
www.soilsengineering.com

No high-pressure natural gas pipelines or active high-pressure petroleum pipelines appear to be present within 1500' of the site that would be a threat to the site.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east trending N-S. If there is a full diameter release, the estimated impact distance for a circular pool is 52' which does not affect the site. The estimated impact distance for a rectangular channel with a width of 20' is 105' in which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. which will help control the water from a potential release. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended.

The nearest oil wells (dry holes) ever drilled are far enough away from the site that it is not likely that any significant subsurface oilfield related gases (hydrogen sulfide, methane etc.) are present beneath the site. The nearest oil wells (dry-holes) ever drilled were non-producing and located approximately 280' to the north, ~320' to the south, ~730' to the southeast, and ~-980' to the east of the site (see Plate 6). The site is within the boundary of the Edison Oil/Gas Field. There is a low to moderate potential that any significant subsurface oilfield related gases (hydrogen sulfide, methane etc.) are present in the subsurface at elevated concentrations. A soil gas survey is recommended to verify the potential for vapor migration under DTSC oversight.

No further geological assessment or mitigation is recommended.

The accompanying report is an instrument of service of ***Soils Engineering, Inc.***. The report summarizes our findings and relates our opinions with respect to the potential for geological hazards to affect the site. Note that our findings and opinions are based on information that we obtained on given dates, through records review, site review, and related activities. It is possible that other information exists or subsequently has become known, just as it is possible for conditions we observed to have changed after our observation.

Soils Engineering, Inc. will be pleased to provide more information in this regard. Please call us for assistance at (661) 831-5100.

Sincerely,
SOILS ENGINEERING, INC.

Robert J. Becker. P.G., C.E.G.
Environmental Division Manager

Distribution: Addressee (3)

Table of Contents

Geological Hazards Study

ATTACHMENTS

I. LIST OF ILLUSTRATIONS

GEOLOGICAL HAZARD STUDY
For
Fairfax School District

Proposed Elementary School Site #5
Southwest of S. Oswell Street and Zephyr Lane
in

Bakersfield, California
September 2022

1.0 Introduction

Soils Engineering, Inc. (SEI) has conducted a Geological Hazards Study for an approximately 20.25-acre proposed school property, located Southwest of South Oswell Street and Zephyr Lane (site) in Bakersfield, California (see Location Map, Plate 1). The site location coordinates are approximately 35.344360º north, latitude, and -118.952023º west, longitude. The following is an Executive Summary of the investigation conducted in August and September 2022.

A site reconnaissance, which consisted of walking the property and evaluating the surrounding geological features, was conducted by SEI personnel in August 2022. The proposed Fairfax School District (FSD) property is primarily vacant land. Historically the site has been mainly vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to have been used for agricultural purposes from at least 1968 to 1973. There was an active drainage/irrigation ditch from at least the 1930s to 1973. From 2017 to 2020, there were soil piles on the southeast portion of the site. Currently the site is overgrown with seasonal vegetation, debris, traces of the irrigation/drainage ditch, and multiple scattered piles of different combinations of debris/concrete/vegetation/soil/bricks.

2.0 Geology and Hydrology

2.1 Geologic Setting

The site has generally flat relief with a slight slope to the southwest. The project site rests on Quaternary Fan deposits (Qf) within the southern portion of the San Joaquin Valley. See the attached Geologic Map (Plate 2A), as interpreted from on-site soil borings and the Bakersfield Sheet of the Geologic Map of California (Smith, Department of Conservation Division of Mines and Geology (CDMG), 1964) and the 2010 Geologic Map of California (CDMG). Active faults within 50 miles include the Kern Front Fault, approximately 12.8 kilometers to the northwest; the White Wolf Fault, approximately 21.7 kilometers to the southeast; the Pleito Thrust Fault, approximately 38.5 kilometers to the south, southwest; the Garlock (west) Fault, approximately 52.7 kilometers to the south, southeast; the San Andreas Fault (Whole M-1a, Carrizo M-1c-2, 1857 Rupture M-2a, Cho-Moj M-1b-1), approximately 57.2 kilometers to the west; the Big Pine Fault, approximately 58.4 kilometers to the

southwest; and the San Gabriel, approximately 70.5 kilometers to the southeast. The site is not located within an Alquist-Priolo Special Study Zone (Earthquake Fault Zone), and the Seismic Hazard Atlas map of the Lamont Quadrangle shows no active faults near the site (Plate 3). Nearby active faults are shown on the 2010 Fault Activity Map of California (CDMG, 2010) within the general area of the site (Plate 5A) and on the EQFault California Fault Map (Plate 5).

Near surface soils within the zone of influence of future developments consist of interbedded clayey silt, clayey sand, clay, and silty sand layers overlying bedrock, which is located several thousand feet below the surface. These sediments were derived in the Sierra Nevada Mountains to the east of the site and deposited by local drainage and the meandering Kern River.

2.2 Surface Lithology

Earth materials identified in the two (2) onsite soil borings (B-1 and B-2) conducted on August 18, 2022, consisted generally of intervals of Silty Clay (CL), Clayey Sand (SC), Silty Sand (SM), Clayey Silt (ML) and occasional Poorly Graded Sand (SP) in the top 51 feet below ground surface (bgs). These soils are classified as CL, SC, SM, ML and SP respectively, in the Unified Soils Classification System. See attached boring logs included in Appendix B for more detail along with Plate 2B showing a cross-section A to A' between the two (2) borings.

2.3 Hydrology

Unconfined Aquifer - The depth to the unconfined aquifer as shown on maps prepared by the Department of Water Resources (DWR) and presented on the SGMA Data Viewer and dated Spring 2021 and Spring 2012, is approximately 255' and 210' respectively below the ground surface. Historical depth to water data by the DWR and presented on the Water Data Library indicates that the shallowest depth to water on nearby wells within a 0.60 miles radius of the site range from 58.7' (1946) and 76.5' (1958) bgs. One (1) well approximately 0.25 miles to the south had a depth to water reported at 16.5 in 2006 within a known perched water area. See Plate 4 for a depth to water map utilizing SGMA data and Appendix B for a DWR Historic Depth To Water Map.

Perched Water, Ground Water or Seepage – No shallow ground water on the site is shown on Kern Water Agency groundwater maps, dated Summer 2011. The Seismic Hazard Atlas map of the Lamont Quadrangle shows shallow ground water (≤15') just south of the site. Perched groundwater was encountered at an approximate depth of 30' and rose to approximately 24' bgs. before stabilizing in boring B-1. In boring B-2 no groundwater was encountered to a depth of 51'. See Appendix B for boring logs.

3.0 Seismic and Fault Hazards

3.1 Seismic History

There have been a number of historic earthquakes that may have affected the Bakersfield area. The following is a short summary of the major known events:

- 1/9/1857 - Fort Tejon Earthquake - San Andreas Fault, Estimated Magnitude 7.9, 30 feet of slippage over a 200 mile area, widespread damage.

- 7/21/1952 - Arvin/Tehachapi - White Wolf Fault, Magnitude 7.7, extensive damage to buildings and highways.

- 8/22/1952 - Bakersfield Quake (Aftershock of Arvin/Tehachapi) - 8 miles ESE of Bakersfield, Magnitude 5.8. Closest aftershock to Bakersfield causing extensive damage to already weakened buildings. Multiple surface fissures were created from the 1952 earthquakes.

SEI utilized the software program EQSEARCHWIN version 3.0 (Thomas F. Blake) to evaluate historical earthquakes in the area of the site over the last 200 years. The Earthquake Epicenter Map (Plate 3A) shows earthquake magnitudes and the epicentral distance from the site. The majority of the seismic activity in the area of the site has been along the White Wolf Fault and the San Andreas Fault. The closest earthquake of at least 5.0 magnitude to the site was 3.3 kilometers away, at a magnitude of 5.7 in July 1952. The largest magnitude earthquake within 100 miles was 7.9 on the San Andreas Fault in 1857. The largest estimated site acceleration is 0.344 g from a 6.1 magnitude earthquake (likely aftershock) on the White Wolf Fault on July 23, 1952. The EQSEARCHWIN estimation of Peak Acceleration from California Earthquake Catalogs Table, Earthquake Recurrence Curve, Earthquake Epicenter Map and a graph of the Number of Earthquakes (N) above Magnitude (M) are presented in Appendix A.

3.2 Seismic Evaluation

The site is located within the Lamont Quadrangle in the Eastern 1/2 of Section 3, Township 30 South, Range 28 East and is not located in an Alquist-Priolo special studies zone (California Fault Zone). Local faults and general geology are shown on the Lamont Quadrangle, Seismic Hazard Atlas Maps prepared for the Kern County Council of Governments (Plate 3).

The nearest active fault, as indicated by the computer-modeling program EQFault version 3.0, is the Kern Front Fault, which is approximately 12.8 km to the northwest. The White Wolf Fault is approximately 21.7 kilometers to the south, southeast of the site The Pleito Thrust is located approximately 38.5 kilometers south, southwest of the site. The Garlock Fault (west) is approximately 52.7 kilometers south, southeast of the site, and the San Andreas Fault (Whole M-la, Carrizo M-1c-2, 1857 Rupture M-2a, and Cho-Moj) is approximately 57.2 kilometers to the west. The Big Pine Fault is approximately 58.4

kilometers to the southwest and the San Gabriel Fault is approximately 70.5 kilometers to the southeast. Regional faults in relation to the site location are presented on Plate 5A and are from the 2010 Fault Activity Map of California (CDMG, 2010).

3.3 Seismic Design

The seismic design values are presented in the table below based on the new 2019 California Building Code (CBC). The Site Class for the proposed improvements located southwest of S. Oswell St. & Zephyr Lane. in Bakersfield, Kern County, CA, were determined using standard penetration test data obtained at the site and are provided in the attached Boring Logs.

SEISMIC DESIGN CRITERIA		VALUE	SOURCE
Risk Category		III	2019 CBC Table 1604.5 or 1604*A*.5
Site Class		D	2019 CBC § 1613.2.2 or 1613*A*.2.2; ASCE 7-16 Table. 20.3-1; Site Specific Soils Report
Mapped MCE_R Spectral Response Acceleration, short period	S_S	0.961g	SEAOC-OSHPD software; 2019 CBC Figure 1613.2.1(1)
Mapped MCE_R Spectral Response Acceleration, at 1-sec. Period	S_1	0.345g	SEAOC-OSHPD software; 2019 CBC Figure 1613.2.1(2)
Site Coefficient	F_a	1.116	SEAOC- OSHPD software; 2019 CBC Table 1613.2.3(1) or 1613*A*.2.3(1)
Site Coefficient	F_v*	1.955*	2019 CBC Table 1613.2.3(2) or 1613*A*.2.3(2)
Adjusted MCE_R Spectral Response Acceleration, short period, $F_a * S_s$	S_{MS}	1.072g	SEAOC- OSHPD software; 2019 CBC § 1613.2.3 or 1613*A*.2.3
Adjusted MCE_R Spectral Response Acceleration, 1-sec. period, $F_v * S_1$	S_{M1}*	0.674*	2019 CBC § 1613.2.3 or 1613*A*.2.3
Design Spectral Response Acceleration, short period, 2/3 * S_{MS}	S_{DS}	0.714g	SEAOC- OSHPD software; 2019 CBC § 1613.2.4 or 1613*A*.2.4
Design Spectral Response Acceleration, 1-sec. period, 2/3 * S_{MI}	S_{D1}*	0.450*	2019 CBC § 1613.2.4 or 1613*A*.2.4
Peak Ground Acceleration for Max. Considered Earthquake (MCE_G)	PGA	0.415g	SEAOC- OSHPD software; ASCE 7-16 Fig 22-9
Site Coefficient, F_{PGA} = 1.185, F_{PGA}* PGA	PGA_M	0.492g	SEAOC- OSHPD software; ASCE 7-16 § 11.8.3.2
Mapped Risk Coefficient at 0.2 second Spectral Response Period	C_{RS}	0.922	SEAOC- OSHPD software; ASCE 7-16 Figure 22-18A
Mapped Risk Coefficient at 1 second Spectral Response Period	C_{R1}	0.918	SEAOC- OSHPD software; ASCE 7-16 Figure 22-19A
Seismic Design Category, short period		D	2019 CBC § 1613.2.5
Seismic Design Category, 1second period *		D*	2019 CBC § 1613.2.5
** The project Structural Engineer shall confirm that a ground motion hazard analysis is not required in accordance with ASCE 7-16 § 11.4.8-Exception 2. The values tabulated above for S_{M1}, S_{D1}, and the Seismic Design*			

SEISMIC DESIGN CRITERIA		VALUE	SOURCE
Category/1-second period are based on the site coefficient, F_v, interpolated from 2019 CBC Table 1613.2.3(2) or 1613A.2.3(2). The use of that table is predicated on the above referenced Exception 2 being applicable for the site and the structure(s). The project Structural Engineer or designer shall confirm that the above referenced Exception 2 is applicable. Where the above referenced Exception 2 does not apply, the values for F_v, S_{M1}, S_{D1}, and for the Seismic Design Category/1-second period may not be applicable for the site and structure(s).			

MCE_R = Maximum Considered Earthquake (risk targeted)
MCE_G = Maximum Considered Earthquake (geometric mean)

See attached SEAOC/OSHPD seismic design data in Appendix A.

3.4 Seismology & Calculation of Earthquake Ground Motion

The site is not located within or directly adjacent to a mapped Alquist-Priolo (AP) Earthquake Zone and is not a Seismic Design Category E or F. The site qualifies for the Site-Specific Ground Motion Hazard Analysis exemption under Section 11.4.8 of ASCE 7-16. The above seismic design information in Section 3.3 will be utilized for this project.

3.5 Possible Earthquake Effects

A number of active faults are located within a 50-mile radius of the subject site. To evaluate the affect a major earthquake might have on the site, the computer modeling programs EQFaultwin vers. 3.0 (Thomas Blake) were utilized. Site-specific parameters were inputted and the programs computed the maximum peak site ground accelerations resulting from an earthquake. Because ground accelerations are based largely on fault distance and magnitude, we have focused our analysis on those faults which are close to the site, or that have large maximum credible magnitudes, or a combination of the two. The result of this analysis is presented below in Table A.

TABLE A

FAULT	Approximate Distance (Km)	Maximum Earthquake Magnitude (Mw)	Maximum Peak Ground Acceleration	Estimated Site Intensity (MM)
Kern Front	**12.8**	6.3	0.254	**IX**
White Wolf	21.7	7.3	**0.297**	**IX**
Pleito Thrust	38.5	7.0	0.165	VIII
Garlock (West)	52.7	7.3	0.125	VII
San Andreas (1857 Rupture, Whole M-1a, Carrizo) M-1c-2, Cho-Moj M-1b-1	57.2	7.3 to **8.0**	0.124 to 0.170	VII to VIII
Big Pine	58.4	6.9	0.094	VII
San Gabriel	70.5	7.2	0.095	VII

This analysis estimates that a maximum peak ground acceleration of 0.297g would be felt at the site as a result of a maximum earthquake of magnitude 7.3 on the White Wolf Fault approximately 21.7 kilometers away. A maximum probable earthquake of magnitude 6.3 on the Kern Front Fault approximately 12.8 kilometers away would create a peak site ground acceleration of 0.254g at the site. See attached Deterministic Site Parameters for a full listing of computed values for faults within a 100-mile radius of the site in Appendix A. Also attached is a California Fault Map showing nearby faults in relationship to the site (Plate 5).

Utilizing the USGS Deaggregation program the Probabilistic Seismic Hazard Deaggregation for the Site was calculated to be 0.534g for a 2% chance every 50 years of exceedance. See Appendix A for this calculation results page.

3.6 Potential For Ground Rupture, Ground Shaking, Ground Failure

Ground rupture may occur along a fault trace in a major earthquake. It is unlikely that ground rupture could occur at this site since it is not located within 500 feet of a suspected active fault. Some ground shaking is likely at this site in the event of a major earthquake on one of the nearby faults. Based on the predicted maximum horizontal accelerations at the site and the soil types identified in this investigation ground failure is highly unlikely at this site.

3.7 Potential for Earthquake-Induced Flooding and Flood Zone

The potential for earthquake-induced flooding at the site appears to be low since groundwater has been historically over 15' below the ground surface. The site is located within flood Zone X with minimal potential flooding according to the Flood Insurance Rate Map covering the site area (see Appendix B for map). The Lake Isabella Dam Flood Plain & Dam Inundation Area Map for the Bakersfield Area indicates the site is outside of the flood area (see Appendix B for map).

Repair and improvement to the Lake Isabella Dam by the Army Corps of Engineers is under construction that started in 2018 to further lessen the potential for a major dam release. The amount of water that is stored in the lake is also restricted until these repairs are complete. The proposed school will have a detailed Emergency Response Plan prepared which will include protocols for responses to earthquakes, flooding, fire and other hazards.

3.8 Liquefaction Potential

Groundwater was encountered in geotechnical soil boring B-1 at a depth of approximately 30' which rose to a depth of 24' bgs. Boring B-2 did not encounter any groundwater to a depth of 51' bgs. Historical depth to water data by the DWR and presented on the Water Data Library indicates that the shallowest depth to water on nearby wells within a 0.60 miles radius of the site range from 58.7' (1946) and 76.5' (1958) bgs. One (1) well approximately 0.25 miles to the south had a depth to water reported at 16.5 in 2006 within a known perched water area. SPT blowcounts in the two (2) deep SEI soil borings ranged from 4 to 24 blowcounts per foot to a depth of 51'. The lithology encountered in the subsurface includes multiple silty sand, clayey sand, clay and sandy silt layers in the borings. A liquefaction analysis was performed on the deep borings B-1 and B-2 utilizing the program LiquefyPro (version 5.9b). Site-specific information was used in this analysis including; SPT blowcounts per foot, grain-size analysis, dry weight densities, the moment magnitude earthquake and the PGA for the MCEg earthquake motion (0.492g) and a very conservative depth to water of 16.5'. The overall liquefaction potential at this site appears to be low to moderate at from 16' to 22' and 28' to 36' in boring B-1 and minimal in boring B-2. See attached LiquefyPro data in Appendix B and boring logs for more detail.

3.9 *Slope Stability*

The site is located in an area with <0.5 percent slopes across the site. No bedrock outcrops are present within 1/2 mile of the site. No evidence of historic landslides or creep was observed in this area. There is a very low potential for rockfalls or landslides to impact the site in the event of a major earthquake. Overall the site appears to be stable

3.10 *Settlement*

The estimated amount of dynamic settlement that would occur at this site during a major earthquake is approximately 1" to 2.48" based on the lithology encountered, the SPT blowcounts recorded during sampling and the settlement analysis conducted on borings B-1 and B-2 utilizing the program LiquefyPro. The estimated amount of differential settlement is 0.5" to 1.242" according to the program LiquefyPro. See attached Liquefaction Analysis Calculation Sheets and graphs in Appendix B for more detail.

3.11 Expansive Soil and Hydrocollapse Potential

Based on the lithology encountered in the top 10 feet in the soil borings it appears unlikely that highly expansive surface soils will be present at this site. An Expansive Index test on sample B-1 @ 0-5' was 50 which indicates a low to moderate expansion potential. A consolidation test on sample B1 @ 6' at the site had a low result of 0.1%. See Lab Result Table in Appendix B for more detail.

The City of Bakersfield Safety Element includes a discussion on land subsidence potential in the Bakersfield area. The main causes of land subsidence are Tectonic Subsidence, Oil & Gas Fluid Extraction, Groundwater Withdrawal and Hydrocompaction of Moisture Deficient Alluvial Deposits. Figure 15 in the Safety Element shows the areas of significant subsidence within the Bakersfield area. The proposed school site is located within the area where the lowest amount of historic land subsidence has occurred and outside of the area of hydrocompaction as shown on attached Plate 7. In addition, agricultural use is decreasing, and no public water wells are present nearby, so groundwater withdrawal appears to be limited. Oil field activities are no longer active as the oil wells adjacent to the site are abandoned and were non producers. Based on this information it appears that regional subsidence should not be an issue at this site requiring any special mitigation or requirements.

4.0 High-Pressure Pipelines & Hazardous Materials

4.1 High-Pressure Pipelines

According to field observations and representatives of Pacific Gas & Electric, The Gas Company and the State Fire Marshal's Office, there are no high-pressure natural gas pipelines within 1500' of the site.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east trending

N-S along the eastern portion of S. Oswell Street. Based on the "Guidance Protocol for School Site Pipeline Risk Analysis" (URS, 2007) in an event of a full diameter rupture, the estimated water release impact is calculated under the assumption that an average design velocity is 5 feet per second, time to shut-off is 5 minutes, drain down after shut off is assumed negligible, and that the assumed spill pool depth is assumed to be 1.0'. The estimated impact distance for a circular pool is 52' which does not affect the site. The estimated impact distance for a rectangular channel with a width of 20' is 105', which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. which will help control the water from a potential release to the site. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended.

4.2 Hazardous Materials

The site is undergoing a Preliminary Environmental Assessment (PEA) which evaluates the near surface soils for pesticides and metals from historical agricultural use. The preliminary analytical results indicate a low potential for hazardous materials in the near surface soil to significantly impact future occupants and construction workers.

The most salient environmental issues noted in our investigation are as follows:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3)

soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Enhanced Phase 1 Environmental Site Assessment Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

5.0 Conclusions & Recommendations

Our Geological Hazards Assessment indicates that there is a low to moderate probability for liquefaction to occur during a major earthquake at the site and that the maximum peak ground acceleration at the site would be 0.297g for a 7.3 magnitude earthquake on the White Wolf Fault approximately 21.7 kilometers away. The computer-modeling program Eqsearchwin estimated that a ground motion of 0.344g occurred at the site from a 6.1 magnitude earthquake (aftershock) on the White Wolf Fault on July 23, 1952. The proposed structures should be built to withstand this magnitude of an earthquake and ground motions.

The site-specific design acceleration values to be utilized for the proposed improvements should be 0.714g for short periods (S_{Ds}) and 0.450g for the 1 second period (S_{D1}). The seismic design category is a D for both short and 1-second periods per the 2019 CBC.

In the event of a major earthquake, there is a very low potential for rock falls or landslides to impact the site. The site is located outside of the potential flood zone of an upstream disaster (dam failure). The estimated amount of total dynamic settlement that would occur at this site during a major earthquake is approximately 1" to 2.48" and the range of differential settlement is 0.5" to 1.242" utilizing a conservative depth to groundwater of 16.5'. These estimated settlements appear to be appropriate for a school site with no mitigation required beyond the Geotechnical Engineers recommendations in the upcoming Geotechnical Investigation once the building locaations are determined.

No high-pressure natural gas pipelines or active high-pressure petroleum pipelines appear to be present within 1500' of the site that would be a threat to the site.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east trending N-S. If there is a full diameter release, the estimated impact distance for a circular pool is 52' which does not affect the site. The estimated impact distance for a rectangular channel with a width of 20' is 105' in which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. which will help control the water from a potential release. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended.

The nearest oil wells (dry holes) ever drilled are far enough away from the site that it is not likely that any significant subsurface oilfield related gases (hydrogen sulfide, methane etc.) are present beneath the site. The nearest oil wells (dry-holes) ever drilled were non-producing and located approximately 280' to the north, ~320' to the south, ~730' to the southeast, and ~-980' to the east of the site (see Plate 6). The site is within the boundary of the Edison Oil/Gas Field. There is a low to moderate potential that any significant subsurface oilfield related gases (hydrogen sulfide, methane etc.) are present in the subsurface at elevated concentrations. A soil gas survey is recommended to verify the potential for vapor migration under DTSC oversight.

No further geological assessment or mitigation is recommended.

5.0 Attachments

5.1 Location Map- Plate 1, "Location Map" shows the location of the site with relationship to roads and land features**.**

5.2 Plot Plan - Plate 2, "PLOT PLAN" shows the location and lot configuration of the property.

5.2.1 Plate 2A, Geologic Map shows the site geology related to local topography, streets and nearby surficial features.

5.2.2 Plate 2B, Geologic Cross-Section A to A', shows the subsurface lithology encountered in some of the soil borings at the site.

5.3 Seismic Hazard Atlas Map- Plate 3A, Shows local geology and faults within the Lamont Quadrangle near the site.

5.3.1 Earthquake Epicenter Map - Plate 3, Shows the site location on an earthquake epicenter map of historical earthquakes with magnitudes >5.0, from the Eqsearchwin computer modeling program.

5.4 Depth To Groundwater Map - Plate 4, Shows the site location in relation to a Depth To Water Map of the regional area presented on the SGMA Data viewer.

5.5 Fault Location Map- Plate 5, Shows the site in relation to the nearest active faults within 100 miles based on the EQFault program.

5.5.1 Plate 5A shows the Regional Faults based on the Fault Activity Map of California 2010.

5.6 CalGEM Oil Well Map - Plate 6, Shows the site in relation to the nearest oil wells drilled near the site.

5.7 Plate 7, Regional Land Subsidence Map – Shows the site location on a Map that presents the areas of known regional subsidence and hydrocompaction in the Bakersfield area.

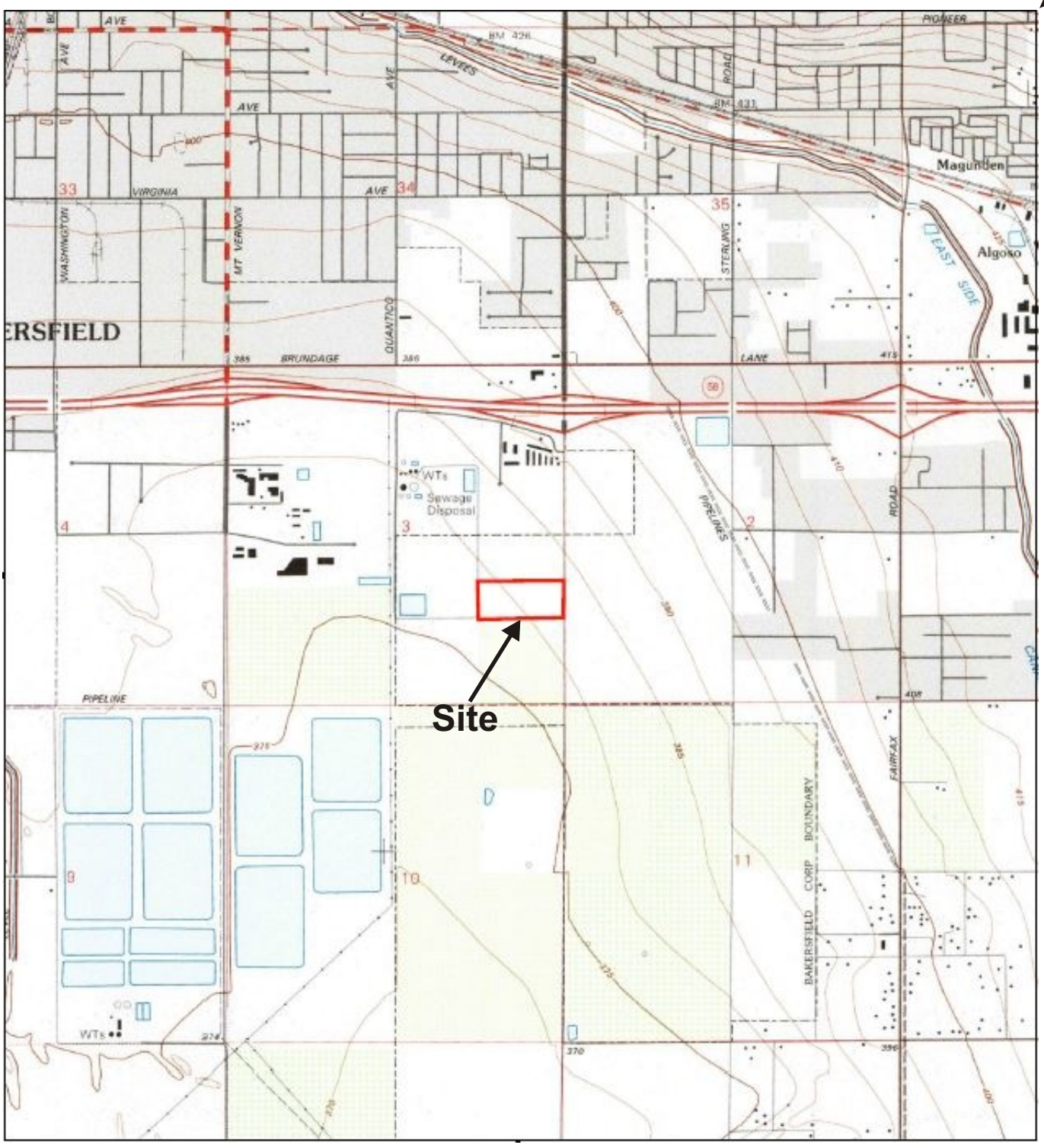
5.8 Appendix A - Deterministic Site Parameters - EQFAULTWIN data determined for the site for faults within 100 miles. EQSEARCHWIN data concerning the distance and magnitude of earthquakes within 100 miles of the site is attached. PSH Deaggregation plot is attached.

5.9 Appendix B - Presents the Boring Logs, the Flood Inundation Map for Lake Isabella, the Flood Insurance Rate Map, DWR Historic Depth To Water Map, LiquefyPro plots and calculation sheets for liquefaction and settlement. Pipeline Survey Letter and Lab Result Table.

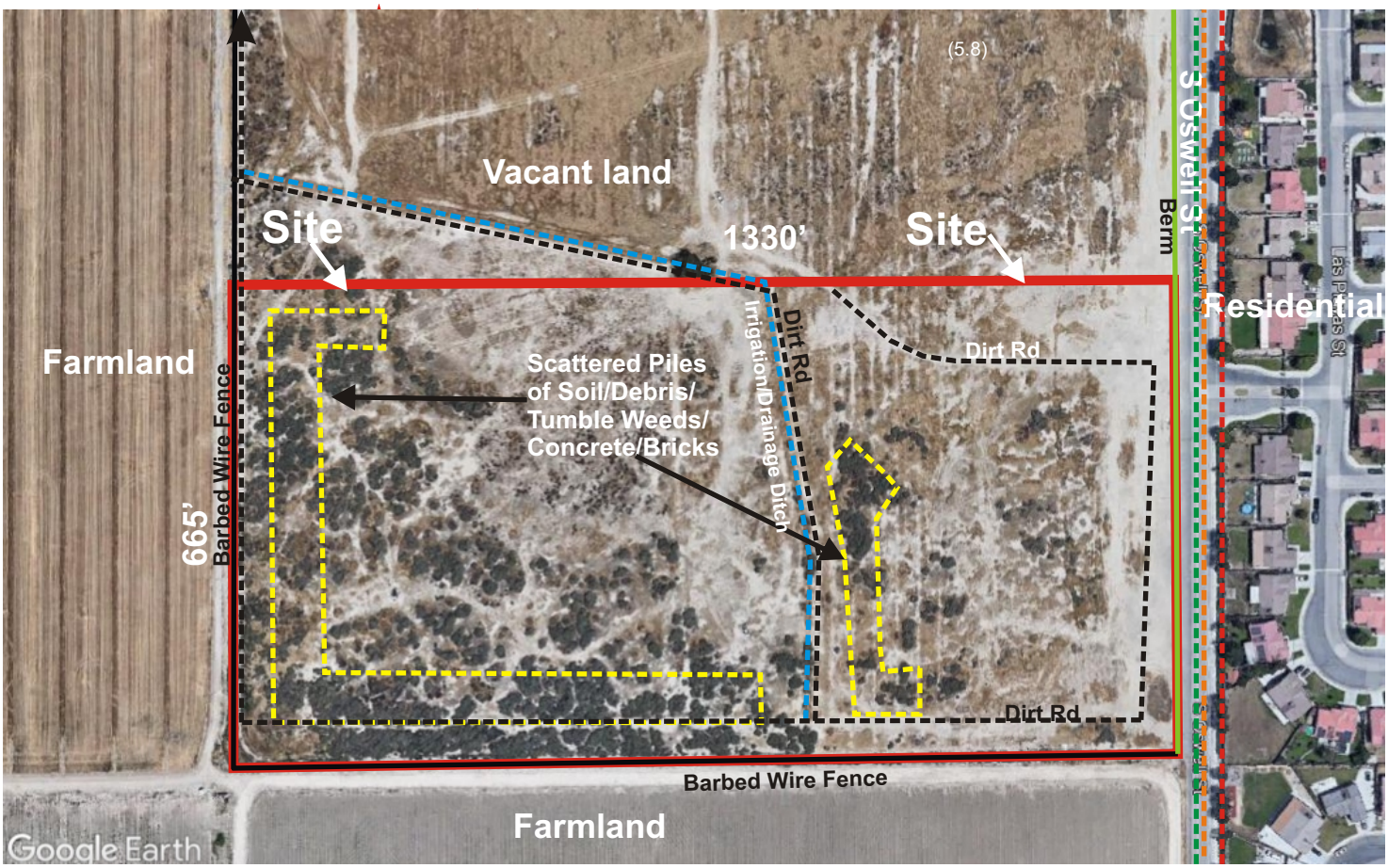
6.0 References

- Water Supply Reports, Kern County Water Agency, Bakersfield, California, 1983 to 2017.
- USGS Quadrangle Map, Lamont
- Smith, Arthur, California Division of Mines and Geology - Geologic Map of California- Bakersfield Sheet, 1964, Olaf P. Jennings Edition.
- Jennings, Charles and Bryant, William, Fault Activity Map of California, CDMG, 2010.
- U.S. Dept. of Agricultural Soil Surveys, 1942, 1945, 1946.
- EQFaultwin, ver. 3.0, Thomas F. Blake; FRISKSPWIN, ver. 4.0, Thomas F. Blake;
- USGS, Design Maps, http://geohazards.usgs.gov/designmaps/us
- EQSEARCHWIN, ver. 3.0, Thomas F. Blake

- LiquefyPro (version 5.9b), CivilTech Software.
- CalGEM, Online Mapping System.
- Blake, Thomas, Empirical Prediction of Earthquake Induced Liquefaction Potential.
- Seismic Hazard Atlas Map, Lamont Quadrangles, Kern County
- California Fault Parameters, 1996 Draft, California Department of Conservation, Division of Mines and Geology.
- N. Bolton Seed, Kotiji Tokimatsu, A.M., A.S.C.E, Evaluation of Settlement in Sands Due to Earthquake Shaking; Journal of Geotechnical Engineering A.S.C.E. Vol. 113, No. 8, August, 1987.
- URS, California Department of Education (CDE), Guidance Protocol for School Site Pipeline Risk Analysis, Volumes 1 & 2, February 2007.
- Department of Water Resources, Groundwater Data Module, web page: http://wdl.water.ca.gov/gw/admin/main_menu_gw.asp
- Department of Water Resources, SGMA Data Viewer Groundwater Levels Map



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Location Map	**PLATE** 1



Underground Electrical 21 (kV)

16" Water Main Pipeline

HP Distribution Main
Gas 4PL-5'

0 ft 200 ft 400 ft

Approximate Scale

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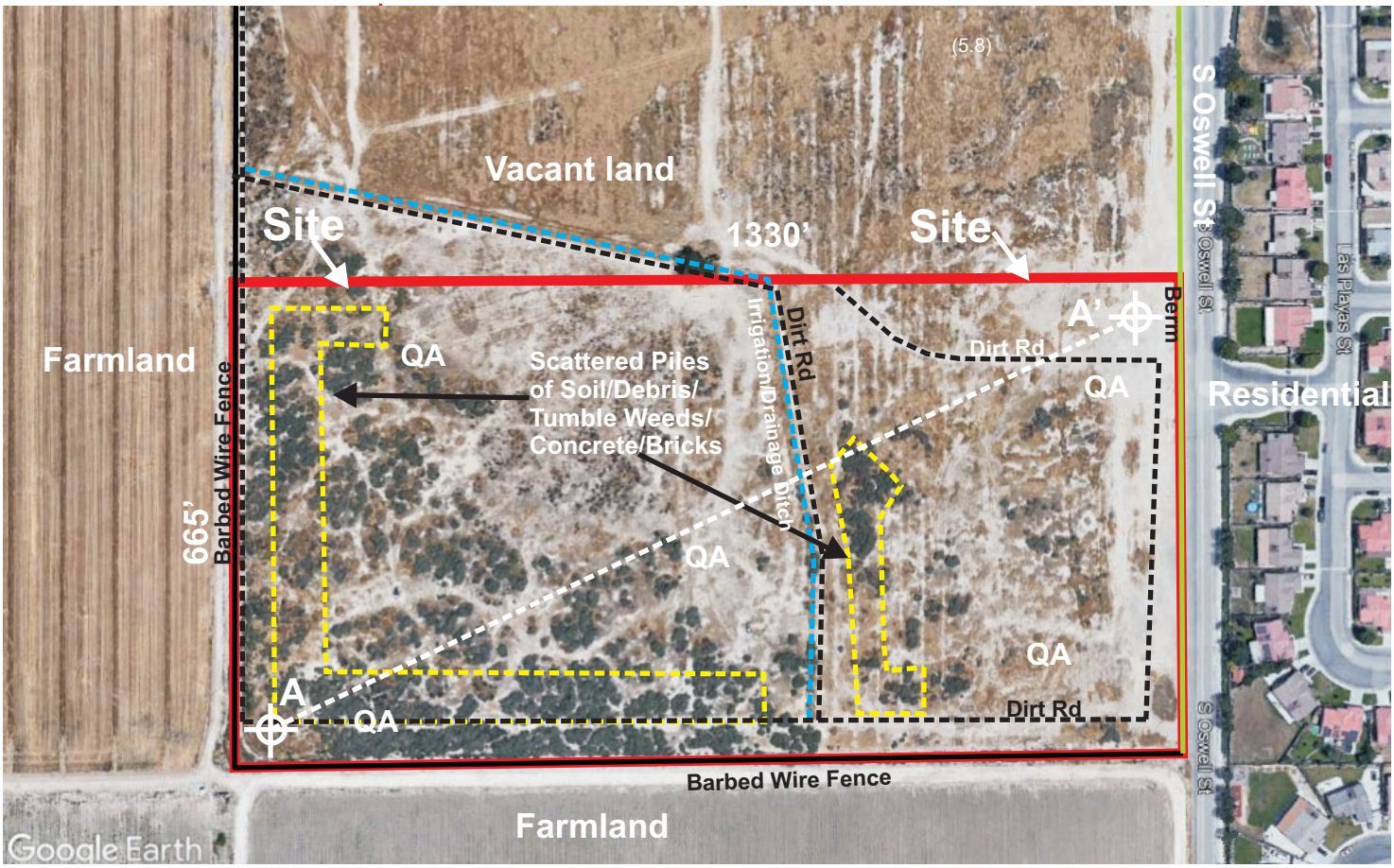
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

Plot Plan

PLATE
2



Soil Boring Location

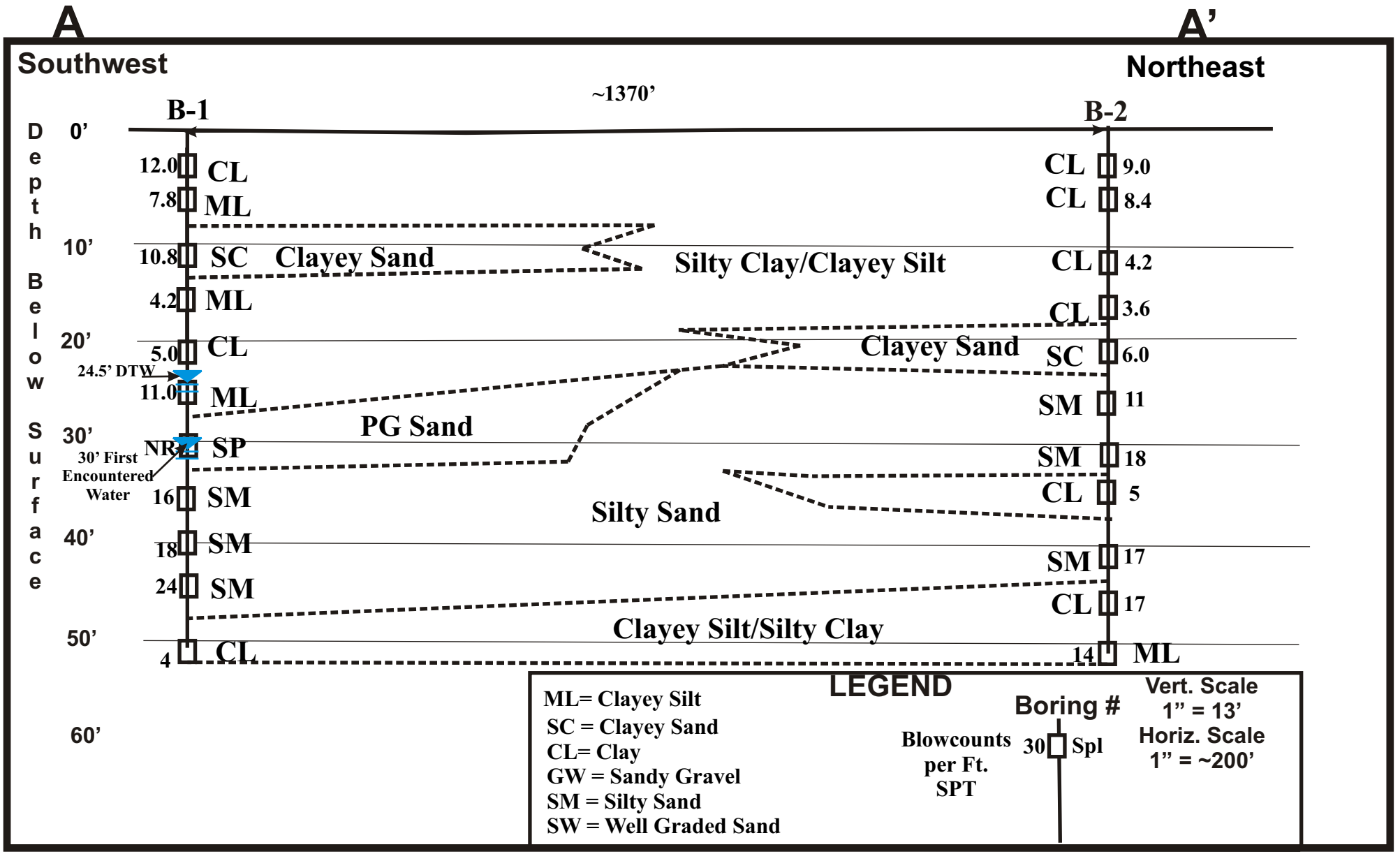
Cross-Section Line A- A' (see Plate 2B)

0 ft 200 ft 400 ft

Approximate Scale

QA = Quarternary Alluvium:
Sandy Silt, Sandy Clay, Silty Sand, Sand, and Clayey Sand

SOILS ENGINEERING, INC. 4400 Yeager Way BAKERSFIELD, CA 93313 DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **BORING LOCATION/GEOLOGIC MAP**	**PLATE** **2A**



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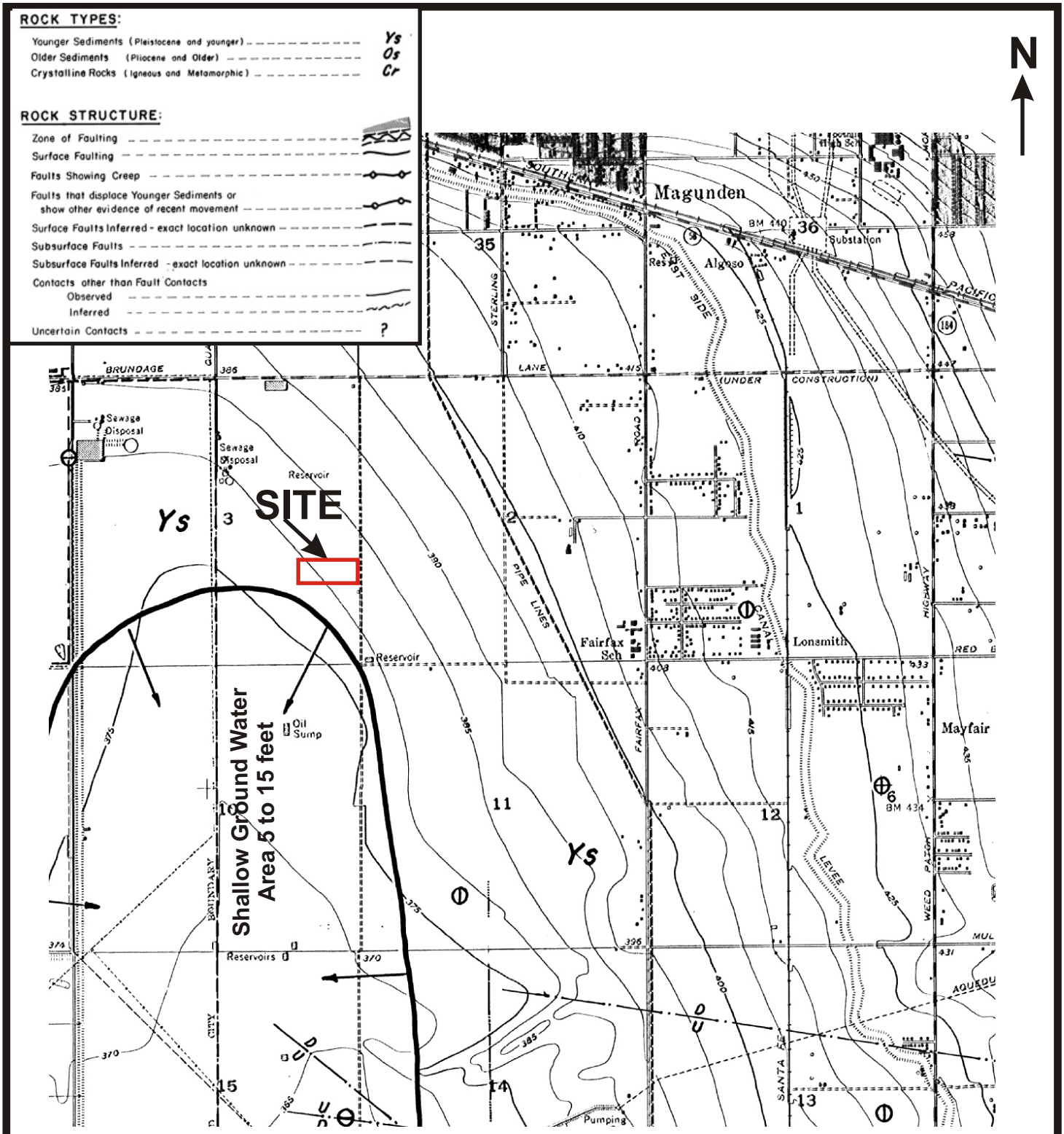
File No. 18503
Date: 8/22

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

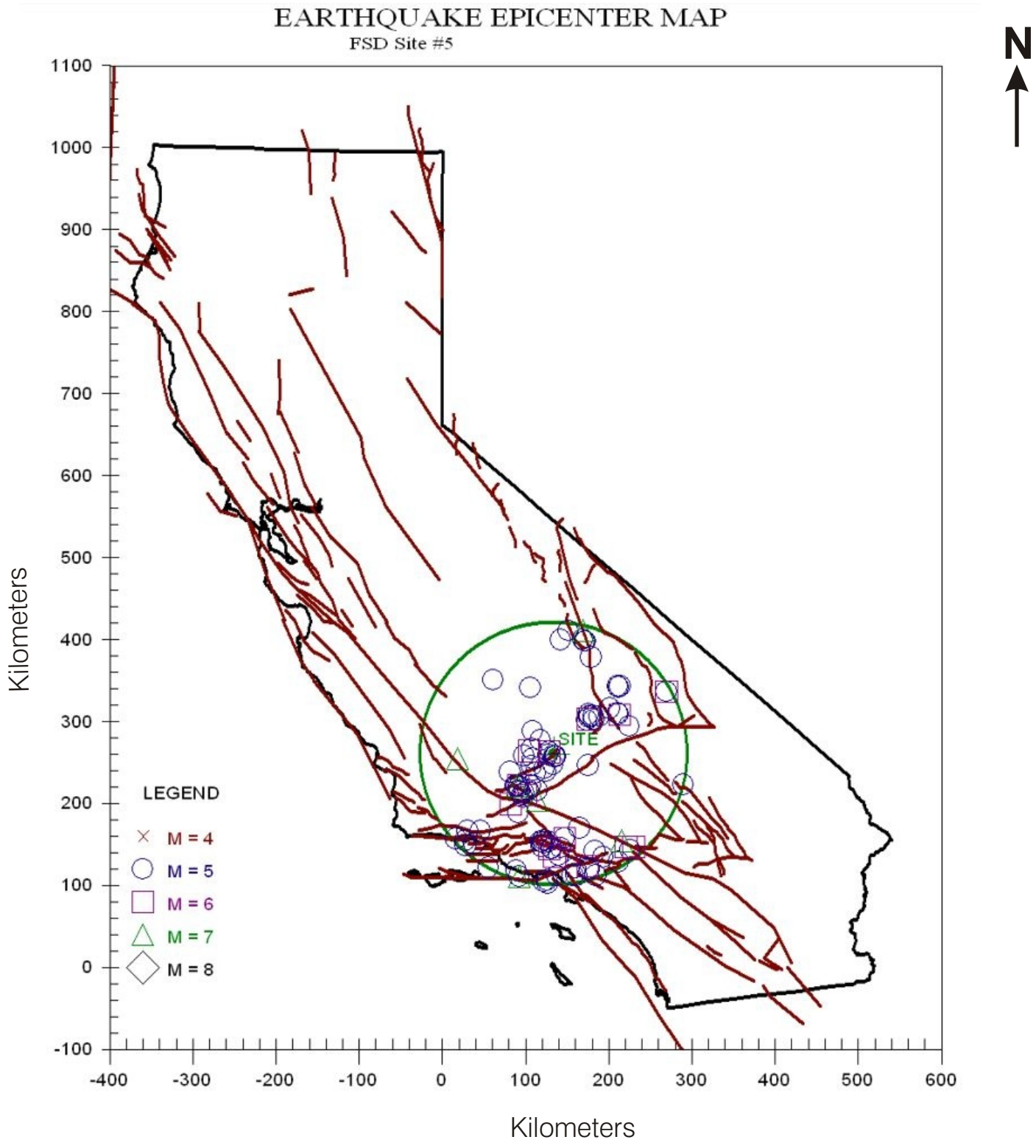
Geologic Cross-section A' to A

PLATE
2B



SOURCE: Lamont Quadrangle, Seismic Hazard Atlas Map, Kern County Council of Govt.

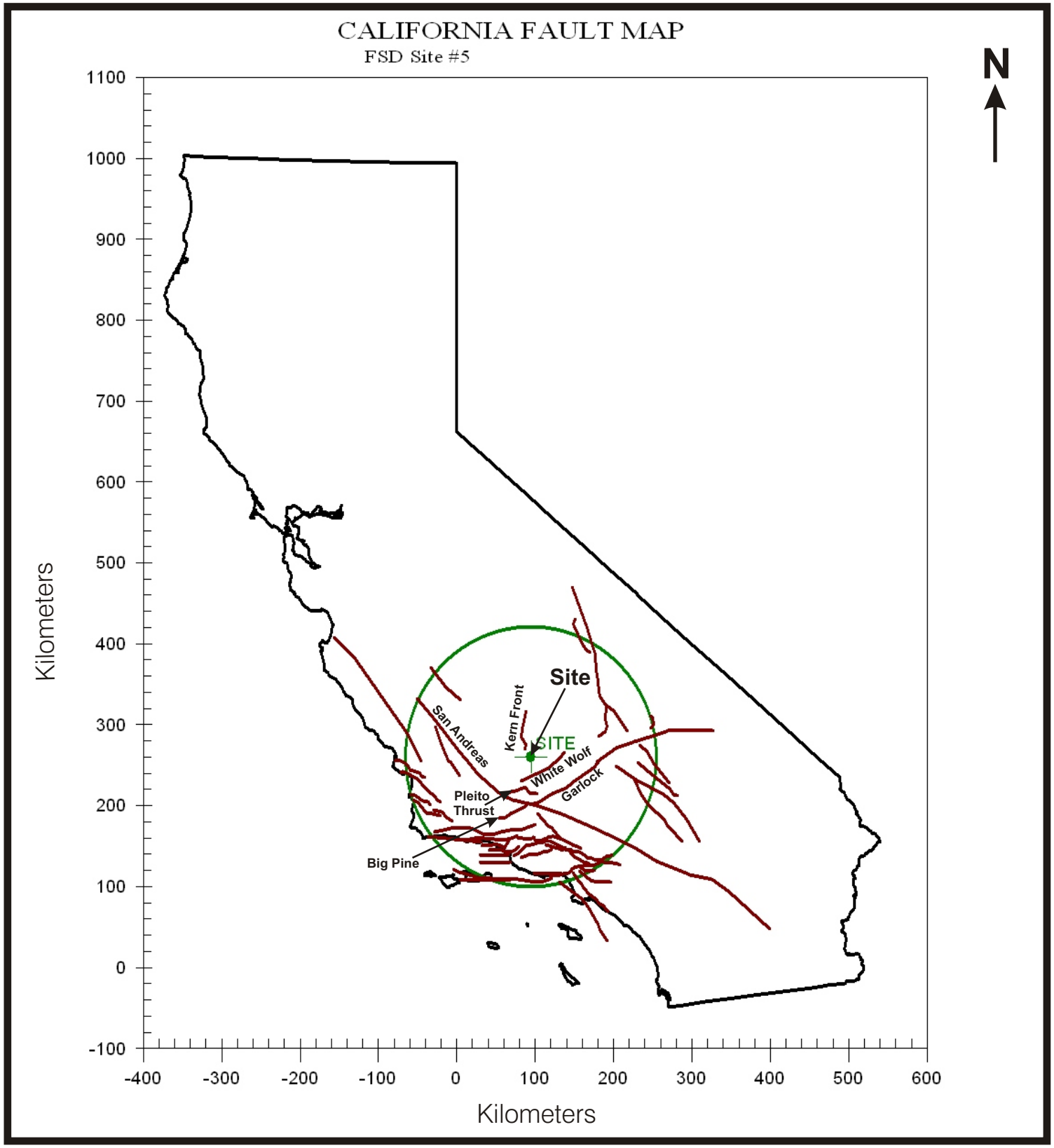
SOILS ENGINEERING, INC. 4400 Yeager Way BAKERSFIELD, CA 93313	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA**	PLATE 3
DATE: 8/22 PROJECT: #18503	Seismic Hazard Zone Atlas Map	



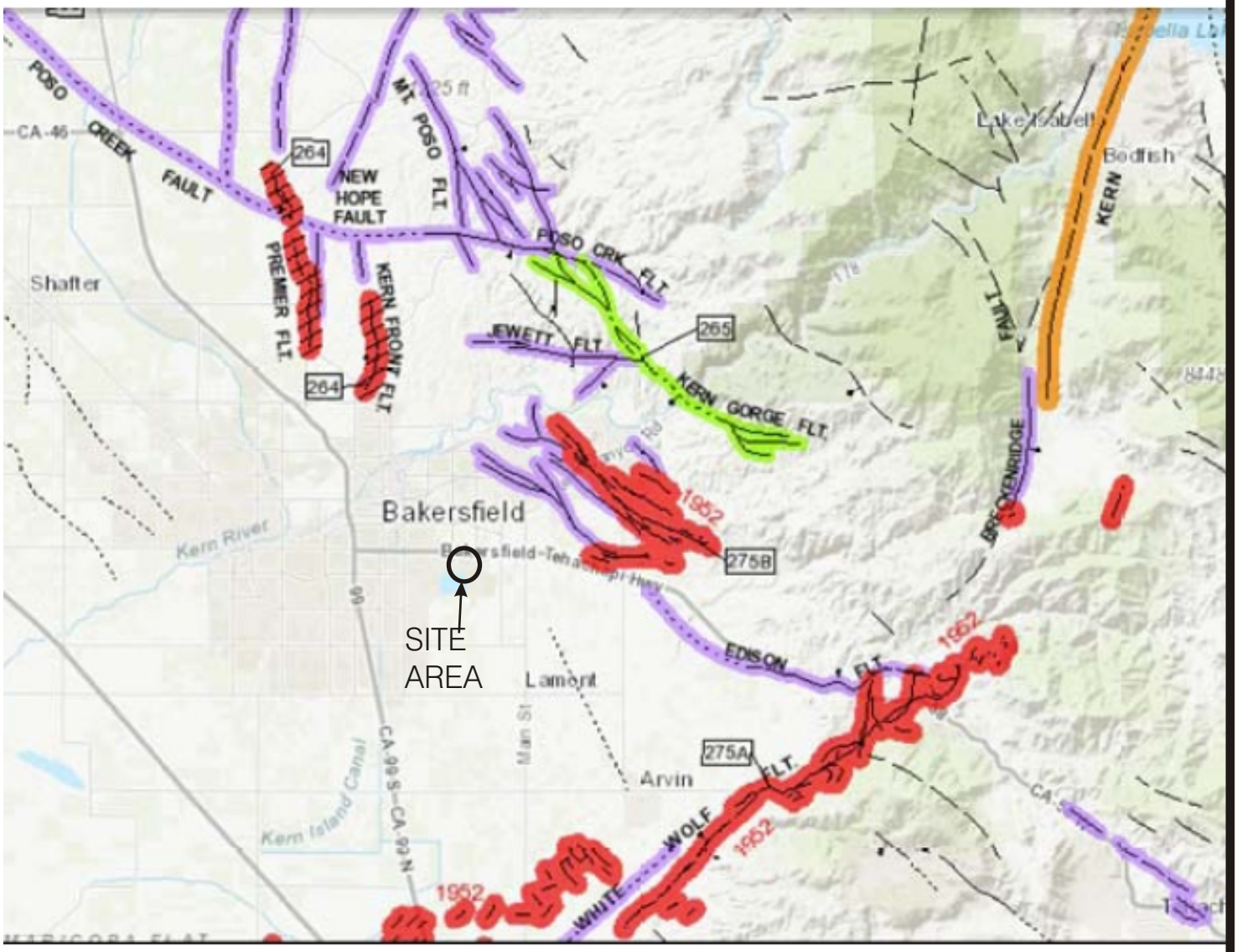
SOILS ENGINEERING, INC. 4400 Yeager Way BAKERSFIELD, CA 93313 DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Earthquake Epicenter Map	**PLATE** **3A**

DWR, SGMA Data Viewer, Depth To Water Map,Spring 2021

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831-5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Depth To Water Map	**PLATE** **4**

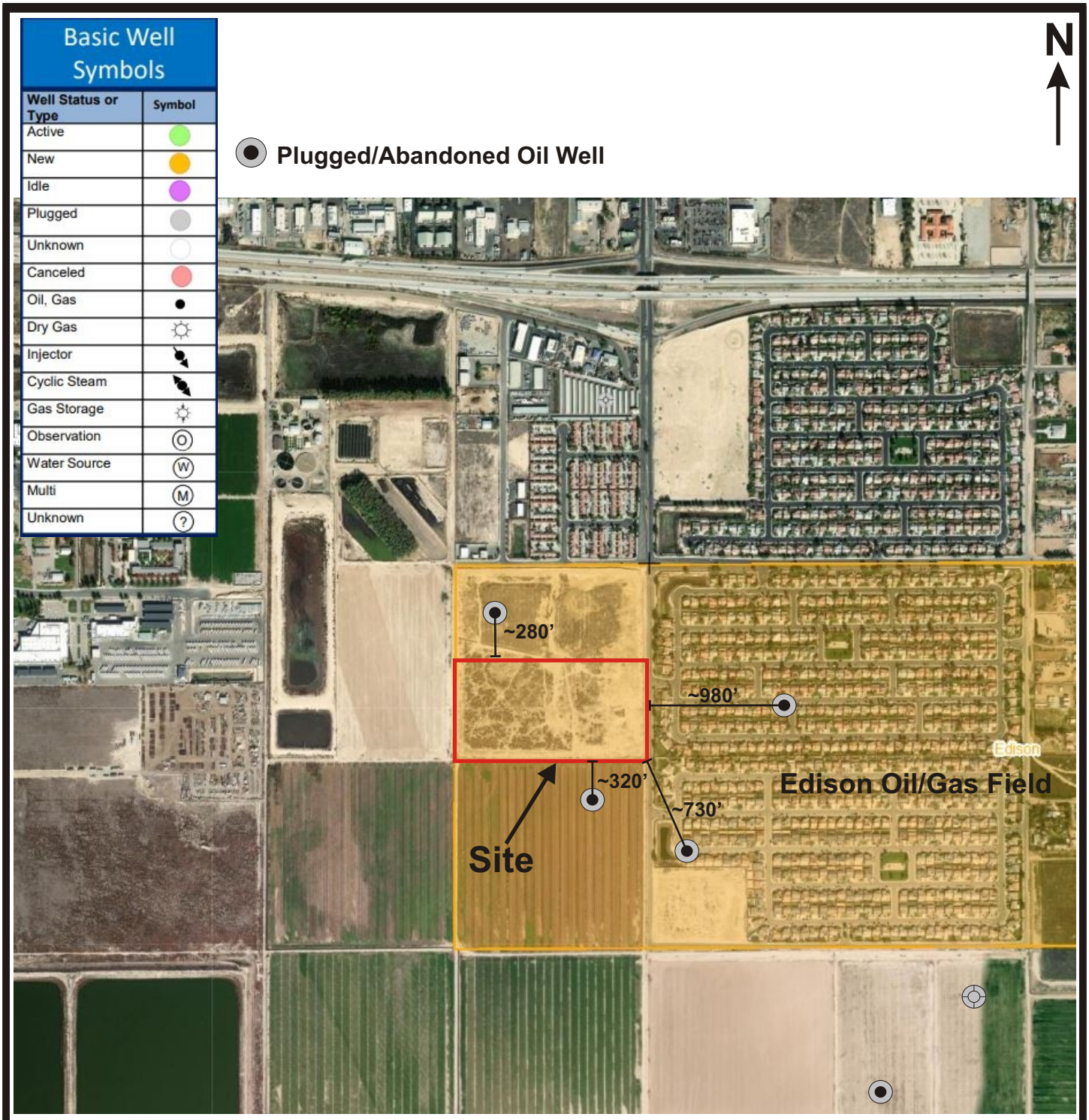


SOILS ENGINEERING, INC. 4400 Yeager Way BAKERSFIELD, CA 93313	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA**	PLATE 5
DATE: 8/22 PROJECT: #18503	Fault Location Map	



SOURCE: 2010 Fault Activity Map of California, CDMG

SOILS ENGINEERING, INC. 4400 Yeager Way BAKERSFIELD, CA 93313	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA**	PLATE 5A
DATE: 8/22 PROJECT: #18503	**REGIONAL FAULT MAP**	



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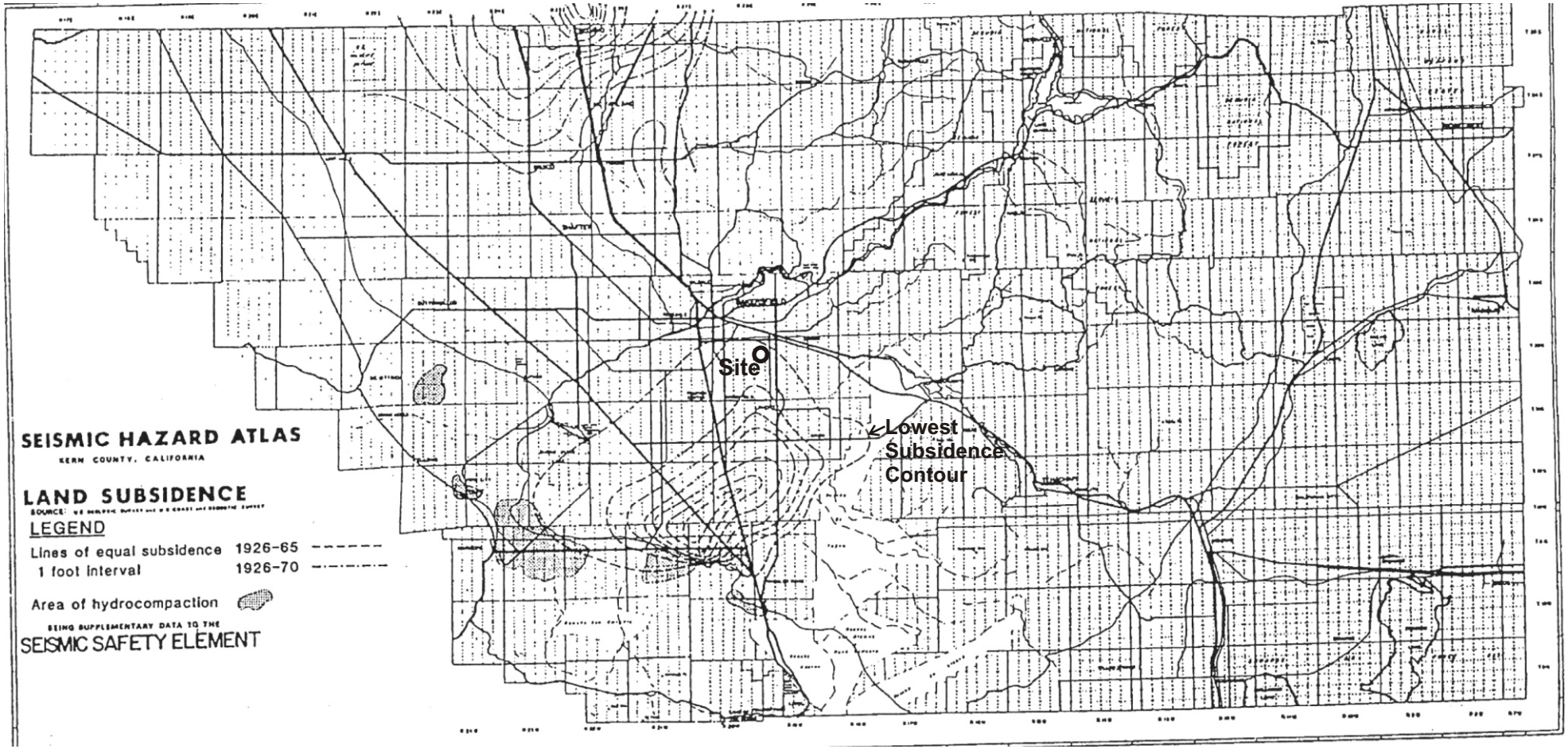
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

CalGEM Oil Well Map

PLATE
6



Regional Land Subsidence Map

From City of Bakersfield Safety Element (Figure 15)

Plate 7

Appendix A

EQFAULTWIN data, EQSEARCHWIN data, USGS Seismic Design Maps SEAOC/OSHPD, and USGS Uniform Hazard Tool Results.

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*   *
* E Q F A U L T *
*   *
* Version 3.00 *
*   *
****

DETERMINISTIC ESTIMATION OF
PEAK ACCELERATION FROM DIGITIZED FAULTS

JOB NUMBER: 18503

DATE: 08-10-2022

JOB NAME: FSD Site #5

CALCULATION NAME: Test Run Analysis

FAULT-DATA-FILE NAME: CGSFLTE.DAT

SITE COORDINATES:
SITE LATITUDE: 35.3446
SITE LONGITUDE: 118.9522

SEARCH RADIUS: 100 mi

ATTENUATION RELATION: 3) Boore et al. (1997) Horiz. - NEHRP D (250)
UNCERTAINTY (M=Median, S=Sigma): M Number of Sigmas: 0.0
DISTANCE MEASURE: cd_2drp
SCOND: 0
Basement Depth: 5.00 km Campbell SSR: Campbell SHR:
COMPUTE PEAK HORIZONTAL ACCELERATION

FAULT-DATA FILE USED: CGSFLTE.DAT

MINIMUM DEPTH VALUE (km): 0.0

EQFAULT SUMMARY

DETERMINISTIC SITE PARAMETERS

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT MAXIMUM EARTHQUAKE MAG.(Mw)	PEAK SITE ACCEL. g	EST. SITE INTENSITY MOD.MERC.
Kern Front	8.0(12.8)	6.3	0.254	IX
WHITE WOLF	13.5(21.7)	7.3	0.297	IX
PLEITO THRUST	23.9(38.5)	7.0	0.165	VIII
GARLOCK (West)	32.7(52.7)	7.3	0.125	VII
SAN ANDREAS - Whole M-1a	35.5(57.2)	8.0	0.170	VIII
SAN ANDREAS - Carrizo M-1c-2	35.5(57.2)	7.4	0.124	VII
SAN ANDREAS - 1857 Rupture M-2a	35.5(57.2)	7.8	0.153	VIII
SAN ANDREAS - Cho-Moj M-1b-1	35.5(57.2)	7.8	0.153	VIII
BIG PINE	36.3(58.4)	6.9	0.094	VII
SAN GABRIEL	43.8(70.5)	7.2	0.095	VII
SAN ANDREAS - Mojave M-1c-3	51.1(82.3)	7.4	0.093	VII
SAN ANDREAS - Cholame M-1c-1	51.6(83.0)	7.3	0.088	VII
SANTA YNEZ (East)	52.4(84.3)	7.1	0.078	VII
GARLOCK (East)	52.5(84.5)	7.5	0.097	VII
So. SIERRA NEVADA	56.2(90.4)	7.3	0.100	VII
SAN CAYETANO	57.0(91.8)	7.0	0.085	VII
M.RIDGE-ARROYO PARIDA-SANTA ANA	58.4(94.0)	7.2	0.092	VII
SAN JUAN	58.5(94.1)	7.1	0.072	VI
SANTA SUSANA	63.6(102.3)	6.7	0.066	VI
HOLSER	63.6(102.3)	6.5	0.060	VI

NORTH CHANNEL SLOPE	65.3(105.1)	7.4	0.094	VII
OAK RIDGE (Onshore)	65.9(106.1)	7.0	0.076	VII
RED MOUNTAIN	66.2(106.6)	7.0	0.075	VII
NORTHRIDGE (E. Oak Ridge)	66.4(106.8)	7.0	0.075	VII
LENWOOD-LOCKHART-OLD WOMAN SPRGS	67.7(108.9)	7.5	0.079	VII
VENTURA - PITAS POINT	68.5(110.2)	6.9	0.070	VI
SIMI-SANTA ROSA	68.5(110.2)	7.0	0.073	VII
SANTA YNEZ (West)	68.7(110.6)	7.1	0.063	VI
SIERRA MADRE (San Fernando)	69.2(111.4)	6.7	0.062	VI
LITTLE LAKE	72.0(115.8)	6.9	0.055	VI
GREAT VALLEY 14	72.2(116.2)	6.4	0.051	VI
OAK RIDGE MID-CHANNEL STRUCTURE	72.5(116.7)	6.6	0.057	VI
SAN LUIS RANGE (S. Margin)	75.1(120.9)	7.2	0.076	VII
CHANNEL IS. THRUST (Eastern)	76.3(122.8)	7.5	0.088	VII
VERDUGO	76.6(123.2)	6.9	0.064	VI
SIERRA MADRE	79.6(128.1)	7.2	0.073	VII
LOS ALAMOS-W. BASELINE	79.7(128.3)	6.9	0.062	VI
OWENS VALLEY	80.0(128.7)	7.6	0.073	VII
SAN ANDREAS - Parkfield	81.0(130.4)	6.5	0.041	V
ANACAPA-DUME	82.1(132.2)	7.5	0.083	VII

DETERMINISTIC SITE PARAMETERS

ABBREVIATED FAULT NAME	APPROXIMATE DISTANCE mi (km)	ESTIMATED MAX. EARTHQUAKE EVENT: MAXIMUM EARTHQUAKE MAG.(Mw)	ESTIMATED MAX. EARTHQUAKE EVENT: PEAK SITE ACCEL. g	ESTIMATED MAX. EARTHQUAKE EVENT: EST. SITE INTENSITY MOD.MERC.
OAK RIDGE(Blind Thrust Offshore)	82.7(133.1)	7.1	0.067	VI
LIONS HEAD	83.9(135.0)	6.6	0.051	VI
HELENDALE - S. LOCKHARDT	84.1(135.3)	7.3	0.060	VI
GRAVEL HILLS - HARPER LAKE	84.6(136.2)	7.1	0.054	VI
LOS OSOS	86.2(138.7)	7.0	0.061	VI
BLACKWATER	87.1(140.1)	7.1	0.053	VI
GREAT VALLEY 13	87.1(140.1)	6.5	0.047	VI
MALIBU COAST	87.2(140.3)	6.7	0.052	VI
CASMALIA (Orcutt Frontal Fault)	87.7(141.1)	6.5	0.047	VI
RINCONADA	87.8(141.3)	7.5	0.065	VI
CLAMSHELL-SAWPIT	88.8(142.9)	6.5	0.046	VI
HOLLYWOOD	89.1(143.4)	6.4	0.044	VI
UPPER ELYSIAN PARK BLIND THRUST	90.7(146.0)	6.4	0.043	VI
SANTA MONICA	91.0(146.5)	6.6	0.048	VI
PUENTE HILLS BLIND THRUST	91.7(147.6)	7.1	0.062	VI

RAYMOND	92.1(148.2)	6.5	0.045	VI
INDEPENDENCE	93.5(150.5)	7.1	0.061	VI
TANK CANYON	94.9(152.8)	6.4	0.042	V
NEWPORT-INGLEWOOD (L.A.Basin)	95.3(153.4)	7.1	0.049	VI
PALOS VERDES	98.8(159.0)	7.3	0.053	VI
SANTA CRUZ ISLAND	98.9(159.1)	7.0	0.055	VI

****

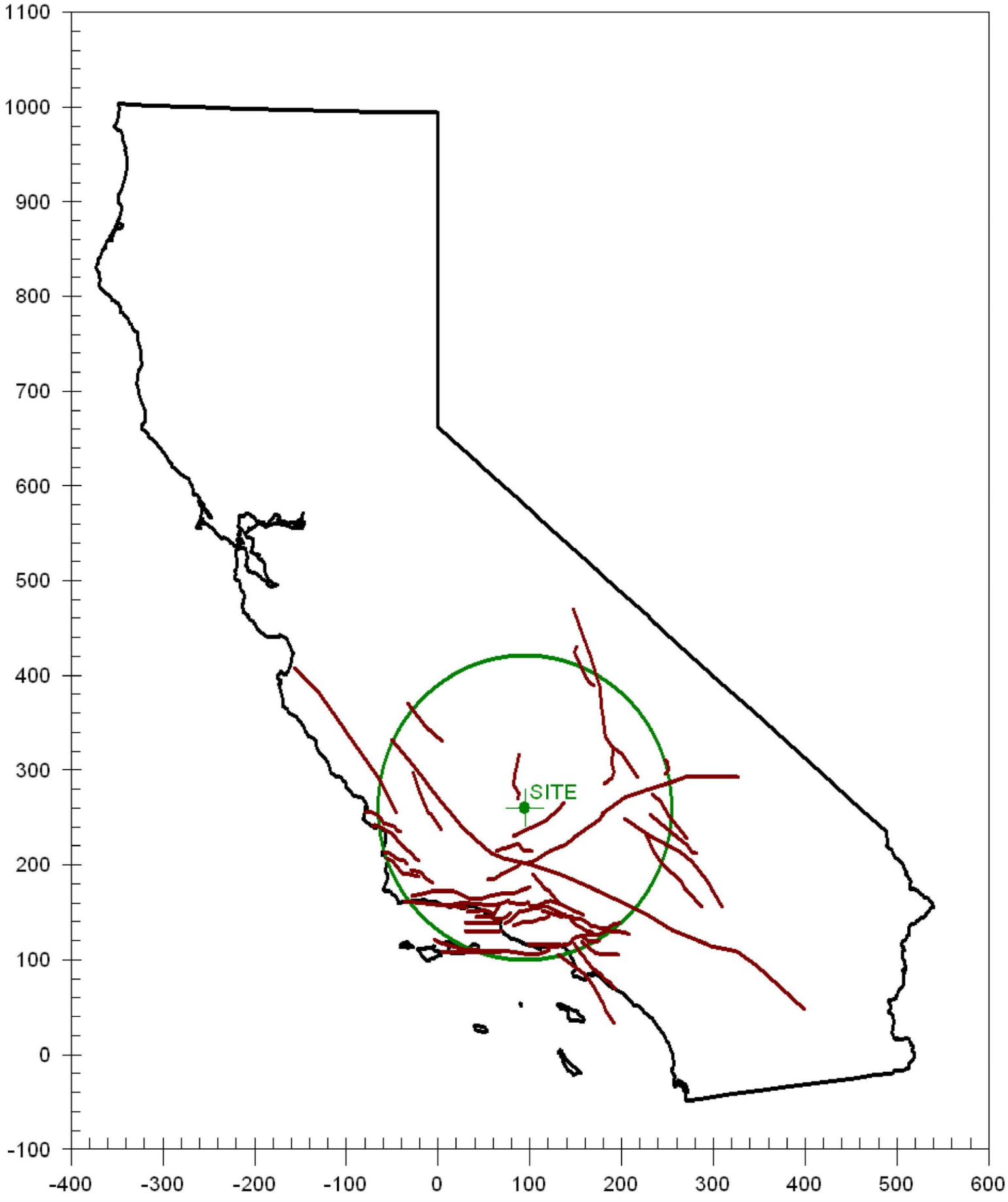
-END OF SEARCH- 61 FAULTS FOUND WITHIN THE SPECIFIED SEARCH RADIUS.

THE Kern Front FAULT IS CLOSEST TO THE SITE.
IT IS ABOUT 8.0 MILES (12.8 km) AWAY.

LARGEST MAXIMUM-EARTHQUAKE SITE ACCELERATION: 0.2974 g

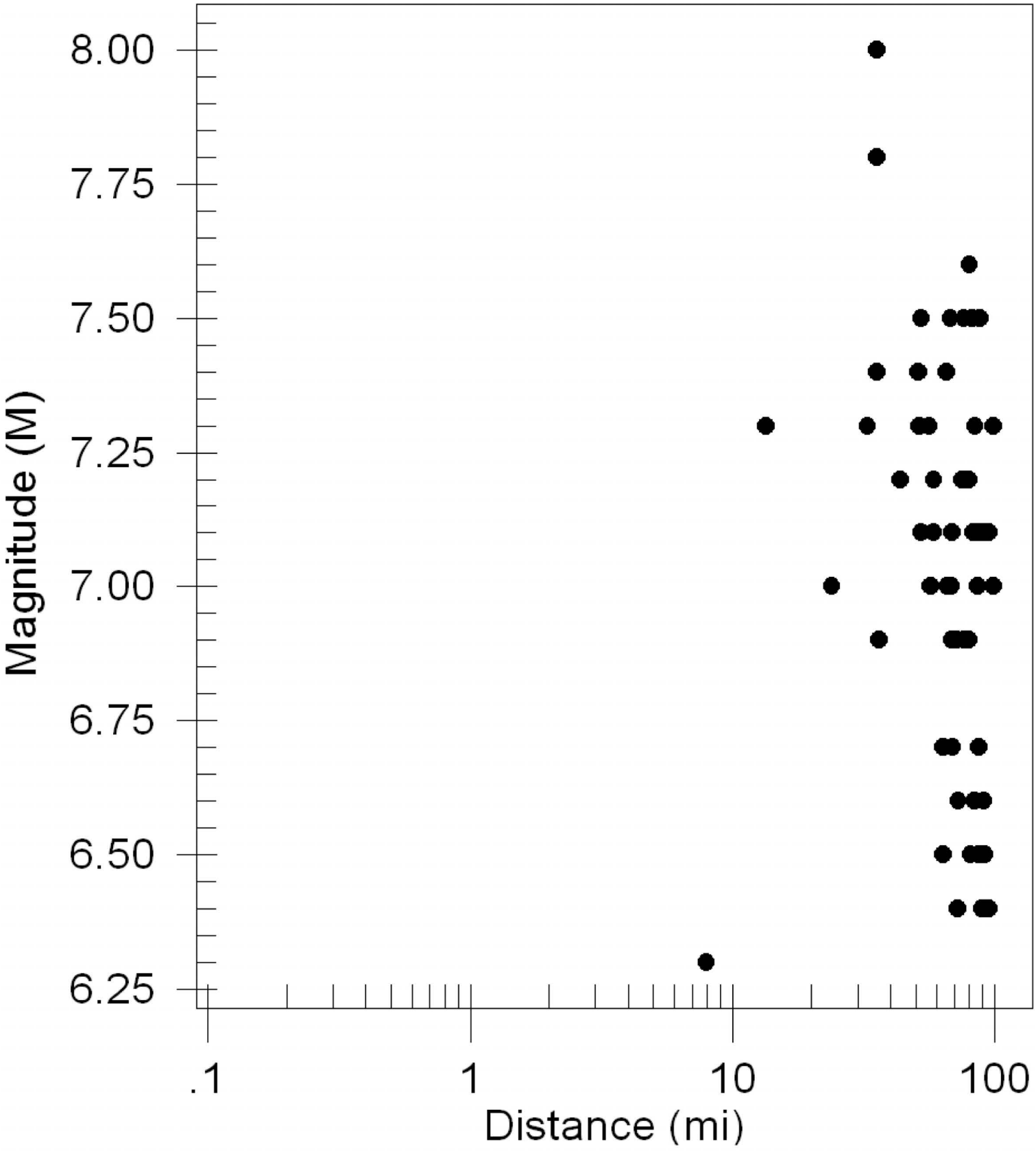
CALIFORNIA FAULT MAP

FSD Site #5



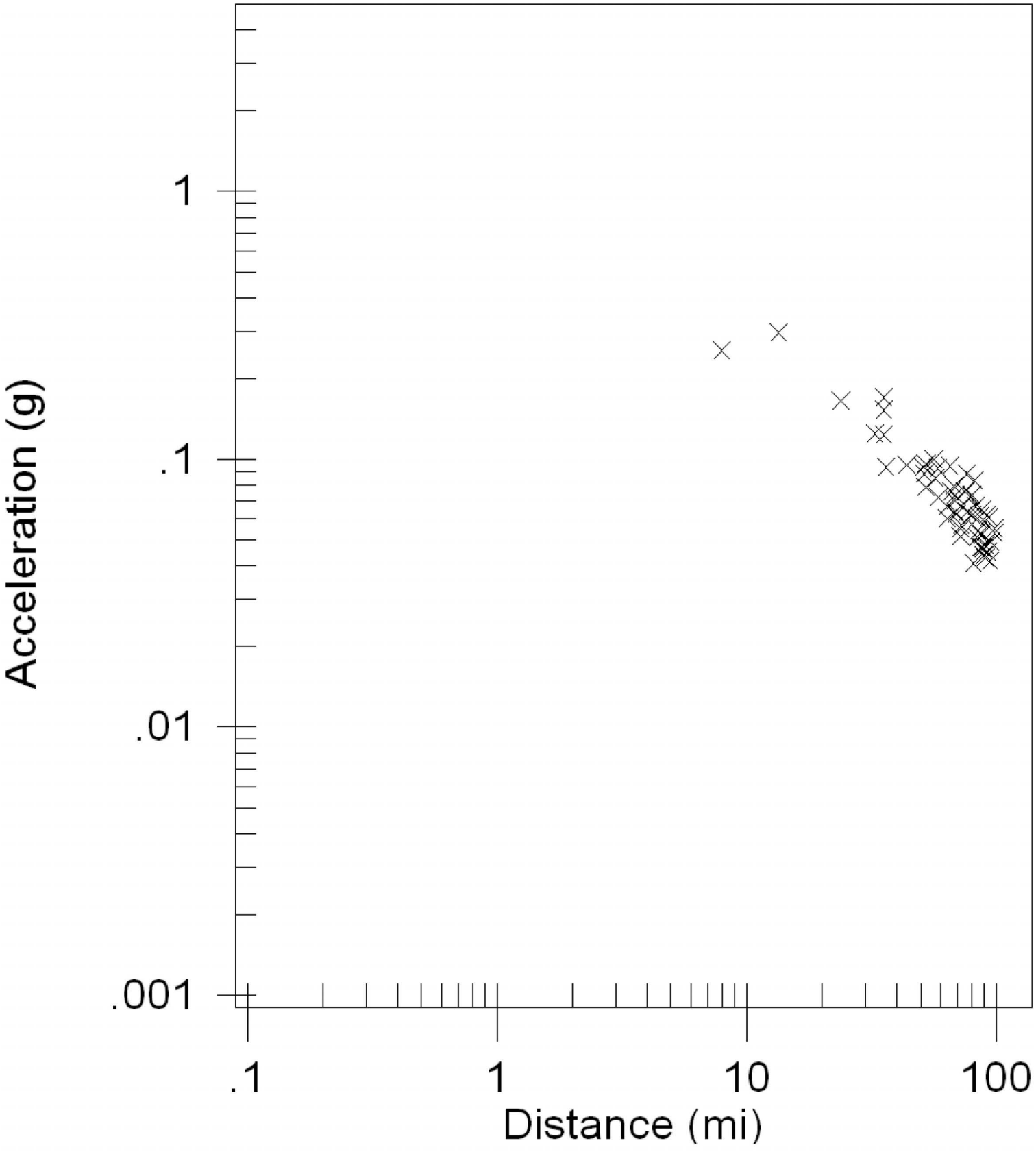
EARTHQUAKE MAGNITUDES & DISTANCES

FSD Site #5



MAXIMUM EARTHQUAKES

FSD Site #5



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*                       *
*    E Q S E A R C H    *
*                       *
*     Version 3.00      *
*                       *
*************************

      ESTIMATION OF
   PEAK ACCELERATION FROM
CALIFORNIA EARTHQUAKE CATALOGS


JOB NUMBER: 18503
                                                DATE: 08-10-2022

JOB NAME: FSD Site #5

EARTHQUAKE-CATALOG-FILE NAME: C:\Program Files\EQSEARCH\ALLQUAKE.DAT

SITE COORDINATES:
   SITE LATITUDE:  35.3445
   SITE LONGITUDE:  118.5218

SEARCH DATES:
           START DATE:   1800
           END DATE:   2010

SEARCH RADIUS:
           100.0 mi
           160.9 km

ATTENUATION RELATION:   3) Boore et al. (1997) Horiz. - NEHRP D (250)
   UNCERTAINTY (M=Median, S=Sigma): M       Number of Sigmas:  0.0
   ASSUMED SOURCE TYPE:  DS [SS=Strike-slip, DS=Reverse-slip, BT=Blind-
thrust]
   SCOND:   0  Depth Source:  A
   Basement Depth:  5.00 km     Campbell SSR:        Campbell SHR:
   COMPUTE PEAK HORIZONTAL ACCELERATION

MINIMUM DEPTH VALUE (km):  0.0
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EARTHQUAKE SEARCH RESULTS

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	35.3150	118.5160	07/25/1952	194323.7	11.2	5.70	0.336	IX	2.1(3.3)
DMG	35.3170	118.4940	07/25/1952	19 944.6	5.5	5.70	0.322	IX	2.5(4.0)
DMG	35.3110	118.4990	07/25/1952	1313 8.2	2.8	5.00	0.219	IX	2.6(4.2)
DMG	35.3670	118.5830	07/23/1952	31923.0	0.0	5.00	0.193	VIII	3.8(6.1)
DMG	35.3670	118.5830	07/23/1952	03832.0	0.0	6.10	0.344	IX	3.8(6.1)
DMG	35.3330	118.6000	07/31/1952	12 9 9.0	0.0	5.80	0.272	IX	4.5(7.2)
DMG	35.2330	118.5330	07/21/1952	174244.0	0.0	5.10	0.137	VIII	7.7(12.4)
DMG	35.1830	118.6500	07/21/1952	151358.0	0.0	5.10	0.094	VII	13.3(21.4)
DMG	35.5000	118.7000	01/06/1905	1430 0.0	0.0	5.00	0.083	VII	14.7(23.6)
DMG	35.1500	118.6330	01/27/1954	141948.0	0.0	5.00	0.083	VII	14.8(23.8)
DMG	35.3000	118.8000	12/23/1905	2223 0.0	0.0	5.00	0.078	VII	16.0(25.7)
DMG	35.4000	118.8170	07/29/1952	8 146.0	0.0	5.10	0.078	VII	17.1(27.4)
DMG	35.3830	118.8500	07/29/1952	7 347.0	0.0	6.10	0.124	VII	18.7(30.0)
DMG	35.2170	118.8170	07/23/1952	1317 5.0	0.0	5.70	0.100	VII	18.8(30.3)
DMG	35.1330	118.7670	07/21/1952	194122.0	0.0	5.50	0.086	VII	20.1(32.4)
DMG	35.3330	118.9170	08/22/1952	224124.0	0.0	5.80	0.093	VII	22.3(35.8)
DMG	35.6000	118.8000	06/30/1926	1331 0.0	0.0	5.00	0.058	VI	23.6(37.9)
GSP	35.2100	118.0660	07/11/1992	181416.2	10.0	5.70	0.075	VII	27.3(44.0)
DMG	35.0000	118.8330	07/23/1952	75319.0	0.0	5.40	0.060	VI	29.6(47.6)
DMG	35.0000	118.8330	07/23/1952	181351.0	0.0	5.20	0.054	VI	29.6(47.6)
PAS	34.9430	118.7430	06/10/1988	23 643.0	6.8	5.40	0.059	VI	30.4(48.9)
DMG	34.9500	118.8670	07/21/1952	121936.0	0.0	5.30	0.052	VI	33.5(53.9)
GSP	35.1490	119.1040	05/28/1993	044740.6	21.0	5.20	0.047	VI	35.5(57.1)
DMG	35.7150	118.0740	03/15/1946	14 035.4	0.0	5.30	0.049	VI	35.9(57.7)
DMG	35.0000	119.0000	02/16/1919	1557 0.0	0.0	5.00	0.042	VI	36.0(57.9)
DMG	35.0000	119.0000	07/21/1952	12 531.0	0.0	6.40	0.088	VII	36.0(57.9)
DMG	34.9830	118.9830	05/23/1954	235243.0	0.0	5.10	0.044	VI	36.1(58.0)
DMG	35.0000	119.0170	01/12/1954	233349.0	0.0	5.90	0.067	VI	36.7(59.1)
DMG	35.0000	119.0170	07/21/1952	115214.0	0.0	7.70	0.172	VIII	36.7(59.1)
T-A	34.9200	118.9200	05/23/1857	0 0 0.0	0.0	5.00	0.041	V	36.9(59.4)
T-A	34.9200	118.9200	01/20/1857	0 0 0.0	0.0	5.00	0.041	V	36.9(59.4)
DMG	35.7250	118.0550	03/15/1946	134935.9	22.0	6.30	0.082	VII	37.1(59.7)
DMG	34.9000	118.9000	10/23/1916	244 0.0	0.0	6.00	0.069	VI	37.4(60.2)
DMG	35.0000	119.0330	07/21/1952	12 2 0.0	0.0	5.60	0.056	VI	37.4(60.2)
T-A	34.8300	118.7500	11/27/1852	0 0 0.0	0.0	7.00	0.116	VII	37.8(60.8)
DMG	34.9410	118.9870	11/15/1961	53855.5	10.7	5.00	0.040	V	38.3(61.6)
DMG	34.9320	118.9760	03/01/1963	02557.9	13.9	5.00	0.040	V	38.3(61.7)
DMG	35.7450	118.0390	03/16/1946	94617.9	0.0	5.10	0.042	VI	38.7(62.3)
DMG	34.9000	118.9500	08/01/1952	13 430.0	0.0	5.10	0.042	VI	39.1(62.9)
DMG	35.7510	118.0290	03/15/1946	215433.4	0.0	5.20	0.044	VI	39.4(63.4)
DMG	35.7140	117.9770	03/15/1946	191853.6	0.0	5.40	0.048	VI	39.8(64.1)
DMG	35.7780	118.0490	01/28/1961	81246.2	5.5	5.30	0.045	VI	40.0(64.4)
DMG	34.8670	118.9330	09/21/1941	1953 7.2	0.0	5.20	0.043	VI	40.3(64.9)
DMG	35.7530	117.9860	03/15/1946	1321 0.9	0.0	5.20	0.042	VI	41.2(66.4)
DMG	35.7470	117.9080	03/18/1946	155042.6	4.4	5.30	0.042	VI	44.3(71.3)
DMG	34.8000	119.1000	09/05/1883	1230 0.0	0.0	6.00	0.055	VI	49.8(80.1)
DMG	34.7000	119.0000	10/23/1916	254 0.0	0.0	5.50	0.041	V	52.1(83.8)
DMG	36.0800	118.8200	05/29/1915	646 0.0	0.0	5.00	0.031	V	53.5(86.0)
DMG	35.8310	117.7610	10/19/1961	5 943.9	-2.0	5.20	0.034	V	54.3(87.4)
GSP	35.7760	117.6620	08/17/1995	223959.0	5.0	5.40	0.037	V	56.7(91.3)
GSP	35.7660	117.6490	01/07/1996	143253.1	5.0	5.20	0.033	V	57.0(91.7)
GSB	35.7610	117.6390	09/20/1995	232736.3	5.0	6.10	0.052	VI	57.3(92.2)
DMG	34.5190	118.1980	08/23/1952	10 9 7.1	13.1	5.00	0.028	V	59.9(96.3)

EARTHQUAKE SEARCH RESULTS

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	35.6310	117.5130	09/17/1938	1423 4.1	-2.0	5.00	0.028	V	60.1(96.7)
DMG	34.4110	118.4010	02/09/1971	14 244.0	8.0	5.80	0.041	V	64.8(104.3)
DMG	34.4110	118.4010	02/09/1971	14 041.8	8.4	6.40	0.056	VI	64.8(104.3)
DMG	34.4110	118.4010	02/09/1971	141028.0	8.0	5.30	0.031	V	64.8(104.3)
DMG	34.4110	118.4010	02/09/1971	14 1 8.0	8.0	5.80	0.041	V	64.8(104.3)
GSP	34.3940	118.6690	06/26/1995	084028.9	13.0	5.00	0.026	V	66.2(106.5)
GSP	34.3780	118.6180	01/19/1994	211144.9	11.0	5.10	0.027	V	67.0(107.7)
GSB	34.3790	118.7110	01/19/1994	210928.6	14.0	5.50	0.034	V	67.5(108.7)
GSP	34.3770	118.6980	01/18/1994	004308.9	11.0	5.20	0.029	V	67.5(108.7)
GSP	34.3690	118.6720	04/26/1997	103730.7	16.0	5.10	0.027	V	67.9(109.2)
GSP	36.0750	117.6500	11/27/1996	201724.1	1.0	5.30	0.029	V	70.2(113.0)
GSP	36.0670	117.6380	03/06/1998	054740.3	1.0	5.20	0.028	V	70.3(113.1)
GSP	34.3260	118.6980	01/17/1994	233330.7	9.0	5.60	0.034	V	71.0(114.3)
GSP	36.0760	117.6180	03/07/1998	003646.8	1.0	5.00	0.025	V	71.5(115.1)
DMG	34.3080	118.4540	02/09/1971	144346.7	6.2	5.20	0.027	V	71.7(115.3)
GSP	34.3050	118.5790	01/29/1994	112036.0	1.0	5.10	0.026	V	71.8(115.6)
DMG	35.3000	119.8000	01/09/1857	16 0 0.0	0.0	7.90	0.113	VII	72.1(116.0)
GSB	34.3010	118.5650	01/17/1994	204602.4	9.0	5.20	0.027	V	72.1(116.0)
DMG	34.3000	118.6000	04/04/1893	1940 0.0	0.0	6.00	0.042	VI	72.3(116.3)
T-A	36.1700	119.3200	07/25/1868	230 0.0	0.0	5.00	0.025	V	72.4(116.6)
GSP	34.2310	118.4750	03/20/1994	212012.3	13.0	5.30	0.027	V	76.9(123.8)
GSP	34.2130	118.5370	01/17/1994	123055.4	18.0	6.70	0.057	VI	78.1(125.7)
DMG	36.4000	118.0000	07/05/1871	21 6 0.0	0.0	5.20	0.026	V	78.5(126.3)
GSP	34.2620	118.0020	06/28/1991	144354.5	11.0	5.40	0.028	V	80.3(129.3)
DMG	34.5000	119.5000	06/29/1926	2321 0.0	0.0	5.50	0.029	V	80.4(129.4)
DMG	34.5000	119.5000	08/05/1930	1125 0.0	0.0	5.00	0.023	IV	80.4(129.4)
DMG	34.3700	117.6500	12/08/1812	15 0 0.0	0.0	7.00	0.063	VI	83.5(134.3)
DMG	34.2000	117.9000	08/28/1889	215 0.0	0.0	5.50	0.028	V	86.5(139.3)
MGI	36.6000	118.4000	09/04/1868	0 0 0.0	0.0	5.00	0.021	IV	86.9(139.9)
T-A	34.5000	119.6700	06/01/1893	12 0 0.0	0.0	5.00	0.021	IV	87.3(140.5)
MGI	34.0800	118.2600	07/16/1920	18 8 0.0	0.0	5.00	0.021	IV	88.6(142.5)
MGI	36.5800	118.0800	07/06/1917	11 1 0.0	0.0	5.70	0.030	V	88.8(142.9)
T-A	36.5800	118.0700	04/18/1872	0 0 0.0	0.0	5.00	0.021	IV	89.0(143.2)
T-A	36.5800	118.0700	08/13/1882	0 0 0.0	0.0	5.00	0.021	IV	89.0(143.2)
DMG	34.3000	117.6000	07/30/1894	512 0.0	0.0	6.00	0.035	V	89.1(143.3)
MGI	34.1000	118.1000	07/11/1855	415 0.0	0.0	6.30	0.041	V	89.2(143.5)
MGI	36.6000	118.1000	05/17/1872	21 0 0.0	0.0	5.00	0.021	IV	89.8(144.6)
DMG	34.3670	119.5830	07/01/1941	75054.8	0.0	5.90	0.033	V	90.4(145.5)
PAS	34.0730	118.0980	10/04/1987	105938.2	8.2	5.30	0.024	V	91.0(146.5)
PAS	34.0610	118.0790	10/01/1987	144220.0	9.5	5.90	0.033	V	92.1(148.2)
DMG	34.3000	117.5000	07/22/1899	2032 0.0	0.0	6.50	0.045	VI	92.5(148.8)
DMG	34.2700	117.5400	09/12/1970	143053.0	8.0	5.40	0.025	V	92.7(149.2)
DMG	34.0000	118.5000	08/04/1927	1224 0.0	0.0	5.00	0.020	IV	92.8(149.4)
MGI	34.0000	118.5000	11/19/1918	2018 0.0	0.0	5.00	0.020	IV	92.8(149.4)
DMG	34.0650	119.0350	02/21/1973	144557.3	8.0	5.90	0.032	V	93.0(149.7)
MGI	34.4000	119.7000	03/25/1806	8 0 0.0	0.0	5.00	0.020	IV	93.3(150.2)
MGI	34.0000	118.3000	09/03/1905	540 0.0	0.0	5.30	0.024	IV	93.7(150.8)
T-A	34.0000	118.2500	03/26/1860	0 0 0.0	0.0	5.00	0.020	IV	94.1(151.4)
T-A	34.0000	118.2500	01/10/1856	0 0 0.0	0.0	5.00	0.020	IV	94.1(151.4)
T-A	34.0000	118.2500	09/23/1827	0 0 0.0	0.0	5.00	0.020	IV	94.1(151.4)
DMG	36.7000	118.3000	08/17/1896	1130 0.0	0.0	5.90	0.032	V	94.4(151.9)
GSP	34.1400	117.7000	02/28/1990	234336.6	5.0	5.20	0.022	IV	95.3(153.4)
PAS	34.3470	119.6960	08/13/1978	225453.4	12.8	5.10	0.021	IV	95.8(154.1

EARTHQUAKE SEARCH RESULTS

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	33.9500	118.6320	08/31/1930	04036.0	0.0	5.20	0.022	IV	96.5(155.3)
DMG	36.7000	118.1000	03/26/1872	1030 0.0	0.0	7.80	0.086	VII	96.5(155.3)
DMG	36.0000	117.0000	11/04/1908	837 0.0	0.0	6.50	0.043	VI	96.6(155.5)
DMG	36.0000	117.0000	11/10/1916	911 0.0	0.0	5.50	0.025	V	96.6(155.5)
MGI	34.0000	119.0000	12/14/1912	0 0 0.0	0.0	5.70	0.028	V	96.7(155.6)
DMG	34.0000	119.0000	09/24/1827	4 0 0.0	0.0	7.00	0.056	VI	96.7(155.6)
PAS	33.9440	118.6810	01/01/1979	231438.9	11.3	5.00	0.020	IV	97.1(156.3)
T-A	34.4200	119.8200	00/00/1862	0 0 0.0	0.0	5.70	0.028	V	97.4(156.7)
MGI	34.0000	118.0000	12/25/1903	1745 0.0	0.0	5.00	0.019	IV	97.4(156.8)
PAS	33.9190	118.6270	01/19/1989	65328.8	11.9	5.00	0.019	IV	98.6(158.7)
DMG	34.1000	119.4000	05/19/1893	035 0.0	0.0	5.50	0.025	V	99.3(159.8)
GSP	34.9700	116.8190	03/18/1997	152447.7	1.0	5.10	0.020	IV	99.5(160.2)

****

-END OF SEARCH- 118 EARTHQUAKES FOUND WITHIN THE SPECIFIED SEARCH AREA.

TIME PERIOD OF SEARCH: 1800 TO 2010

LENGTH OF SEARCH TIME: 211 years

THE EARTHQUAKE CLOSEST TO THE SITE IS ABOUT 2.1 MILES (3.3 km) AWAY.

LARGEST EARTHQUAKE MAGNITUDE FOUND IN THE SEARCH RADIUS: 7.9

LARGEST EARTHQUAKE SITE ACCELERATION FROM THIS SEARCH: 0.344 g

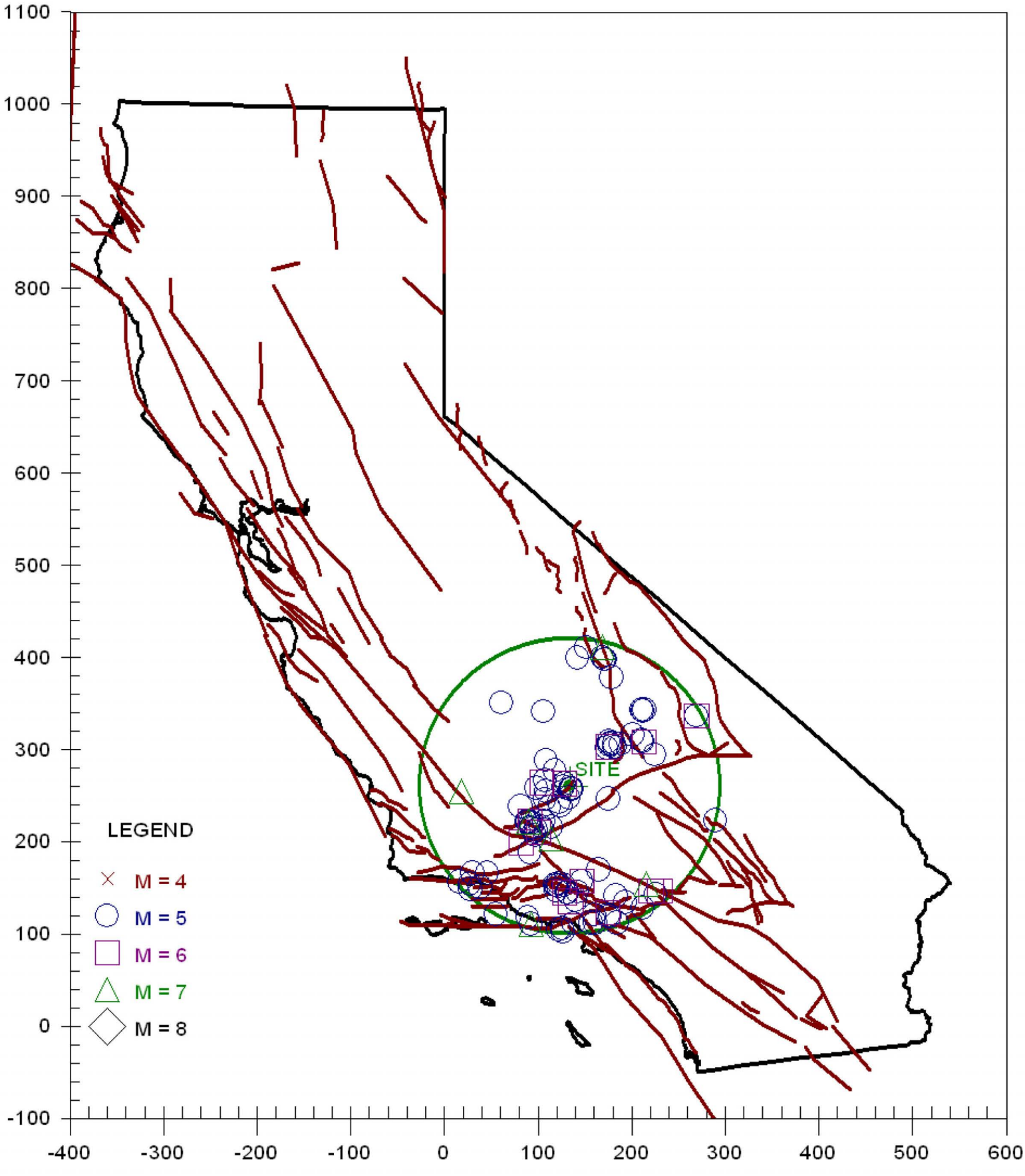
COEFFICIENTS FOR GUTENBERG & RICHTER RECURRENCE RELATION:
- a-value= 1.470
- b-value= 0.392
- beta-value= 0.903

TABLE OF MAGNITUDES AND EXCEEDANCES:

Earthquake Magnitude	Number of Times Exceeded	Cumulative No. / Year
4.0	118	0.56190
4.5	118	0.56190
5.0	118	0.56190
5.5	45	0.21429
6.0	20	0.09524
6.5	9	0.04286
7.0	6	0.02857
7.5	3	0.01429

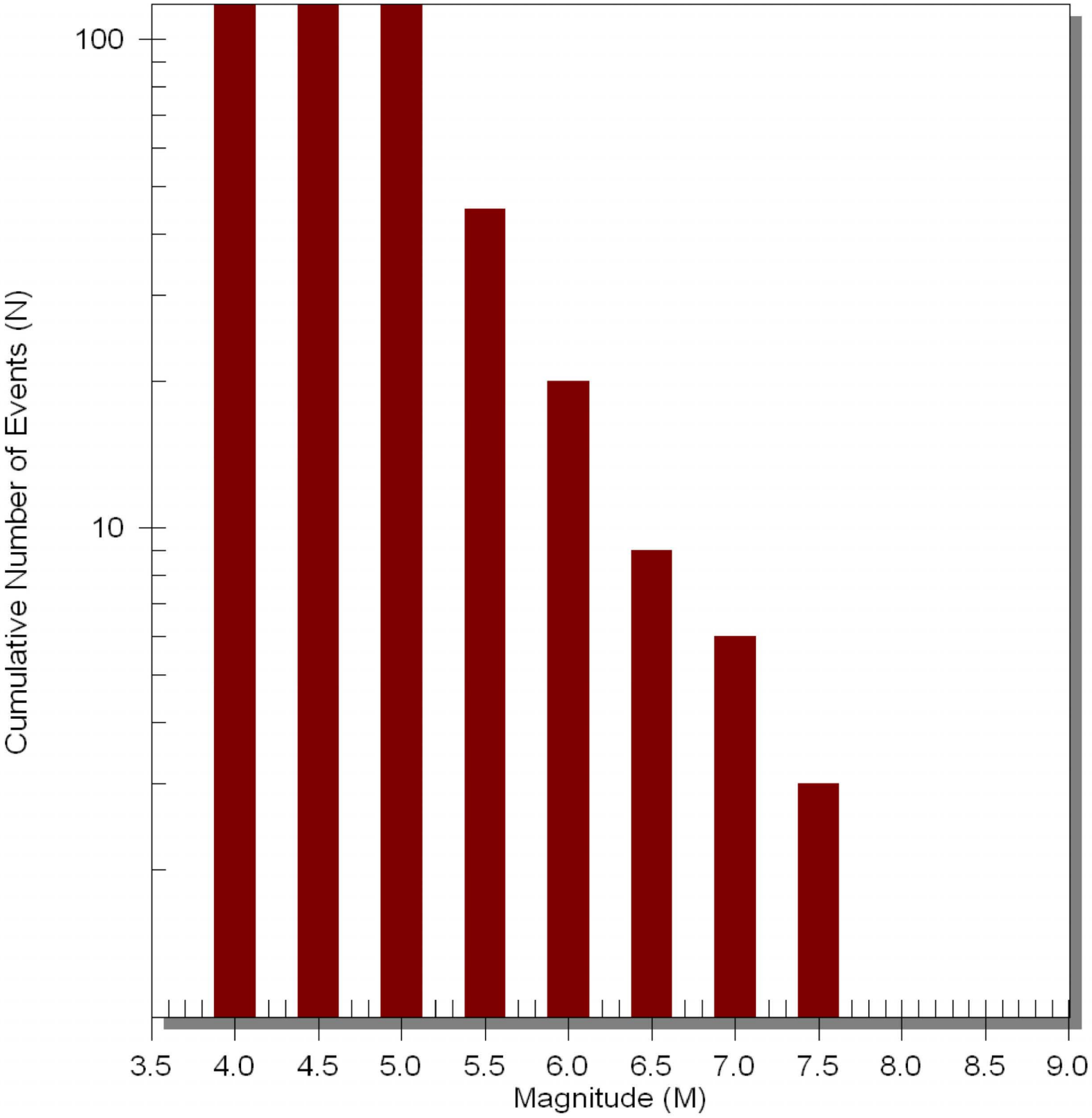
EARTHQUAKE EPICENTER MAP

FSD Site #5



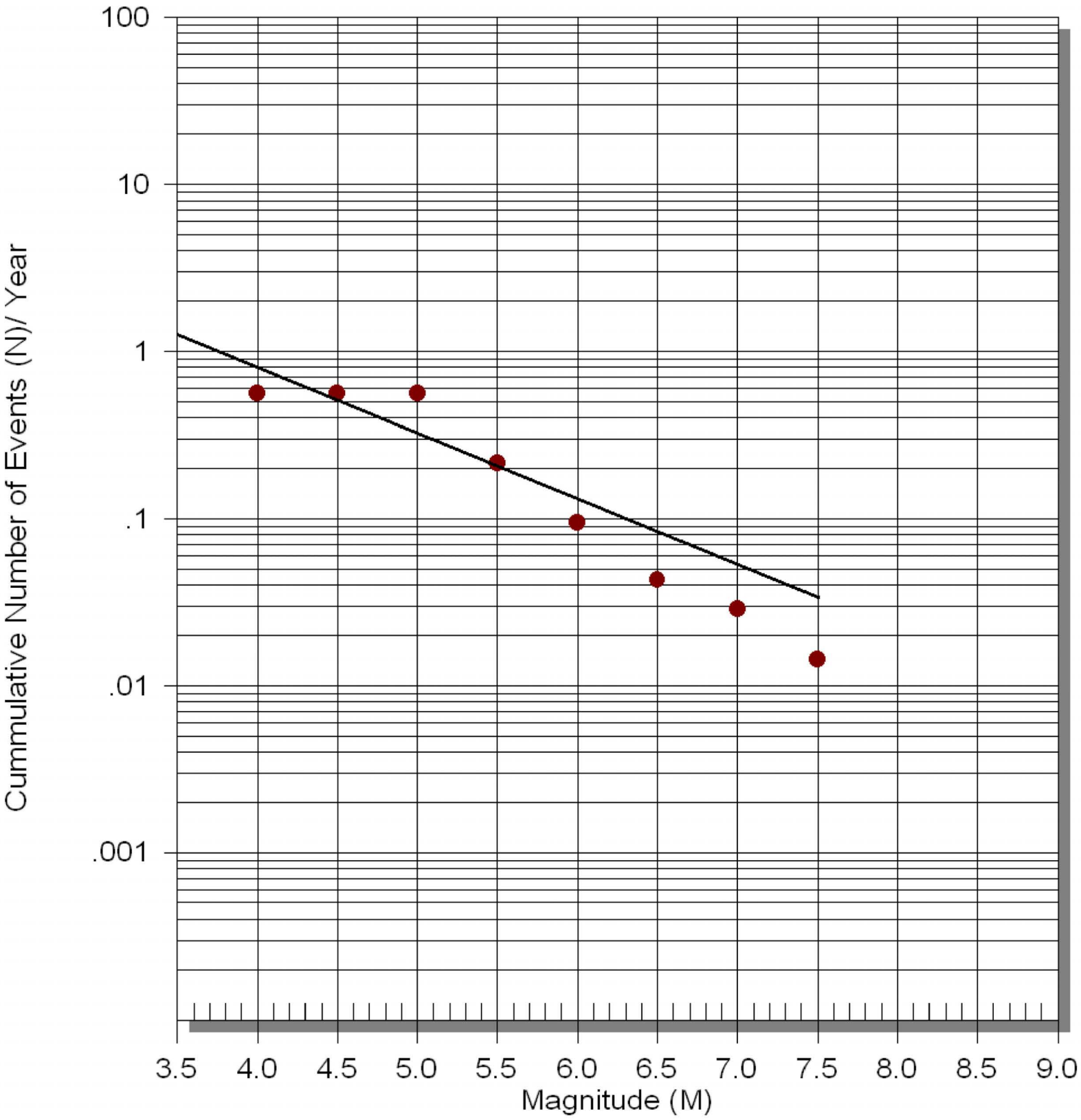
Number of Earthquakes (N) Above Magnitude (M)

FSD Site #5



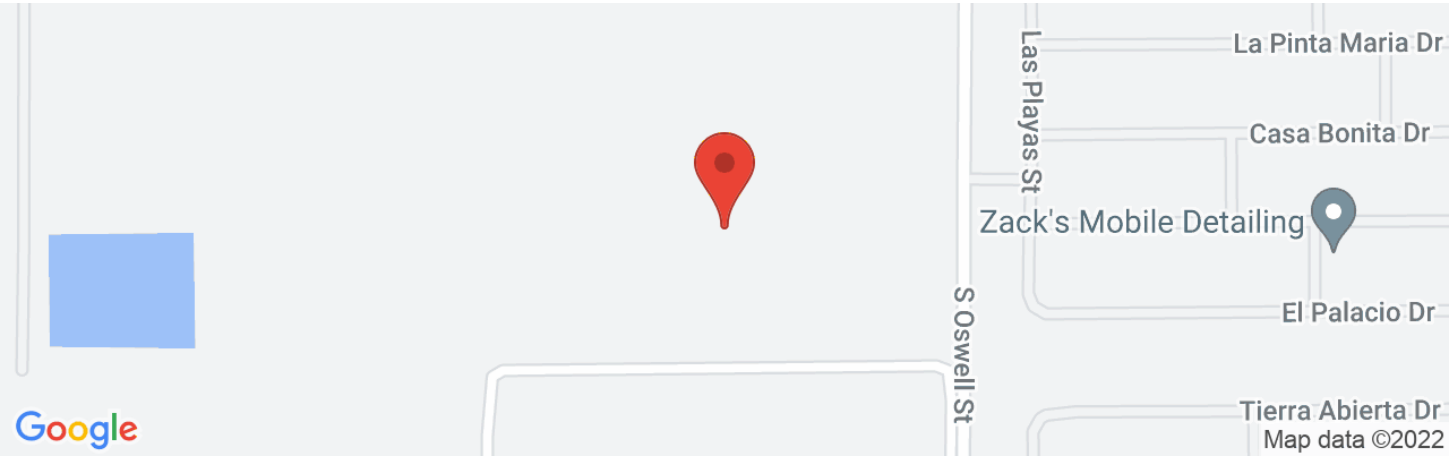
EARTHQUAKE RECURRENCE CURVE

FSD Site #5



18503 FSD Proposed Fairfax Elementary School #5

Latitude, Longitude: 35.344360, -118.952023



Date	8/10/2022, 3:40:48 PM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	D - Stiff Soil

Type	Value	Description
S_S	0.961	MCE_R ground motion. (for 0.2 second period)
S_1	0.345	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.072	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.714	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.116	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.415	MCE_G peak ground acceleration
F_{PGA}	1.185	Site amplification factor at PGA
PGA_M	0.492	Site modified peak ground acceleration
T_L	12	Long-period transition period in seconds
SsRT	0.961	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.041	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.345	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.376	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.415	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.922	Mapped value of the risk coefficient at short periods

Type	Value	Description
C_{R1}	0.918	Mapped value of the risk coefficient at a period of 1 s
C_V	1.28	Vertical coefficient

DISCLAIMER

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U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (u…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

35.34436

Time Horizon

Return period in years

2475

Longitude

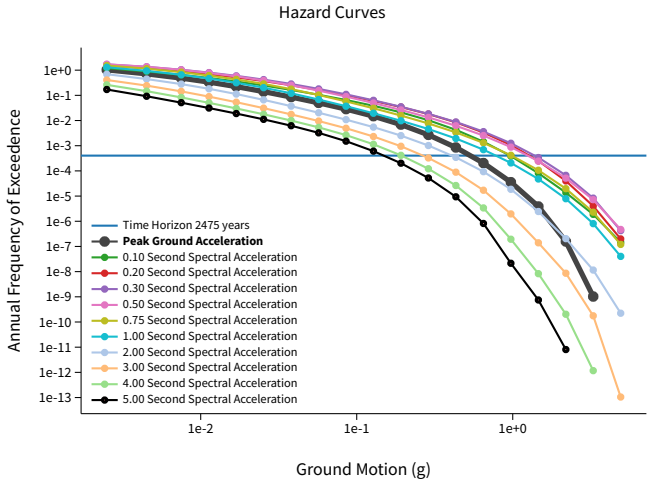
Decimal degrees, negative values for western longitudes

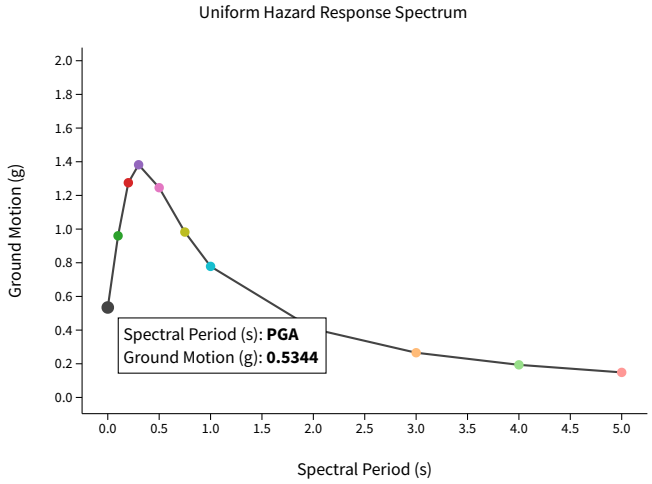
-118.952023

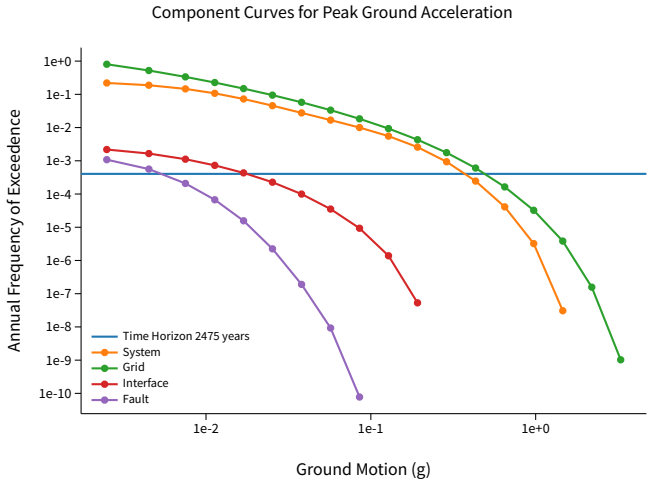
Site Class

259 m/s (Site class D)

Hazard Curve





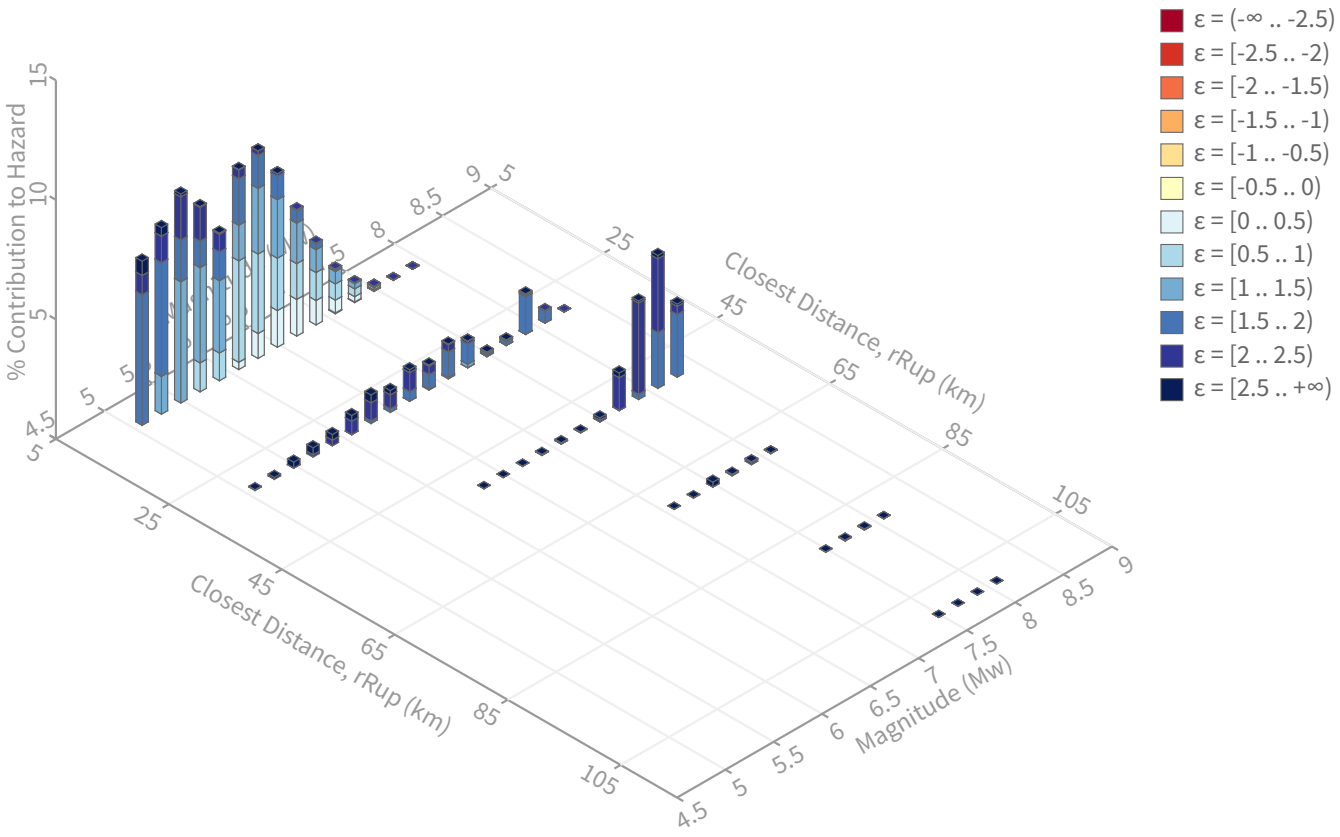


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.53436642 g

Recovered targets

Return period: 2869.8986 yrs
Exceedance rate: 0.00034844437 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.12 %

Mean (over all sources)

m: 6.39
r: 19.24 km
ε_0: 1.51 σ

Mode (largest m-r bin)

m: 5.5
r: 10.28 km
ε_0: 1.54 σ
Contribution: 8.73 %

Mode (largest m-r-ε_0 bin)

m: 5.1
r: 8.62 km
ε_0: 1.75 σ
Contribution: 5.46 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM31 (opt)	Grid							39.59
PointSourceFinite: -118.952, 35.403		7.76	5.84	1.11	118.952°W	35.403°N	0.00	7.34
PointSourceFinite: -118.952, 35.403		7.76	5.84	1.11	118.952°W	35.403°N	0.00	7.33
PointSourceFinite: -118.952, 35.412		8.38	5.87	1.18	118.952°W	35.412°N	0.00	5.17
PointSourceFinite: -118.952, 35.412		8.38	5.87	1.18	118.952°W	35.412°N	0.00	5.15
PointSourceFinite: -118.952, 35.475		13.14	6.13	1.59	118.952°W	35.475°N	0.00	2.25
PointSourceFinite: -118.952, 35.475		13.14	6.13	1.59	118.952°W	35.475°N	0.00	2.24
PointSourceFinite: -118.952, 35.493		14.67	6.18	1.71	118.952°W	35.493°N	0.00	1.34
PointSourceFinite: -118.952, 35.493		14.67	6.18	1.71	118.952°W	35.493°N	0.00	1.34
UC33brAvg_FM32 (opt)	Grid							39.54
PointSourceFinite: -118.952, 35.403		7.76	5.84	1.11	118.952°W	35.403°N	0.00	7.33
PointSourceFinite: -118.952, 35.403		7.76	5.84	1.11	118.952°W	35.403°N	0.00	7.32
PointSourceFinite: -118.952, 35.412		8.38	5.87	1.18	118.952°W	35.412°N	0.00	5.16
PointSourceFinite: -118.952, 35.412		8.38	5.87	1.18	118.952°W	35.412°N	0.00	5.15
PointSourceFinite: -118.952, 35.475		13.14	6.13	1.59	118.952°W	35.475°N	0.00	2.24
PointSourceFinite: -118.952, 35.475		13.14	6.13	1.59	118.952°W	35.475°N	0.00	2.24
PointSourceFinite: -118.952, 35.493		14.67	6.17	1.71	118.952°W	35.493°N	0.00	1.34
PointSourceFinite: -118.952, 35.493		14.67	6.17	1.71	118.952°W	35.493°N	0.00	1.33
UC33brAvg_FM31	System							10.46
San Andreas (Big Bend) [4]		57.40	8.07	2.08	119.100°W	34.843°N	193.61	6.05
White Wolf [3]		24.73	7.05	1.87	118.772°W	35.178°N	138.35	1.28
Pleito [2]		39.99	7.91	1.82	119.058°W	34.996°N	194.04	1.24
UC33brAvg_FM32	System							10.40
San Andreas (Big Bend) [4]		57.40	8.07	2.08	119.100°W	34.843°N	193.61	6.02
White Wolf [3]		24.73	7.04	1.88	118.772°W	35.178°N	138.35	1.27
Pleito [2]		39.99	7.91	1.82	119.058°W	34.996°N	194.04	1.21

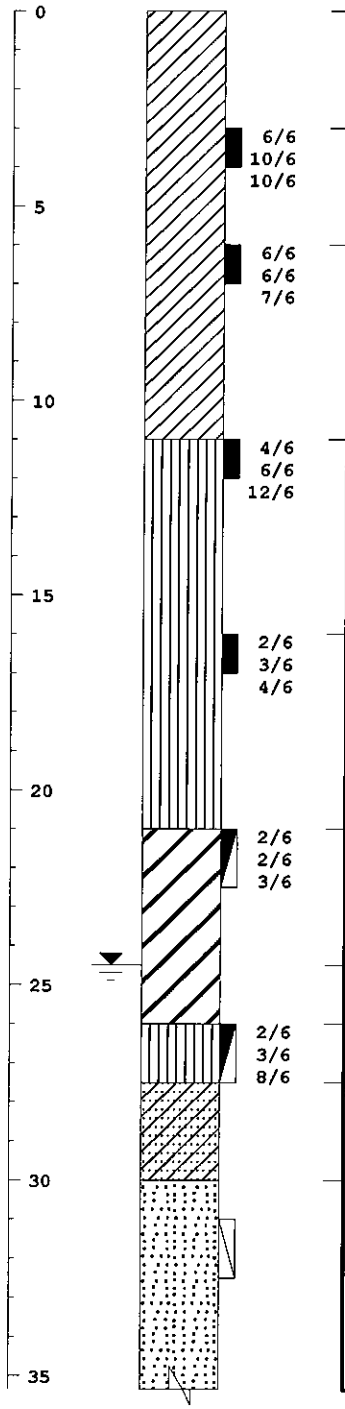
Appendix B

Boring Logs, Lake Isabella Flood Inundation Map, Flood Insurance Rate Map, DWR Depth To Water Map, LiquefyPro Plots and Calculation Sheets for Liquefaction and Settlement, Pipeline Survey Letter and Lab Results Table.

LOG OF TEST BORING
BORING B-1

PROJECT: *Fairfax Elementary School #5, PEA & Title V Investigation*
BORING DATE: *8/18/22*
BORING LOCATION: *See Boring Location Map, Figure 1*
DRILL METHOD: *4.25" I.D. Hollow-Stem Auger*
DESCRIPTION: *PEA Investigation & Title V*
DEPTH TO WATER - ▼ : *24.5'* **CAVING - ⬟ :** *N/A*

FILE NO: *18503*
ELEV.: *Approx. 380'*
START: *8/18/22*
FINISH: *8/18/22*
LOGGER: *C. VILLEGAS*



ELEVATION/ DEPTH (feet)	USCS	Description	Remarks	Density pcf	Moisture %
	CL	SANDY CLAY; light reddish brown, dry, very fine, low to medium plasticity.			
		Very Stiff.		79.6	28.4
		light brown, damp, stiff, low plasticity, traces of very fine sand.		84.7	27.5
	ML	SANDY SILT; yellowish brown, damp, cohesive, very fine, traces of cemented clay, Very stiff, fine gravel.		104	16.1
		light olive brown, moist, low plasticity, firm.		89.2	27.6
	CH	SANDY CLAY; olive brown, moist to wet, high plasticity.			35.9
		Water encountered.	Possible perched water.		
	ML	SANDY SILT; yellowish brown, moist, low plasticity, traces of clay, very fine sand.			28.1
	SC	CLAYEY SAND; brown, fine to medium grained, traces of coarse sand, cohesive.			
	SP	POORLY GRADED SAND; light gray, saturated, traces of coarse sand, fine to medium			

Figure Number 2

LOG OF TEST BORING
BORING B-1

PROJECT: *Fairfax Elementary School #5, PEA & Title V Investigation*
BORING DATE: *8/18/22*
BORING LOCATION: *See Boring Location Map, Figure 1*
DRILL METHOD: *4.25" I.D. Hollow-Stem Auger*
DESCRIPTION: *PEA Investigation & Title V*
DEPTH TO WATER - ▽ : *24.5'* **CAVING - ⯈ :** *N/A*

FILE NO: *18503*
ELEV.: *Approx. 380'*
START: *8/18/22*
FINISH: *8/18/22*
LOGGER: *C. VILLEGAS*

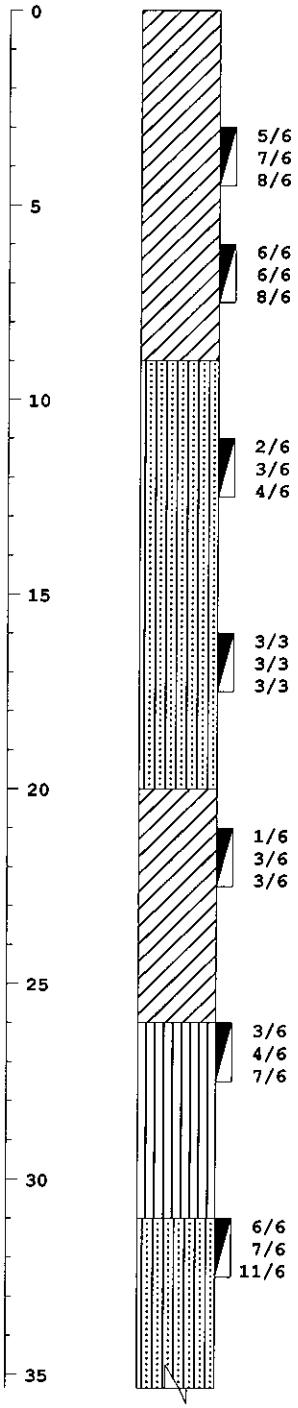
ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Description	Remarks	Density pcf	Moisture %
			grained, non-cohesive.			
	7/6 9/6 7/6	SM	SILTY SAND; yellowish brown, wet to saturated, fine to medium grained sand, cohesive.			22.7
40						
	4/6 6/6 12/6		Traces of clay, moist to wet.			25.3
45						
	3/6 8/6 16/6		yellowish brown, saturated, fine to medium grained.			19.8
50						
	2/6 1/6 3/6	CL	SANDY CLAY; wet, low plasticity.			38.7
			BOTTOM.			
55						
60						
65						
70						

Figure Number 2

LOG OF TEST BORING
BORING B-2

PROJECT: *Fairfax Elementary School #5, PEA & Title V Investigation*
BORING DATE: *8/18/22*
BORING LOCATION: *See Boring Location Map, Figure 1*
DRILL METHOD: *4.25" I.D. Hollow-Stem Auger*
DESCRIPTION: *PEA Investigation & Title V*
DEPTH TO WATER - ⏚ : *N/A* **CAVING - ⏵ :** *N/A*

FILE NO: *18503*
ELEV.: *Approx. 380'*
START: *8/18/22*
FINISH: *8/18/22*
LOGGER: *C. VILLEGAS*



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Description	Remarks	Density pcf	Moisture %
		CL	SANDY CLAY; light reddish brown, dry to damp, low to medium plasticity.			
			Stiff, light brown, dry.			16.2
			Traces of fine sand.			27.0
			yellowish brown, wet, medium plasticity.			
		SM	SILTY SAND; yellowish brown, moist, cohesive, very fine to medium grained.			25.0
			Damp to moist, traces of cemented clay, fine gravel.			26.0
		CL	SANDY CLAY; yellowish brown, low plasticity, some silt. Firm.			23.6
		ML	SANDY SILT; yellowish brown, moist, traces of clay, very fine sand, cohesive.			21.2
		SM	SILTY SAND; light yellowish brown, poorly graded, cohesive, Medium dense.			13.8

Figure Number 3

LOG OF TEST BORING
BORING B-2

PROJECT: *Fairfax Elementary School #5, PEA & Title V Investigation*
FILE NO: *18503*
BORING DATE: *8/18/22*
ELEV.: *Approx. 380'*
BORING LOCATION: *See Boring Location Map, Figure 1*
START: *8/18/22*
DRILL METHOD: *4.25" I.D. Hollow-Stem Auger*
FINISH: *8/18/22*
DESCRIPTION: *PEA Investigation & Title V*
DEPTH TO WATER - ▽ : *N/A* **CAVING - ▰ :** *N/A* **LOGGER:** *C. VILLEGAS*

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Description	Remarks	Density pcf	Moisture %
40	2/6 2/6 3/6	CL	SANDY CLAY; yellowish brown, moist to wet, medium plasticity, firm, traces of very fine sand.			50.9
45	4/6 8/6 9/6	ML	Sandy Silt; yellowish brown, moist, low plasticity, firm to hard.			23.8
50	4/6 9/6 8/6	SM	Silty Sand - with low plasticity clay, very fine to medium grained.			23.4
55	3/6 7/6 7/6	CL	SANDY CLAY; light brown, moist, moist, medium plasticity.			32.8
60			BOTTOM.			
65						
70						

Figure Number 3

KEY TO SYMBOLS

Symbol Description

Strata symbols


Low plasticity clay


Silt


High plasticity clay


Clayey sand


Poorly graded sand


Silty sand

Misc. Symbols


Water table at boring completion


Boring continues

Soil Samplers

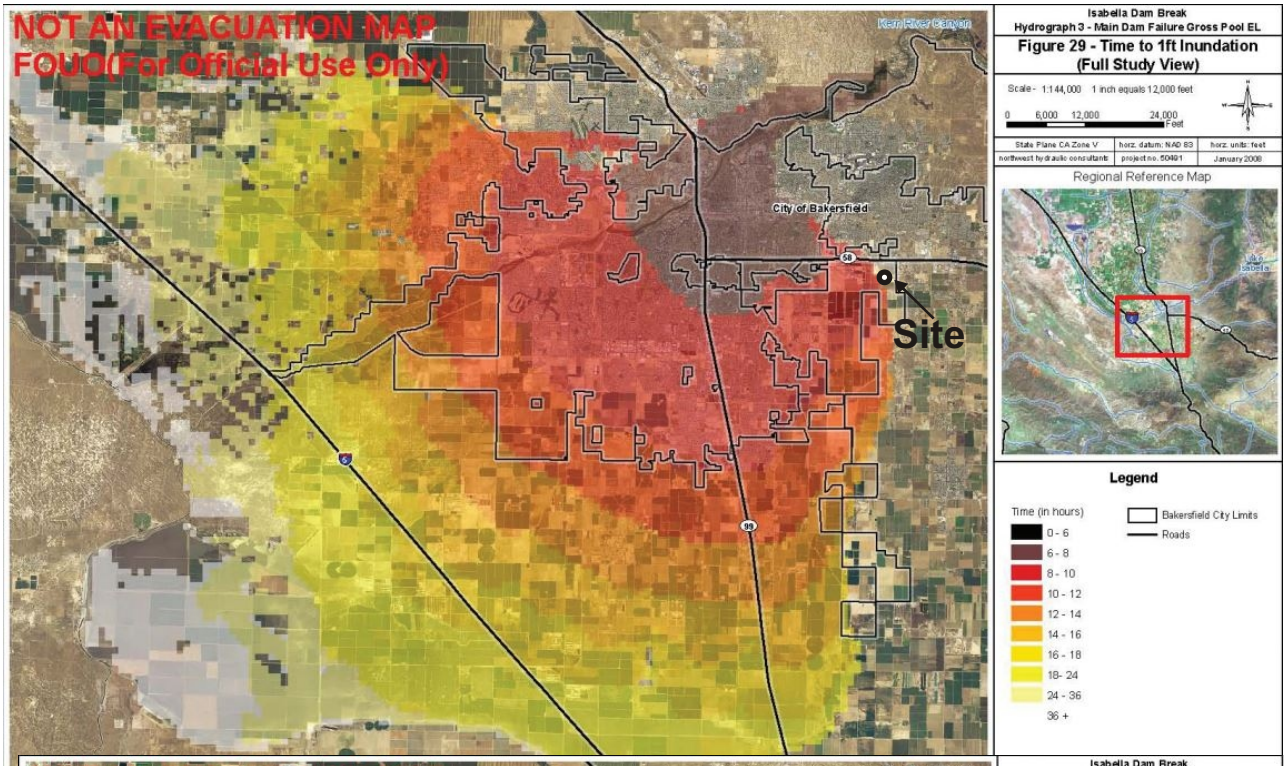

California sampler

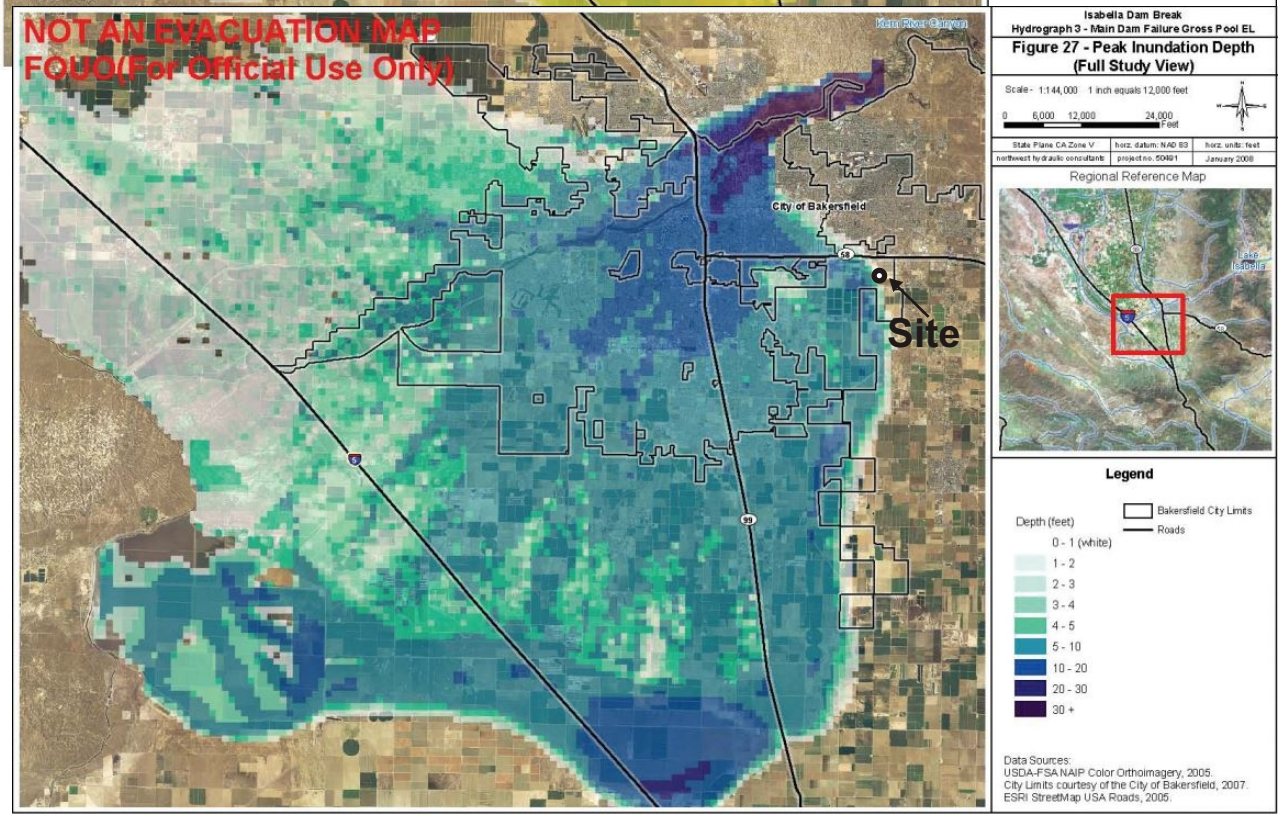

Standard penetration test


No recovery

Notes:

1. Two (2) exploratory borings were drilled on 08/18/2022 using an 8-inch outside diameter hollow-stem auger.
2. No free groundwater was encountered to the maximum depth drilled of 51.5'.
3. Boring locations are shown on the Boring Location Map, Figure 1.
4. These logs are subject to the limitations, conclusions, and recommendations in this report.
5. Results of tests conducted on samples recovered are reported on the logs.



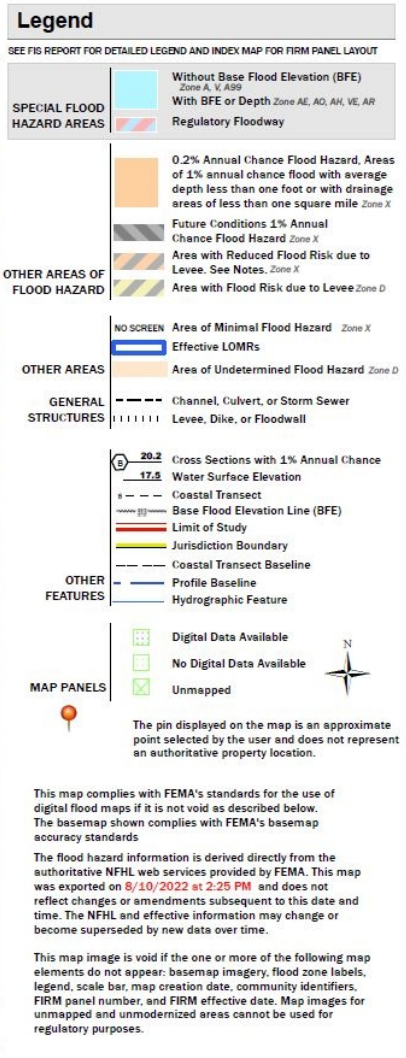


Source: Kern County Map Info System, US Army Corps of Engineers Preliminary Flood Results

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Lake Isabella Dam Inundation Maps**	**PLATE**

N

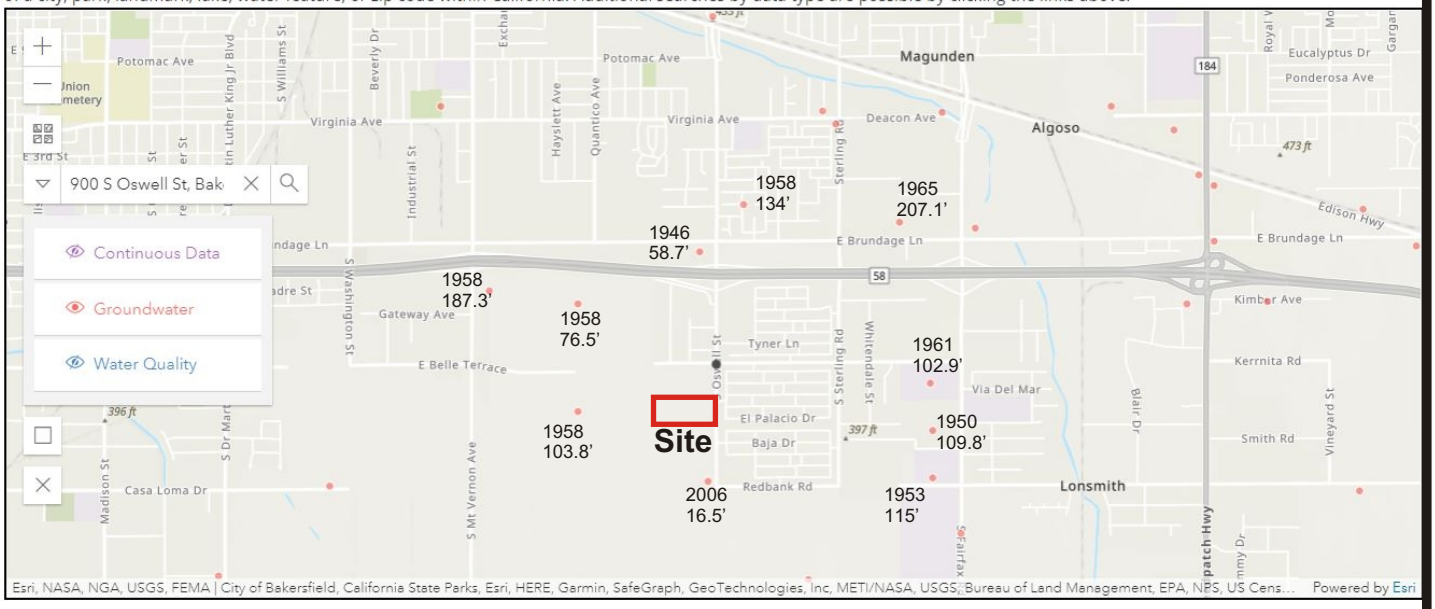
National Flood Hazard Layer FIRMette



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **FEMA Flood Insurance Rate Map**	**PLATE**

Water Data Library (WDL) Station Map

Use the map below to locate monitoring stations. You can find an area of interest if you zoom and pan the map. Use the search box below to find features on the map such as the name of a city, park, landmark, lake, water feature, or zip code within California. Additional searches by data type are possible by clicking the links above.



Water Well

#' = Historical High Depth to Water Reading

0 **1.0 miles**

Approx. Scale

DWR, Water Data Library, Historical Depth To Water Map, 1946 to 2020

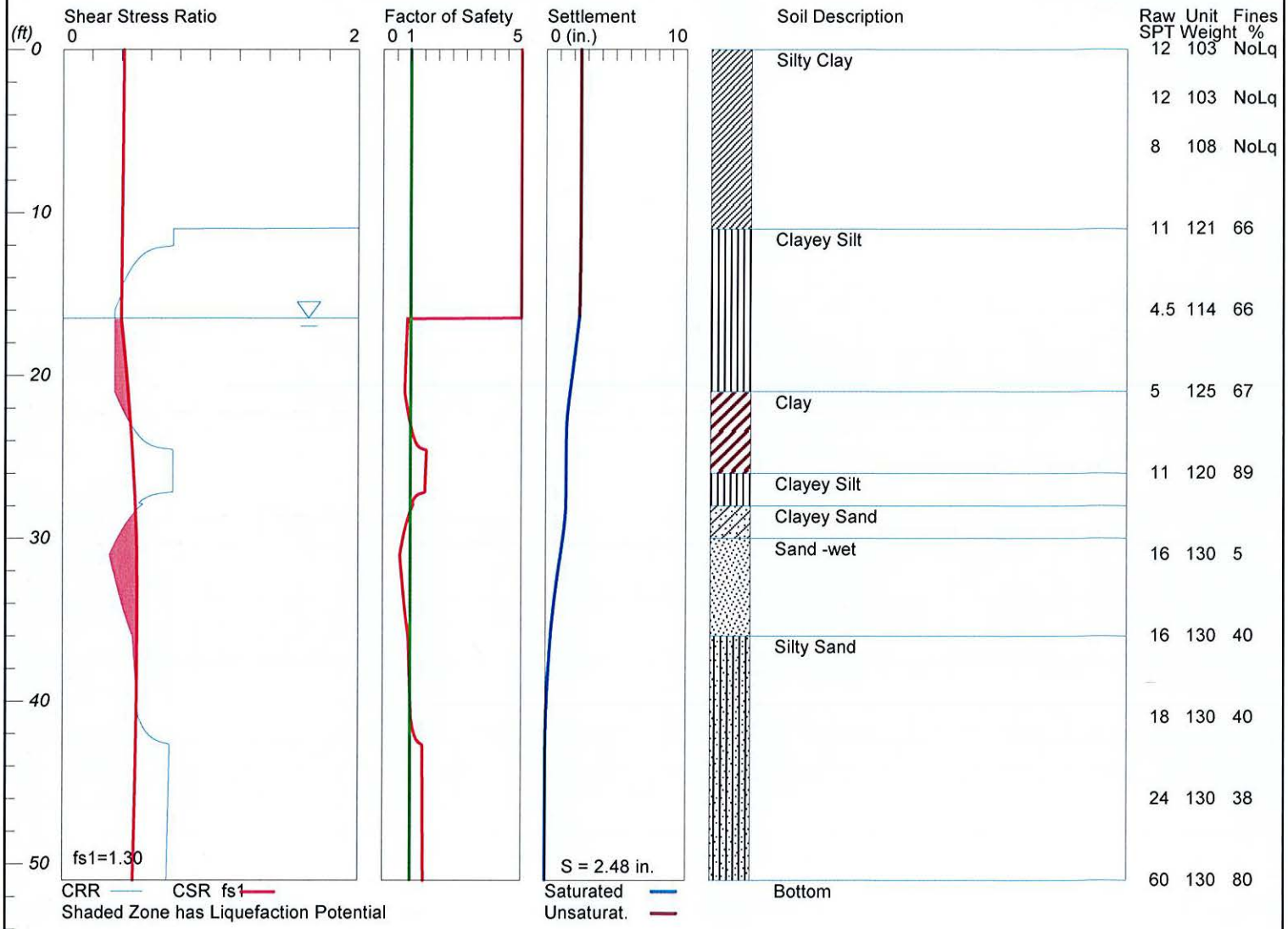
SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831-5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Historical Depth To Water Map**	**PLATE**

LIQUEFACTION ANALYSIS

FSD Site #5

Hole No.=B-1 Water Depth=16.5 ft

Magnitude=6.39
Acceleration=0.492g



****
****
LIQUEFACTION ANALYSIS SUMMARY
Copyright by CivilTech Software
www.civiltech.com
****
****

Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to SEI, 9/6/2022 9:30:18 AM

Input File Name: O:\b. PROJECT FILES (ACTIVE)\18500-18599\18503 Fairfax SD New Site #5 PEA & Title V Oswell & Zephyr\Office\GeoHazard\LiquefyPro files\18503 B-1 LiquefyPro.liq
Title: FSD Site #5
Subtitle: 18503 - B1

Surface Elev.=
Hole No.=B-1
Depth of Hole= 51.00 ft
Water Table during Earthquake= 16.50 ft
Water Table during In-Situ Testing= 24.00 ft
Max. Acceleration= 0.49 g
Earthquake Magnitude= 6.39

Input Data:
Surface Elev.=
Hole No.=B-1
Depth of Hole=51.00 ft
Water Table during Earthquake= 16.50 ft
Water Table during In-Situ Testing= 24.00 ft
Max. Acceleration=0.49 g
Earthquake Magnitude=6.39
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Modify Stark/Olson
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	12.00	103.00	NoLiq
3.00	12.00	103.00	NoLiq
6.00	8.00	108.00	NoLiq
11.00	11.00	121.00	66.00
16.00	4.50	114.00	66.00
21.00	5.00	125.00	67.00
26.00	11.00	120.00	89.00
31.00	16.00	130.00	5.00
36.00	16.00	130.00	40.00
41.00	18.00	130.00	40.00
46.00	24.00	130.00	38.00
51.00	60.00	130.00	80.00

Output Results:

Settlement of Saturated Sands=2.40 in.
Settlement of Unsaturated Sands=0.08 in.
Total Settlement of Saturated and Unsaturated Sands=2.48 in.
Differential Settlement=1.242 to 1.639 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.42	5.00	2.40	0.08	2.48
0.05	2.00	0.42	5.00	2.40	0.08	2.48
0.10	2.00	0.42	5.00	2.40	0.08	2.48
0.15	2.00	0.42	5.00	2.40	0.08	2.48
0.20	2.00	0.42	5.00	2.40	0.08	2.48
0.25	2.00	0.42	5.00	2.40	0.08	2.48
0.30	2.00	0.42	5.00	2.40	0.08	2.48
0.35	2.00	0.42	5.00	2.40	0.08	2.48
0.40	2.00	0.42	5.00	2.40	0.08	2.48
0.45	2.00	0.42	5.00	2.40	0.08	2.48
0.50	2.00	0.42	5.00	2.40	0.08	2.48
0.55	2.00	0.42	5.00	2.40	0.08	2.48
0.60	2.00	0.42	5.00	2.40	0.08	2.48
0.65	2.00	0.42	5.00	2.40	0.08	2.48
0.70	2.00	0.42	5.00	2.40	0.08	2.48
0.75	2.00	0.42	5.00	2.40	0.08	2.48
0.80	2.00	0.41	5.00	2.40	0.08	2.48
0.85	2.00	0.41	5.00	2.40	0.08	2.48
0.90	2.00	0.41	5.00	2.40	0.08	2.48
0.95	2.00	0.41	5.00	2.40	0.08	2.48
1.00	2.00	0.41	5.00	2.40	0.08	2.48
1.05	2.00	0.41	5.00	2.40	0.08	2.48
1.10	2.00	0.41	5.00	2.40	0.08	2.48
1.15	2.00	0.41	5.00	2.40	0.08	2.48
1.20	2.00	0.41	5.00	2.40	0.08	2.48
1.25	2.00	0.41	5.00	2.40	0.08	2.48
1.30	2.00	0.41	5.00	2.40	0.08	2.48

1.35	2.00	0.41	5.00	2.40	0.08	2.48
1.40	2.00	0.41	5.00	2.40	0.08	2.48
1.45	2.00	0.41	5.00	2.40	0.08	2.48
1.50	2.00	0.41	5.00	2.40	0.08	2.48
1.55	2.00	0.41	5.00	2.40	0.08	2.48
1.60	2.00	0.41	5.00	2.40	0.08	2.48
1.65	2.00	0.41	5.00	2.40	0.08	2.48
1.70	2.00	0.41	5.00	2.40	0.08	2.48
1.75	2.00	0.41	5.00	2.40	0.08	2.48
1.80	2.00	0.41	5.00	2.40	0.08	2.48
1.85	2.00	0.41	5.00	2.40	0.08	2.48
1.90	2.00	0.41	5.00	2.40	0.08	2.48
1.95	2.00	0.41	5.00	2.40	0.08	2.48
2.00	2.00	0.41	5.00	2.40	0.08	2.48
2.05	2.00	0.41	5.00	2.40	0.08	2.48
2.10	2.00	0.41	5.00	2.40	0.08	2.48
2.15	2.00	0.41	5.00	2.40	0.08	2.48
2.20	2.00	0.41	5.00	2.40	0.08	2.48
2.25	2.00	0.41	5.00	2.40	0.08	2.48
2.30	2.00	0.41	5.00	2.40	0.08	2.48
2.35	2.00	0.41	5.00	2.40	0.08	2.48
2.40	2.00	0.41	5.00	2.40	0.08	2.48
2.45	2.00	0.41	5.00	2.40	0.08	2.48
2.50	2.00	0.41	5.00	2.40	0.08	2.48
2.55	2.00	0.41	5.00	2.40	0.08	2.48
2.60	2.00	0.41	5.00	2.40	0.08	2.48
2.65	2.00	0.41	5.00	2.40	0.08	2.48
2.70	2.00	0.41	5.00	2.40	0.08	2.48
2.75	2.00	0.41	5.00	2.40	0.08	2.48
2.80	2.00	0.41	5.00	2.40	0.08	2.48
2.85	2.00	0.41	5.00	2.40	0.08	2.48
2.90	2.00	0.41	5.00	2.40	0.08	2.48
2.95	2.00	0.41	5.00	2.40	0.08	2.48
3.00	2.00	0.41	5.00	2.40	0.08	2.48
3.05	2.00	0.41	5.00	2.40	0.08	2.48
3.10	2.00	0.41	5.00	2.40	0.08	2.48
3.15	2.00	0.41	5.00	2.40	0.08	2.48
3.20	2.00	0.41	5.00	2.40	0.08	2.48
3.25	2.00	0.41	5.00	2.40	0.08	2.48
3.30	2.00	0.41	5.00	2.40	0.08	2.48
3.35	2.00	0.41	5.00	2.40	0.08	2.48
3.40	2.00	0.41	5.00	2.40	0.08	2.48
3.45	2.00	0.41	5.00	2.40	0.08	2.48
3.50	2.00	0.41	5.00	2.40	0.08	2.48
3.55	2.00	0.41	5.00	2.40	0.08	2.48
3.60	2.00	0.41	5.00	2.40	0.08	2.48
3.65	2.00	0.41	5.00	2.40	0.08	2.48
3.70	2.00	0.41	5.00	2.40	0.08	2.48
3.75	2.00	0.41	5.00	2.40	0.08	2.48
3.80	2.00	0.41	5.00	2.40	0.08	2.48
3.85	2.00	0.41	5.00	2.40	0.08	2.48
3.90	2.00	0.41	5.00	2.40	0.08	2.48
3.95	2.00	0.41	5.00	2.40	0.08	2.48
4.00	2.00	0.41	5.00	2.40	0.08	2.48

4.05	2.00	0.41	5.00	2.40	0.08	2.48
4.10	2.00	0.41	5.00	2.40	0.08	2.48
4.15	2.00	0.41	5.00	2.40	0.08	2.48
4.20	2.00	0.41	5.00	2.40	0.08	2.48
4.25	2.00	0.41	5.00	2.40	0.08	2.48
4.30	2.00	0.41	5.00	2.40	0.08	2.48
4.35	2.00	0.41	5.00	2.40	0.08	2.48
4.40	2.00	0.41	5.00	2.40	0.08	2.48
4.45	2.00	0.41	5.00	2.40	0.08	2.48
4.50	2.00	0.41	5.00	2.40	0.08	2.48
4.55	2.00	0.41	5.00	2.40	0.08	2.48
4.60	2.00	0.41	5.00	2.40	0.08	2.48
4.65	2.00	0.41	5.00	2.40	0.08	2.48
4.70	2.00	0.41	5.00	2.40	0.08	2.48
4.75	2.00	0.41	5.00	2.40	0.08	2.48
4.80	2.00	0.41	5.00	2.40	0.08	2.48
4.85	2.00	0.41	5.00	2.40	0.08	2.48
4.90	2.00	0.41	5.00	2.40	0.08	2.48
4.95	2.00	0.41	5.00	2.40	0.08	2.48
5.00	2.00	0.41	5.00	2.40	0.08	2.48
5.05	2.00	0.41	5.00	2.40	0.08	2.48
5.10	2.00	0.41	5.00	2.40	0.08	2.48
5.15	2.00	0.41	5.00	2.40	0.08	2.48
5.20	2.00	0.41	5.00	2.40	0.08	2.48
5.25	2.00	0.41	5.00	2.40	0.08	2.48
5.30	2.00	0.41	5.00	2.40	0.08	2.48
5.35	2.00	0.41	5.00	2.40	0.08	2.48
5.40	2.00	0.41	5.00	2.40	0.08	2.48
5.45	2.00	0.41	5.00	2.40	0.08	2.48
5.50	2.00	0.41	5.00	2.40	0.08	2.48
5.55	2.00	0.41	5.00	2.40	0.08	2.48
5.60	2.00	0.41	5.00	2.40	0.08	2.48
5.65	2.00	0.41	5.00	2.40	0.08	2.48
5.70	2.00	0.41	5.00	2.40	0.08	2.48
5.75	2.00	0.41	5.00	2.40	0.08	2.48
5.80	2.00	0.41	5.00	2.40	0.08	2.48
5.85	2.00	0.41	5.00	2.40	0.08	2.48
5.90	2.00	0.41	5.00	2.40	0.08	2.48
5.95	2.00	0.41	5.00	2.40	0.08	2.48
6.00	2.00	0.41	5.00	2.40	0.08	2.48
6.05	2.00	0.41	5.00	2.40	0.08	2.48
6.10	2.00	0.41	5.00	2.40	0.08	2.48
6.15	2.00	0.41	5.00	2.40	0.08	2.48
6.20	2.00	0.41	5.00	2.40	0.08	2.48
6.25	2.00	0.41	5.00	2.40	0.08	2.48
6.30	2.00	0.41	5.00	2.40	0.08	2.48
6.35	2.00	0.41	5.00	2.40	0.08	2.48
6.40	2.00	0.41	5.00	2.40	0.08	2.48
6.45	2.00	0.41	5.00	2.40	0.08	2.48
6.50	2.00	0.41	5.00	2.40	0.08	2.48
6.55	2.00	0.41	5.00	2.40	0.08	2.48
6.60	2.00	0.41	5.00	2.40	0.08	2.48
6.65	2.00	0.41	5.00	2.40	0.08	2.48
6.70	2.00	0.41	5.00	2.40	0.08	2.48

6.75	2.00	0.41	5.00	2.40	0.08	2.48
6.80	2.00	0.41	5.00	2.40	0.08	2.48
6.85	2.00	0.41	5.00	2.40	0.08	2.48
6.90	2.00	0.41	5.00	2.40	0.08	2.48
6.95	2.00	0.41	5.00	2.40	0.08	2.48
7.00	2.00	0.41	5.00	2.40	0.08	2.48
7.05	2.00	0.41	5.00	2.40	0.08	2.48
7.10	2.00	0.41	5.00	2.40	0.08	2.48
7.15	2.00	0.41	5.00	2.40	0.08	2.48
7.20	2.00	0.41	5.00	2.40	0.08	2.48
7.25	2.00	0.41	5.00	2.40	0.08	2.48
7.30	2.00	0.41	5.00	2.40	0.08	2.48
7.35	2.00	0.41	5.00	2.40	0.08	2.48
7.40	2.00	0.41	5.00	2.40	0.08	2.48
7.45	2.00	0.41	5.00	2.40	0.08	2.48
7.50	2.00	0.41	5.00	2.40	0.08	2.48
7.55	2.00	0.41	5.00	2.40	0.08	2.48
7.60	2.00	0.41	5.00	2.40	0.08	2.48
7.65	2.00	0.41	5.00	2.40	0.08	2.48
7.70	2.00	0.41	5.00	2.40	0.08	2.48
7.75	2.00	0.41	5.00	2.40	0.08	2.48
7.80	2.00	0.41	5.00	2.40	0.08	2.48
7.85	2.00	0.41	5.00	2.40	0.08	2.48
7.90	2.00	0.41	5.00	2.40	0.08	2.48
7.95	2.00	0.41	5.00	2.40	0.08	2.48
8.00	2.00	0.41	5.00	2.40	0.08	2.48
8.05	2.00	0.41	5.00	2.40	0.08	2.48
8.10	2.00	0.41	5.00	2.40	0.08	2.48
8.15	2.00	0.41	5.00	2.40	0.08	2.48
8.20	2.00	0.41	5.00	2.40	0.08	2.48
8.25	2.00	0.41	5.00	2.40	0.08	2.48
8.30	2.00	0.41	5.00	2.40	0.08	2.48
8.35	2.00	0.41	5.00	2.40	0.08	2.48
8.40	2.00	0.41	5.00	2.40	0.08	2.48
8.45	2.00	0.41	5.00	2.40	0.08	2.48
8.50	2.00	0.41	5.00	2.40	0.08	2.48
8.55	2.00	0.41	5.00	2.40	0.08	2.48
8.60	2.00	0.41	5.00	2.40	0.08	2.48
8.65	2.00	0.41	5.00	2.40	0.08	2.48
8.70	2.00	0.41	5.00	2.40	0.08	2.48
8.75	2.00	0.41	5.00	2.40	0.08	2.48
8.80	2.00	0.41	5.00	2.40	0.08	2.48
8.85	2.00	0.41	5.00	2.40	0.08	2.48
8.90	2.00	0.41	5.00	2.40	0.08	2.48
8.95	2.00	0.41	5.00	2.40	0.08	2.48
9.00	2.00	0.41	5.00	2.40	0.08	2.48
9.05	2.00	0.41	5.00	2.40	0.08	2.48
9.10	2.00	0.41	5.00	2.40	0.08	2.48
9.15	2.00	0.41	5.00	2.40	0.08	2.48
9.20	2.00	0.41	5.00	2.40	0.08	2.48
9.25	2.00	0.41	5.00	2.40	0.08	2.48
9.30	2.00	0.41	5.00	2.40	0.08	2.48
9.35	2.00	0.41	5.00	2.40	0.08	2.48
9.40	2.00	0.41	5.00	2.40	0.08	2.48

9.45	2.00	0.41	5.00	2.40	0.08	2.48
9.50	2.00	0.41	5.00	2.40	0.08	2.48
9.55	2.00	0.41	5.00	2.40	0.08	2.48
9.60	2.00	0.41	5.00	2.40	0.08	2.48
9.65	2.00	0.41	5.00	2.40	0.08	2.48
9.70	2.00	0.41	5.00	2.40	0.08	2.48
9.75	2.00	0.41	5.00	2.40	0.08	2.48
9.80	2.00	0.41	5.00	2.40	0.08	2.48
9.85	2.00	0.41	5.00	2.40	0.08	2.48
9.90	2.00	0.41	5.00	2.40	0.08	2.48
9.95	2.00	0.41	5.00	2.40	0.08	2.48
10.00	2.00	0.41	5.00	2.40	0.08	2.48
10.05	2.00	0.41	5.00	2.40	0.08	2.48
10.10	2.00	0.41	5.00	2.40	0.08	2.48
10.15	2.00	0.41	5.00	2.40	0.08	2.48
10.20	2.00	0.41	5.00	2.40	0.08	2.48
10.25	2.00	0.41	5.00	2.40	0.08	2.48
10.30	2.00	0.41	5.00	2.40	0.08	2.48
10.35	2.00	0.41	5.00	2.40	0.08	2.48
10.40	2.00	0.41	5.00	2.40	0.08	2.48
10.45	2.00	0.41	5.00	2.40	0.08	2.48
10.50	2.00	0.41	5.00	2.40	0.08	2.48
10.55	2.00	0.41	5.00	2.40	0.08	2.48
10.60	2.00	0.41	5.00	2.40	0.08	2.48
10.65	2.00	0.41	5.00	2.40	0.08	2.48
10.70	2.00	0.41	5.00	2.40	0.08	2.48
10.75	2.00	0.41	5.00	2.40	0.08	2.48
10.80	2.00	0.41	5.00	2.40	0.08	2.48
10.85	2.00	0.41	5.00	2.40	0.08	2.48
10.90	2.00	0.41	5.00	2.40	0.08	2.48
10.95	2.00	0.41	5.00	2.40	0.08	2.48
11.00	0.75	0.41	5.00	2.40	0.08	2.48
11.05	0.75	0.41	5.00	2.40	0.08	2.48
11.10	0.75	0.40	5.00	2.40	0.08	2.48
11.15	0.75	0.40	5.00	2.40	0.08	2.48
11.20	0.75	0.40	5.00	2.40	0.08	2.48
11.25	0.75	0.40	5.00	2.40	0.08	2.48
11.30	0.75	0.40	5.00	2.40	0.08	2.48
11.35	0.75	0.40	5.00	2.40	0.08	2.48
11.40	0.75	0.40	5.00	2.40	0.08	2.48
11.45	0.75	0.40	5.00	2.40	0.08	2.48
11.50	0.75	0.40	5.00	2.40	0.08	2.48
11.55	0.75	0.40	5.00	2.40	0.08	2.48
11.60	0.75	0.40	5.00	2.40	0.08	2.48
11.65	0.75	0.40	5.00	2.40	0.08	2.48
11.70	0.75	0.40	5.00	2.40	0.08	2.48
11.75	0.75	0.40	5.00	2.40	0.08	2.48
11.80	0.75	0.40	5.00	2.40	0.08	2.48
11.85	0.75	0.40	5.00	2.40	0.08	2.48
11.90	0.75	0.40	5.00	2.40	0.08	2.48
11.95	0.75	0.40	5.00	2.40	0.08	2.48
12.00	0.75	0.40	5.00	2.40	0.08	2.48
12.05	0.75	0.40	5.00	2.40	0.08	2.48
12.10	0.70	0.40	5.00	2.40	0.08	2.48

12.15	0.66	0.40	5.00	2.40	0.08	2.48
12.20	0.63	0.40	5.00	2.40	0.08	2.48
12.25	0.62	0.40	5.00	2.40	0.08	2.48
12.30	0.60	0.40	5.00	2.40	0.08	2.48
12.35	0.59	0.40	5.00	2.40	0.08	2.47
12.40	0.58	0.40	5.00	2.40	0.07	2.47
12.45	0.57	0.40	5.00	2.40	0.07	2.47
12.50	0.56	0.40	5.00	2.40	0.07	2.47
12.55	0.55	0.40	5.00	2.40	0.07	2.47
12.60	0.55	0.40	5.00	2.40	0.07	2.47
12.65	0.54	0.40	5.00	2.40	0.07	2.47
12.70	0.53	0.40	5.00	2.40	0.07	2.47
12.75	0.53	0.40	5.00	2.40	0.07	2.47
12.80	0.52	0.40	5.00	2.40	0.07	2.47
12.85	0.52	0.40	5.00	2.40	0.07	2.47
12.90	0.51	0.40	5.00	2.40	0.07	2.47
12.95	0.51	0.40	5.00	2.40	0.07	2.47
13.00	0.50	0.40	5.00	2.40	0.07	2.47
13.05	0.50	0.40	5.00	2.40	0.07	2.47
13.10	0.49	0.40	5.00	2.40	0.07	2.47
13.15	0.49	0.40	5.00	2.40	0.07	2.47
13.20	0.49	0.40	5.00	2.40	0.07	2.47
13.25	0.48	0.40	5.00	2.40	0.07	2.47
13.30	0.48	0.40	5.00	2.40	0.07	2.47
13.35	0.47	0.40	5.00	2.40	0.07	2.46
13.40	0.47	0.40	5.00	2.40	0.06	2.46
13.45	0.47	0.40	5.00	2.40	0.06	2.46
13.50	0.46	0.40	5.00	2.40	0.06	2.46
13.55	0.46	0.40	5.00	2.40	0.06	2.46
13.60	0.46	0.40	5.00	2.40	0.06	2.46
13.65	0.45	0.40	5.00	2.40	0.06	2.46
13.70	0.45	0.40	5.00	2.40	0.06	2.46
13.75	0.45	0.40	5.00	2.40	0.06	2.46
13.80	0.44	0.40	5.00	2.40	0.06	2.46
13.85	0.44	0.40	5.00	2.40	0.06	2.46
13.90	0.44	0.40	5.00	2.40	0.06	2.46
13.95	0.43	0.40	5.00	2.40	0.06	2.46
14.00	0.43	0.40	5.00	2.40	0.06	2.46
14.05	0.43	0.40	5.00	2.40	0.06	2.46
14.10	0.43	0.40	5.00	2.40	0.05	2.45
14.15	0.42	0.40	5.00	2.40	0.05	2.45
14.20	0.42	0.40	5.00	2.40	0.05	2.45
14.25	0.42	0.40	5.00	2.40	0.05	2.45
14.30	0.41	0.40	5.00	2.40	0.05	2.45
14.35	0.41	0.40	5.00	2.40	0.05	2.45
14.40	0.41	0.40	5.00	2.40	0.05	2.45
14.45	0.41	0.40	5.00	2.40	0.05	2.45
14.50	0.40	0.40	5.00	2.40	0.05	2.45
14.55	0.40	0.40	5.00	2.40	0.05	2.45
14.60	0.40	0.40	5.00	2.40	0.05	2.45
14.65	0.40	0.40	5.00	2.40	0.05	2.45
14.70	0.39	0.40	5.00	2.40	0.04	2.44
14.75	0.39	0.40	5.00	2.40	0.04	2.44
14.80	0.41	0.40	5.00	2.40	0.04	2.44

14.85	0.41	0.40	5.00	2.40	0.04	2.44
14.90	0.41	0.40	5.00	2.40	0.04	2.44
14.95	0.40	0.40	5.00	2.40	0.04	2.44
15.00	0.40	0.40	5.00	2.40	0.04	2.44
15.05	0.40	0.40	5.00	2.40	0.04	2.44
15.10	0.40	0.40	5.00	2.40	0.04	2.44
15.15	0.39	0.40	5.00	2.40	0.04	2.44
15.20	0.39	0.40	5.00	2.40	0.03	2.43
15.25	0.39	0.40	5.00	2.40	0.03	2.43
15.30	0.39	0.40	5.00	2.40	0.03	2.43
15.35	0.38	0.40	5.00	2.40	0.03	2.43
15.40	0.38	0.40	5.00	2.40	0.03	2.43
15.45	0.38	0.40	5.00	2.40	0.03	2.43
15.50	0.38	0.40	5.00	2.40	0.03	2.43
15.55	0.37	0.40	5.00	2.40	0.03	2.43
15.60	0.37	0.40	5.00	2.40	0.03	2.43
15.65	0.37	0.40	5.00	2.40	0.02	2.42
15.70	0.37	0.40	5.00	2.40	0.02	2.42
15.75	0.37	0.40	5.00	2.40	0.02	2.42
15.80	0.36	0.40	5.00	2.40	0.02	2.42
15.85	0.36	0.40	5.00	2.40	0.02	2.42
15.90	0.36	0.40	5.00	2.40	0.02	2.42
15.95	0.36	0.40	5.00	2.40	0.02	2.42
16.00	0.35	0.40	5.00	2.40	0.02	2.41
16.05	0.35	0.40	5.00	2.40	0.01	2.41
16.10	0.35	0.40	5.00	2.40	0.01	2.41
16.15	0.35	0.40	5.00	2.40	0.01	2.41
16.20	0.35	0.40	5.00	2.40	0.01	2.41
16.25	0.35	0.40	5.00	2.40	0.01	2.41
16.30	0.35	0.40	5.00	2.40	0.01	2.41
16.35	0.35	0.40	5.00	2.40	0.00	2.40
16.40	0.35	0.40	5.00	2.40	0.00	2.40
16.45	0.35	0.40	5.00	2.40	0.00	2.40
16.50	0.35	0.40	0.89*	2.40	0.00	2.40
16.55	0.35	0.40	0.89*	2.39	0.00	2.39
16.60	0.35	0.40	0.88*	2.39	0.00	2.39
16.65	0.35	0.40	0.88*	2.38	0.00	2.38
16.70	0.35	0.40	0.88*	2.37	0.00	2.37
16.75	0.35	0.40	0.88*	2.37	0.00	2.37
16.80	0.35	0.40	0.88*	2.36	0.00	2.36
16.85	0.35	0.40	0.88*	2.35	0.00	2.35
16.90	0.35	0.40	0.88*	2.35	0.00	2.35
16.95	0.35	0.41	0.87*	2.34	0.00	2.34
17.00	0.35	0.41	0.87*	2.33	0.00	2.33
17.05	0.35	0.41	0.87*	2.33	0.00	2.33
17.10	0.35	0.41	0.87*	2.32	0.00	2.32
17.15	0.35	0.41	0.87*	2.31	0.00	2.31
17.20	0.35	0.41	0.87*	2.31	0.00	2.31
17.25	0.35	0.41	0.87*	2.30	0.00	2.30
17.30	0.35	0.41	0.86*	2.29	0.00	2.29
17.35	0.35	0.41	0.86*	2.28	0.00	2.28
17.40	0.35	0.41	0.86*	2.28	0.00	2.28
17.45	0.35	0.41	0.86*	2.27	0.00	2.27
17.50	0.35	0.41	0.86*	2.26	0.00	2.26

17.55	0.35	0.41	0.86*	2.26	0.00	2.26
17.60	0.35	0.41	0.86*	2.25	0.00	2.25
17.65	0.35	0.41	0.86*	2.24	0.00	2.24
17.70	0.35	0.41	0.85*	2.24	0.00	2.24
17.75	0.35	0.41	0.85*	2.23	0.00	2.23
17.80	0.35	0.42	0.85*	2.22	0.00	2.22
17.85	0.35	0.42	0.85*	2.22	0.00	2.22
17.90	0.35	0.42	0.85*	2.21	0.00	2.21
17.95	0.35	0.42	0.85*	2.20	0.00	2.20
18.00	0.35	0.42	0.85*	2.19	0.00	2.19
18.05	0.35	0.42	0.85*	2.19	0.00	2.19
18.10	0.35	0.42	0.85*	2.18	0.00	2.18
18.15	0.35	0.42	0.84*	2.17	0.00	2.17
18.20	0.35	0.42	0.84*	2.17	0.00	2.17
18.25	0.35	0.42	0.84*	2.16	0.00	2.16
18.30	0.35	0.42	0.84*	2.15	0.00	2.15
18.35	0.35	0.42	0.84*	2.15	0.00	2.15
18.40	0.35	0.42	0.84*	2.14	0.00	2.14
18.45	0.35	0.42	0.84*	2.13	0.00	2.13
18.50	0.35	0.42	0.84*	2.12	0.00	2.12
18.55	0.35	0.42	0.84*	2.12	0.00	2.12
18.60	0.35	0.42	0.83*	2.11	0.00	2.11
18.65	0.35	0.42	0.83*	2.10	0.00	2.10
18.70	0.35	0.43	0.83*	2.10	0.00	2.10
18.75	0.35	0.43	0.83*	2.09	0.00	2.09
18.80	0.35	0.43	0.83*	2.08	0.00	2.08
18.85	0.35	0.43	0.83*	2.07	0.00	2.07
18.90	0.35	0.43	0.83*	2.07	0.00	2.07
18.95	0.35	0.43	0.83*	2.06	0.00	2.06
19.00	0.35	0.43	0.83*	2.05	0.00	2.05
19.05	0.35	0.43	0.82*	2.05	0.00	2.05
19.10	0.35	0.43	0.82*	2.04	0.00	2.04
19.15	0.35	0.43	0.82*	2.03	0.00	2.03
19.20	0.35	0.43	0.82*	2.02	0.00	2.02
19.25	0.35	0.43	0.82*	2.02	0.00	2.02
19.30	0.35	0.43	0.82*	2.01	0.00	2.01
19.35	0.35	0.43	0.82*	2.00	0.00	2.00
19.40	0.35	0.43	0.82*	1.99	0.00	1.99
19.45	0.35	0.43	0.82*	1.99	0.00	1.99
19.50	0.35	0.43	0.82*	1.98	0.00	1.98
19.55	0.35	0.43	0.82*	1.97	0.00	1.97
19.60	0.35	0.43	0.81*	1.97	0.00	1.97
19.65	0.35	0.44	0.81*	1.96	0.00	1.96
19.70	0.35	0.44	0.81*	1.95	0.00	1.95
19.75	0.35	0.44	0.81*	1.94	0.00	1.94
19.80	0.35	0.44	0.81*	1.94	0.00	1.94
19.85	0.35	0.44	0.81*	1.93	0.00	1.93
19.90	0.35	0.44	0.81*	1.92	0.00	1.92
19.95	0.35	0.44	0.81*	1.91	0.00	1.91
20.00	0.35	0.44	0.81*	1.91	0.00	1.91
20.05	0.35	0.44	0.81*	1.90	0.00	1.90
20.10	0.35	0.44	0.80*	1.89	0.00	1.89
20.15	0.35	0.44	0.80*	1.89	0.00	1.89
20.20	0.35	0.44	0.80*	1.88	0.00	1.88

20.25	0.35	0.44	0.80*	1.87	0.00	1.87
20.30	0.35	0.44	0.80*	1.86	0.00	1.86
20.35	0.35	0.44	0.80*	1.86	0.00	1.86
20.40	0.35	0.44	0.80*	1.85	0.00	1.85
20.45	0.35	0.44	0.80*	1.84	0.00	1.84
20.50	0.35	0.44	0.80*	1.83	0.00	1.83
20.55	0.35	0.44	0.80*	1.83	0.00	1.83
20.60	0.35	0.44	0.80*	1.82	0.00	1.82
20.65	0.35	0.44	0.80*	1.81	0.00	1.81
20.70	0.35	0.45	0.79*	1.80	0.00	1.80
20.75	0.35	0.45	0.79*	1.80	0.00	1.80
20.80	0.35	0.45	0.79*	1.79	0.00	1.79
20.85	0.35	0.45	0.79*	1.78	0.00	1.78
20.90	0.35	0.45	0.79*	1.77	0.00	1.77
20.95	0.35	0.45	0.79*	1.77	0.00	1.77
21.00	0.35	0.45	0.79*	1.76	0.00	1.76
21.05	0.36	0.45	0.79*	1.75	0.00	1.75
21.10	0.36	0.45	0.80*	1.74	0.00	1.74
21.15	0.36	0.45	0.80*	1.74	0.00	1.74
21.20	0.36	0.45	0.81*	1.73	0.00	1.73
21.25	0.37	0.45	0.81*	1.72	0.00	1.72
21.30	0.37	0.45	0.82*	1.72	0.00	1.72
21.35	0.37	0.45	0.82*	1.71	0.00	1.71
21.40	0.37	0.45	0.83*	1.70	0.00	1.70
21.45	0.38	0.45	0.83*	1.69	0.00	1.69
21.50	0.38	0.45	0.83*	1.69	0.00	1.69
21.55	0.38	0.45	0.84*	1.68	0.00	1.68
21.60	0.38	0.45	0.84*	1.67	0.00	1.67
21.65	0.39	0.45	0.85*	1.67	0.00	1.67
21.70	0.39	0.45	0.85*	1.66	0.00	1.66
21.75	0.39	0.45	0.86*	1.65	0.00	1.65
21.80	0.39	0.46	0.86*	1.65	0.00	1.65
21.85	0.40	0.46	0.87*	1.64	0.00	1.64
21.90	0.40	0.46	0.87*	1.63	0.00	1.63
21.95	0.40	0.46	0.88*	1.63	0.00	1.63
22.00	0.40	0.46	0.88*	1.62	0.00	1.62
22.05	0.41	0.46	0.89*	1.62	0.00	1.62
22.10	0.41	0.46	0.89*	1.61	0.00	1.61
22.15	0.41	0.46	0.90*	1.60	0.00	1.60
22.20	0.41	0.46	0.90*	1.60	0.00	1.60
22.25	0.42	0.46	0.91*	1.59	0.00	1.59
22.30	0.42	0.46	0.91*	1.58	0.00	1.58
22.35	0.42	0.46	0.92*	1.58	0.00	1.58
22.40	0.43	0.46	0.93*	1.57	0.00	1.57
22.45	0.43	0.46	0.93*	1.57	0.00	1.57
22.50	0.43	0.46	0.94*	1.56	0.00	1.56
22.55	0.44	0.46	0.94*	1.56	0.00	1.56
22.60	0.44	0.46	0.95*	1.55	0.00	1.55
22.65	0.44	0.46	0.95*	1.55	0.00	1.55
22.70	0.44	0.46	0.96*	1.55	0.00	1.55
22.75	0.45	0.46	0.97*	1.54	0.00	1.54
22.80	0.45	0.46	0.97*	1.54	0.00	1.54
22.85	0.45	0.46	0.98*	1.53	0.00	1.53
22.90	0.46	0.46	0.99*	1.53	0.00	1.53

22.95	0.46	0.46	0.99*	1.53	0.00	1.53
23.00	0.46	0.47	1.00*	1.53	0.00	1.53
23.05	0.47	0.47	1.01	1.52	0.00	1.52
23.10	0.47	0.47	1.01	1.52	0.00	1.52
23.15	0.48	0.47	1.02	1.52	0.00	1.52
23.20	0.48	0.47	1.03	1.52	0.00	1.52
23.25	0.48	0.47	1.03	1.51	0.00	1.51
23.30	0.49	0.47	1.04	1.51	0.00	1.51
23.35	0.49	0.47	1.05	1.51	0.00	1.51
23.40	0.49	0.47	1.06	1.51	0.00	1.51
23.45	0.50	0.47	1.06	1.51	0.00	1.51
23.50	0.50	0.47	1.07	1.51	0.00	1.51
23.55	0.51	0.47	1.08	1.51	0.00	1.51
23.60	0.51	0.47	1.09	1.51	0.00	1.51
23.65	0.52	0.47	1.10	1.50	0.00	1.50
23.70	0.52	0.47	1.11	1.50	0.00	1.50
23.75	0.53	0.47	1.12	1.50	0.00	1.50
23.80	0.53	0.47	1.13	1.50	0.00	1.50
23.85	0.54	0.47	1.14	1.50	0.00	1.50
23.90	0.54	0.47	1.15	1.50	0.00	1.50
23.95	0.55	0.47	1.16	1.50	0.00	1.50
24.00	0.55	0.47	1.17	1.50	0.00	1.50
24.05	0.56	0.47	1.18	1.50	0.00	1.50
24.10	0.57	0.47	1.20	1.50	0.00	1.50
24.15	0.57	0.47	1.21	1.50	0.00	1.50
24.20	0.58	0.47	1.23	1.49	0.00	1.49
24.25	0.59	0.47	1.25	1.49	0.00	1.49
24.30	0.60	0.48	1.27	1.49	0.00	1.49
24.35	0.62	0.48	1.30	1.49	0.00	1.49
24.40	0.64	0.48	1.34	1.49	0.00	1.49
24.45	0.66	0.48	1.38	1.49	0.00	1.49
24.50	0.69	0.48	1.45	1.49	0.00	1.49
24.55	0.75	0.48	1.57	1.49	0.00	1.49
24.60	0.75	0.48	1.58	1.49	0.00	1.49
24.65	0.75	0.48	1.58	1.49	0.00	1.49
24.70	0.75	0.48	1.58	1.49	0.00	1.49
24.75	0.75	0.48	1.57	1.49	0.00	1.49
24.80	0.75	0.48	1.57	1.49	0.00	1.49
24.85	0.75	0.48	1.57	1.49	0.00	1.49
24.90	0.75	0.48	1.57	1.49	0.00	1.49
24.95	0.75	0.48	1.57	1.49	0.00	1.49
25.00	0.75	0.48	1.57	1.49	0.00	1.49
25.05	0.75	0.48	1.57	1.49	0.00	1.49
25.10	0.75	0.48	1.57	1.49	0.00	1.49
25.15	0.75	0.48	1.57	1.49	0.00	1.49
25.20	0.75	0.48	1.56	1.49	0.00	1.49
25.25	0.75	0.48	1.56	1.49	0.00	1.49
25.30	0.75	0.48	1.56	1.49	0.00	1.49
25.35	0.75	0.48	1.56	1.49	0.00	1.49
25.40	0.75	0.48	1.56	1.49	0.00	1.49
25.45	0.75	0.48	1.56	1.49	0.00	1.49
25.50	0.75	0.48	1.56	1.49	0.00	1.49
25.55	0.75	0.48	1.56	1.49	0.00	1.49
25.60	0.75	0.48	1.56	1.49	0.00	1.49

25.65	0.75	0.48	1.55	1.49	0.00	1.49
25.70	0.75	0.48	1.55	1.49	0.00	1.49
25.75	0.75	0.49	1.55	1.49	0.00	1.49
25.80	0.75	0.49	1.55	1.49	0.00	1.49
25.85	0.75	0.49	1.55	1.49	0.00	1.49
25.90	0.75	0.49	1.55	1.49	0.00	1.49
25.95	0.75	0.49	1.55	1.49	0.00	1.49
26.00	0.75	0.49	1.55	1.49	0.00	1.49
26.05	0.75	0.49	1.55	1.49	0.00	1.49
26.10	0.75	0.49	1.54	1.49	0.00	1.49
26.15	0.75	0.49	1.54	1.49	0.00	1.49
26.20	0.75	0.49	1.54	1.49	0.00	1.49
26.25	0.75	0.49	1.54	1.49	0.00	1.49
26.30	0.75	0.49	1.54	1.49	0.00	1.49
26.35	0.75	0.49	1.54	1.49	0.00	1.49
26.40	0.75	0.49	1.54	1.49	0.00	1.49
26.45	0.75	0.49	1.54	1.49	0.00	1.49
26.50	0.75	0.49	1.54	1.49	0.00	1.49
26.55	0.75	0.49	1.54	1.49	0.00	1.49
26.60	0.75	0.49	1.53	1.49	0.00	1.49
26.65	0.75	0.49	1.53	1.49	0.00	1.49
26.70	0.75	0.49	1.53	1.49	0.00	1.49
26.75	0.75	0.49	1.53	1.49	0.00	1.49
26.80	0.75	0.49	1.53	1.49	0.00	1.49
26.85	0.75	0.49	1.53	1.49	0.00	1.49
26.90	0.75	0.49	1.53	1.49	0.00	1.49
26.95	0.75	0.49	1.53	1.49	0.00	1.49
27.00	0.75	0.49	1.53	1.49	0.00	1.49
27.05	0.75	0.49	1.53	1.49	0.00	1.49
27.10	0.75	0.49	1.52	1.49	0.00	1.49
27.15	0.75	0.49	1.52	1.49	0.00	1.49
27.20	0.72	0.49	1.45	1.49	0.00	1.49
27.25	0.67	0.49	1.35	1.49	0.00	1.49
27.30	0.64	0.50	1.28	1.49	0.00	1.49
27.35	0.62	0.50	1.24	1.49	0.00	1.49
27.40	0.60	0.50	1.21	1.48	0.00	1.48
27.45	0.59	0.50	1.18	1.48	0.00	1.48
27.50	0.58	0.50	1.16	1.48	0.00	1.48
27.55	0.57	0.50	1.14	1.48	0.00	1.48
27.60	0.56	0.50	1.12	1.48	0.00	1.48
27.65	0.55	0.50	1.10	1.48	0.00	1.48
27.70	0.54	0.50	1.09	1.48	0.00	1.48
27.75	0.53	0.50	1.07	1.48	0.00	1.48
27.80	0.53	0.50	1.06	1.48	0.00	1.48
27.85	0.52	0.50	1.05	1.47	0.00	1.47
27.90	0.55	0.50	1.11	1.47	0.00	1.47
27.95	0.54	0.50	1.09	1.47	0.00	1.47
28.00	0.54	0.50	1.08	1.47	0.00	1.47
28.05	0.53	0.50	1.06	1.47	0.00	1.47
28.10	0.52	0.50	1.05	1.47	0.00	1.47
28.15	0.52	0.50	1.04	1.47	0.00	1.47
28.20	0.51	0.50	1.03	1.46	0.00	1.46
28.25	0.51	0.50	1.01	1.46	0.00	1.46
28.30	0.50	0.50	1.00	1.46	0.00	1.46

28.35	0.50	0.50	0.99*	1.46	0.00	1.46
28.40	0.49	0.50	0.98*	1.45	0.00	1.45
28.45	0.49	0.50	0.97*	1.45	0.00	1.45
28.50	0.48	0.50	0.96*	1.45	0.00	1.45
28.55	0.48	0.50	0.95*	1.44	0.00	1.44
28.60	0.47	0.50	0.94*	1.44	0.00	1.44
28.65	0.47	0.50	0.93*	1.43	0.00	1.43
28.70	0.46	0.50	0.92*	1.43	0.00	1.43
28.75	0.46	0.50	0.91*	1.42	0.00	1.42
28.80	0.46	0.50	0.90*	1.42	0.00	1.42
28.85	0.45	0.50	0.90*	1.41	0.00	1.41
28.90	0.45	0.50	0.89*	1.41	0.00	1.41
28.95	0.44	0.50	0.88*	1.40	0.00	1.40
29.00	0.44	0.50	0.87*	1.39	0.00	1.39
29.05	0.44	0.50	0.86*	1.39	0.00	1.39
29.10	0.43	0.51	0.85*	1.38	0.00	1.38
29.15	0.43	0.51	0.85*	1.38	0.00	1.38
29.20	0.42	0.51	0.84*	1.37	0.00	1.37
29.25	0.42	0.51	0.83*	1.36	0.00	1.36
29.30	0.42	0.51	0.82*	1.36	0.00	1.36
29.35	0.41	0.51	0.82*	1.35	0.00	1.35
29.40	0.41	0.51	0.81*	1.34	0.00	1.34
29.45	0.41	0.51	0.80*	1.34	0.00	1.34
29.50	0.40	0.51	0.80*	1.33	0.00	1.33
29.55	0.40	0.51	0.79*	1.32	0.00	1.32
29.60	0.40	0.51	0.78*	1.32	0.00	1.32
29.65	0.39	0.51	0.78*	1.31	0.00	1.31
29.70	0.39	0.51	0.77*	1.30	0.00	1.30
29.75	0.39	0.51	0.76*	1.30	0.00	1.30
29.80	0.38	0.51	0.76*	1.29	0.00	1.29
29.85	0.38	0.51	0.75*	1.28	0.00	1.28
29.90	0.38	0.51	0.74*	1.27	0.00	1.27
29.95	0.38	0.51	0.74*	1.27	0.00	1.27
30.00	0.37	0.51	0.73*	1.26	0.00	1.26
30.05	0.37	0.51	0.73*	1.25	0.00	1.25
30.10	0.37	0.51	0.72*	1.24	0.00	1.24
30.15	0.36	0.51	0.71*	1.24	0.00	1.24
30.20	0.36	0.51	0.71*	1.23	0.00	1.23
30.25	0.36	0.51	0.70*	1.22	0.00	1.22
30.30	0.36	0.51	0.70*	1.21	0.00	1.21
30.35	0.35	0.51	0.69*	1.21	0.00	1.21
30.40	0.35	0.51	0.69*	1.20	0.00	1.20
30.45	0.35	0.51	0.68*	1.19	0.00	1.19
30.50	0.34	0.51	0.67*	1.18	0.00	1.18
30.55	0.34	0.51	0.67*	1.17	0.00	1.17
30.60	0.34	0.51	0.66*	1.16	0.00	1.16
30.65	0.34	0.51	0.66*	1.16	0.00	1.16
30.70	0.33	0.51	0.65*	1.15	0.00	1.15
30.75	0.33	0.51	0.65*	1.14	0.00	1.14
30.80	0.33	0.51	0.64*	1.13	0.00	1.13
30.85	0.33	0.51	0.64*	1.12	0.00	1.12
30.90	0.32	0.51	0.63*	1.11	0.00	1.11
30.95	0.32	0.51	0.63*	1.10	0.00	1.10
31.00	0.32	0.51	0.62*	1.10	0.00	1.10

31.05	0.32	0.51	0.63*	1.09	0.00	1.09
31.10	0.32	0.51	0.63*	1.08	0.00	1.08
31.15	0.32	0.51	0.63*	1.07	0.00	1.07
31.20	0.32	0.51	0.63*	1.06	0.00	1.06
31.25	0.32	0.51	0.63*	1.05	0.00	1.05
31.30	0.33	0.51	0.64*	1.04	0.00	1.04
31.35	0.33	0.51	0.64*	1.03	0.00	1.03
31.40	0.33	0.51	0.64*	1.03	0.00	1.03
31.45	0.33	0.51	0.64*	1.02	0.00	1.02
31.50	0.33	0.51	0.65*	1.01	0.00	1.01
31.55	0.33	0.51	0.65*	1.00	0.00	1.00
31.60	0.33	0.51	0.65*	0.99	0.00	0.99
31.65	0.33	0.51	0.65*	0.98	0.00	0.98
31.70	0.34	0.51	0.66*	0.97	0.00	0.97
31.75	0.34	0.51	0.66*	0.97	0.00	0.97
31.80	0.34	0.51	0.66*	0.96	0.00	0.96
31.85	0.34	0.51	0.66*	0.95	0.00	0.95
31.90	0.34	0.51	0.67*	0.94	0.00	0.94
31.95	0.34	0.51	0.67*	0.93	0.00	0.93
32.00	0.34	0.51	0.67*	0.92	0.00	0.92
32.05	0.35	0.51	0.68*	0.92	0.00	0.92
32.10	0.35	0.51	0.68*	0.91	0.00	0.91
32.15	0.35	0.51	0.68*	0.90	0.00	0.90
32.20	0.35	0.51	0.69*	0.89	0.00	0.89
32.25	0.35	0.51	0.69*	0.88	0.00	0.88
32.30	0.35	0.51	0.69*	0.87	0.00	0.87
32.35	0.36	0.51	0.69*	0.87	0.00	0.87
32.40	0.36	0.51	0.70*	0.86	0.00	0.86
32.45	0.36	0.51	0.70*	0.85	0.00	0.85
32.50	0.36	0.51	0.70*	0.84	0.00	0.84
32.55	0.36	0.51	0.70*	0.83	0.00	0.83
32.60	0.36	0.51	0.71*	0.83	0.00	0.83
32.65	0.36	0.51	0.71*	0.82	0.00	0.82
32.70	0.36	0.51	0.71*	0.81	0.00	0.81
32.75	0.37	0.51	0.71*	0.80	0.00	0.80
32.80	0.37	0.51	0.72*	0.80	0.00	0.80
32.85	0.37	0.51	0.72*	0.79	0.00	0.79
32.90	0.37	0.51	0.72*	0.78	0.00	0.78
32.95	0.37	0.51	0.72*	0.77	0.00	0.77
33.00	0.37	0.51	0.73*	0.77	0.00	0.77
33.05	0.37	0.51	0.73*	0.76	0.00	0.76
33.10	0.38	0.51	0.73*	0.75	0.00	0.75
33.15	0.38	0.51	0.74*	0.74	0.00	0.74
33.20	0.38	0.51	0.74*	0.73	0.00	0.73
33.25	0.38	0.51	0.74*	0.73	0.00	0.73
33.30	0.38	0.51	0.74*	0.72	0.00	0.72
33.35	0.38	0.51	0.75*	0.71	0.00	0.71
33.40	0.38	0.51	0.75*	0.71	0.00	0.71
33.45	0.39	0.51	0.75*	0.70	0.00	0.70
33.50	0.39	0.51	0.76*	0.69	0.00	0.69
33.55	0.39	0.51	0.76*	0.68	0.00	0.68
33.60	0.39	0.51	0.76*	0.68	0.00	0.68
33.65	0.39	0.51	0.76*	0.67	0.00	0.67
33.70	0.39	0.51	0.77*	0.66	0.00	0.66

33.75	0.39	0.51	0.77*	0.66	0.00	0.66
33.80	0.40	0.51	0.77*	0.65	0.00	0.65
33.85	0.40	0.51	0.78*	0.64	0.00	0.64
33.90	0.40	0.51	0.78*	0.63	0.00	0.63
33.95	0.40	0.51	0.78*	0.63	0.00	0.63
34.00	0.40	0.51	0.79*	0.62	0.00	0.62
34.05	0.40	0.51	0.79*	0.61	0.00	0.61
34.10	0.41	0.51	0.79*	0.61	0.00	0.61
34.15	0.41	0.51	0.79*	0.60	0.00	0.60
34.20	0.41	0.51	0.80*	0.59	0.00	0.59
34.25	0.41	0.51	0.80*	0.59	0.00	0.59
34.30	0.41	0.51	0.80*	0.58	0.00	0.58
34.35	0.41	0.51	0.81*	0.57	0.00	0.57
34.40	0.42	0.51	0.81*	0.57	0.00	0.57
34.45	0.42	0.51	0.81*	0.56	0.00	0.56
34.50	0.42	0.51	0.82*	0.55	0.00	0.55
34.55	0.42	0.51	0.82*	0.55	0.00	0.55
34.60	0.42	0.51	0.82*	0.54	0.00	0.54
34.65	0.42	0.51	0.83*	0.53	0.00	0.53
34.70	0.43	0.51	0.83*	0.53	0.00	0.53
34.75	0.43	0.51	0.83*	0.52	0.00	0.52
34.80	0.43	0.51	0.84*	0.51	0.00	0.51
34.85	0.43	0.51	0.84*	0.51	0.00	0.51
34.90	0.43	0.51	0.84*	0.50	0.00	0.50
34.95	0.43	0.51	0.85*	0.50	0.00	0.50
35.00	0.44	0.51	0.85*	0.49	0.00	0.49
35.05	0.44	0.51	0.86*	0.48	0.00	0.48
35.10	0.44	0.51	0.86*	0.48	0.00	0.48
35.15	0.44	0.51	0.86*	0.47	0.00	0.47
35.20	0.44	0.51	0.87*	0.46	0.00	0.46
35.25	0.45	0.51	0.87*	0.46	0.00	0.46
35.30	0.45	0.51	0.87*	0.45	0.00	0.45
35.35	0.45	0.51	0.88*	0.45	0.00	0.45
35.40	0.45	0.51	0.88*	0.44	0.00	0.44
35.45	0.45	0.51	0.89*	0.43	0.00	0.43
35.50	0.46	0.51	0.89*	0.43	0.00	0.43
35.55	0.46	0.51	0.89*	0.42	0.00	0.42
35.60	0.46	0.51	0.90*	0.42	0.00	0.42
35.65	0.46	0.51	0.90*	0.41	0.00	0.41
35.70	0.46	0.51	0.91*	0.41	0.00	0.41
35.75	0.47	0.51	0.91*	0.40	0.00	0.40
35.80	0.47	0.51	0.92*	0.40	0.00	0.40
35.85	0.47	0.51	0.92*	0.39	0.00	0.39
35.90	0.47	0.51	0.92*	0.39	0.00	0.39
35.95	0.48	0.51	0.93*	0.38	0.00	0.38
36.00	0.48	0.51	0.93*	0.38	0.00	0.38
36.05	0.48	0.51	0.93*	0.37	0.00	0.37
36.10	0.48	0.51	0.93*	0.37	0.00	0.37
36.15	0.48	0.51	0.94*	0.37	0.00	0.37
36.20	0.48	0.51	0.94*	0.36	0.00	0.36
36.25	0.48	0.51	0.94*	0.36	0.00	0.36
36.30	0.48	0.51	0.94*	0.35	0.00	0.35
36.35	0.48	0.51	0.94*	0.35	0.00	0.35
36.40	0.48	0.51	0.94*	0.34	0.00	0.34

36.45	0.48	0.51	0.94*	0.34	0.00	0.34
36.50	0.48	0.51	0.94*	0.34	0.00	0.34
36.55	0.48	0.51	0.94*	0.33	0.00	0.33
36.60	0.48	0.51	0.94*	0.33	0.00	0.33
36.65	0.48	0.51	0.94*	0.32	0.00	0.32
36.70	0.48	0.51	0.94*	0.32	0.00	0.32
36.75	0.48	0.51	0.94*	0.31	0.00	0.31
36.80	0.48	0.51	0.95*	0.31	0.00	0.31
36.85	0.48	0.51	0.95*	0.31	0.00	0.31
36.90	0.48	0.51	0.95*	0.30	0.00	0.30
36.95	0.49	0.51	0.95*	0.30	0.00	0.30
37.00	0.49	0.51	0.95*	0.29	0.00	0.29
37.05	0.49	0.51	0.95*	0.29	0.00	0.29
37.10	0.49	0.51	0.95*	0.29	0.00	0.29
37.15	0.49	0.51	0.95*	0.28	0.00	0.28
37.20	0.49	0.51	0.95*	0.28	0.00	0.28
37.25	0.49	0.51	0.95*	0.27	0.00	0.27
37.30	0.49	0.51	0.95*	0.27	0.00	0.27
37.35	0.49	0.51	0.95*	0.27	0.00	0.27
37.40	0.49	0.51	0.96*	0.26	0.00	0.26
37.45	0.49	0.51	0.96*	0.26	0.00	0.26
37.50	0.49	0.51	0.96*	0.25	0.00	0.25
37.55	0.49	0.51	0.96*	0.25	0.00	0.25
37.60	0.49	0.51	0.96*	0.25	0.00	0.25
37.65	0.49	0.51	0.96*	0.24	0.00	0.24
37.70	0.49	0.51	0.96*	0.24	0.00	0.24
37.75	0.49	0.51	0.96*	0.24	0.00	0.24
37.80	0.49	0.51	0.96*	0.23	0.00	0.23
37.85	0.49	0.51	0.96*	0.23	0.00	0.23
37.90	0.49	0.51	0.96*	0.23	0.00	0.23
37.95	0.49	0.51	0.97*	0.22	0.00	0.22
38.00	0.49	0.51	0.97*	0.22	0.00	0.22
38.05	0.49	0.51	0.97*	0.21	0.00	0.21
38.10	0.49	0.51	0.97*	0.21	0.00	0.21
38.15	0.49	0.51	0.97*	0.21	0.00	0.21
38.20	0.50	0.51	0.97*	0.20	0.00	0.20
38.25	0.50	0.51	0.97*	0.20	0.00	0.20
38.30	0.50	0.51	0.97*	0.20	0.00	0.20
38.35	0.50	0.51	0.97*	0.19	0.00	0.19
38.40	0.50	0.51	0.97*	0.19	0.00	0.19
38.45	0.50	0.51	0.97*	0.19	0.00	0.19
38.50	0.50	0.51	0.98*	0.18	0.00	0.18
38.55	0.50	0.51	0.98*	0.18	0.00	0.18
38.60	0.50	0.51	0.98*	0.18	0.00	0.18
38.65	0.50	0.51	0.98*	0.17	0.00	0.17
38.70	0.50	0.51	0.98*	0.17	0.00	0.17
38.75	0.50	0.51	0.98*	0.17	0.00	0.17
38.80	0.50	0.51	0.98*	0.16	0.00	0.16
38.85	0.50	0.51	0.98*	0.16	0.00	0.16
38.90	0.50	0.51	0.98*	0.16	0.00	0.16
38.95	0.50	0.51	0.98*	0.15	0.00	0.15
39.00	0.50	0.51	0.99*	0.15	0.00	0.15
39.05	0.50	0.51	0.99*	0.15	0.00	0.15
39.10	0.50	0.51	0.99*	0.14	0.00	0.14

39.15	0.50	0.51	0.99*	0.14	0.00	0.14
39.20	0.50	0.51	0.99*	0.14	0.00	0.14
39.25	0.50	0.51	0.99*	0.14	0.00	0.14
39.30	0.50	0.51	0.99*	0.13	0.00	0.13
39.35	0.51	0.51	0.99*	0.13	0.00	0.13
39.40	0.51	0.51	0.99*	0.13	0.00	0.13
39.45	0.51	0.51	0.99*	0.12	0.00	0.12
39.50	0.51	0.51	0.99*	0.12	0.00	0.12
39.55	0.51	0.51	1.00*	0.12	0.00	0.12
39.60	0.51	0.51	1.00*	0.12	0.00	0.12
39.65	0.51	0.51	1.00*	0.11	0.00	0.11
39.70	0.51	0.51	1.00*	0.11	0.00	0.11
39.75	0.51	0.51	1.00	0.11	0.00	0.11
39.80	0.51	0.51	1.00	0.10	0.00	0.10
39.85	0.51	0.51	1.00	0.10	0.00	0.10
39.90	0.51	0.51	1.00	0.10	0.00	0.10
39.95	0.51	0.51	1.00	0.10	0.00	0.10
40.00	0.51	0.51	1.01	0.09	0.00	0.09
40.05	0.51	0.51	1.01	0.09	0.00	0.09
40.10	0.51	0.51	1.01	0.09	0.00	0.09
40.15	0.51	0.51	1.01	0.09	0.00	0.09
40.20	0.51	0.51	1.01	0.08	0.00	0.08
40.25	0.51	0.51	1.01	0.08	0.00	0.08
40.30	0.51	0.51	1.01	0.08	0.00	0.08
40.35	0.51	0.51	1.01	0.08	0.00	0.08
40.40	0.51	0.51	1.01	0.07	0.00	0.07
40.45	0.52	0.51	1.02	0.07	0.00	0.07
40.50	0.52	0.51	1.02	0.07	0.00	0.07
40.55	0.52	0.51	1.02	0.07	0.00	0.07
40.60	0.52	0.51	1.02	0.07	0.00	0.07
40.65	0.52	0.51	1.02	0.06	0.00	0.06
40.70	0.52	0.51	1.02	0.06	0.00	0.06
40.75	0.52	0.51	1.02	0.06	0.00	0.06
40.80	0.52	0.51	1.02	0.06	0.00	0.06
40.85	0.52	0.51	1.02	0.06	0.00	0.06
40.90	0.52	0.51	1.03	0.05	0.00	0.05
40.95	0.52	0.51	1.03	0.05	0.00	0.05
41.00	0.52	0.51	1.03	0.05	0.00	0.05
41.05	0.52	0.51	1.03	0.05	0.00	0.05
41.10	0.53	0.51	1.04	0.05	0.00	0.05
41.15	0.53	0.51	1.04	0.04	0.00	0.04
41.20	0.53	0.51	1.05	0.04	0.00	0.04
41.25	0.53	0.51	1.05	0.04	0.00	0.04
41.30	0.54	0.51	1.06	0.04	0.00	0.04
41.35	0.54	0.51	1.06	0.04	0.00	0.04
41.40	0.54	0.51	1.07	0.04	0.00	0.04
41.45	0.54	0.51	1.07	0.04	0.00	0.04
41.50	0.55	0.51	1.08	0.03	0.00	0.03
41.55	0.55	0.51	1.08	0.03	0.00	0.03
41.60	0.55	0.51	1.09	0.03	0.00	0.03
41.65	0.56	0.51	1.10	0.03	0.00	0.03
41.70	0.56	0.51	1.10	0.03	0.00	0.03
41.75	0.56	0.51	1.11	0.03	0.00	0.03
41.80	0.57	0.51	1.12	0.03	0.00	0.03

41.85	0.57	0.51	1.13	0.03	0.00	0.03
41.90	0.57	0.51	1.13	0.03	0.00	0.03
41.95	0.58	0.51	1.14	0.03	0.00	0.03
42.00	0.58	0.51	1.15	0.02	0.00	0.02
42.05	0.59	0.51	1.16	0.02	0.00	0.02
42.10	0.59	0.50	1.17	0.02	0.00	0.02
42.15	0.60	0.50	1.18	0.02	0.00	0.02
42.20	0.60	0.50	1.19	0.02	0.00	0.02
42.25	0.61	0.50	1.21	0.02	0.00	0.02
42.30	0.62	0.50	1.22	0.02	0.00	0.02
42.35	0.63	0.50	1.24	0.02	0.00	0.02
42.40	0.63	0.50	1.26	0.02	0.00	0.02
42.45	0.65	0.50	1.28	0.02	0.00	0.02
42.50	0.66	0.50	1.31	0.01	0.00	0.01
42.55	0.68	0.50	1.34	0.01	0.00	0.01
42.60	0.70	0.50	1.38	0.01	0.00	0.01
42.65	0.72	0.50	1.43	0.01	0.00	0.01
42.70	0.73	0.50	1.45	0.01	0.00	0.01
42.75	0.73	0.50	1.45	0.01	0.00	0.01
42.80	0.73	0.50	1.45	0.01	0.00	0.01
42.85	0.73	0.50	1.45	0.01	0.00	0.01
42.90	0.73	0.50	1.45	0.01	0.00	0.01
42.95	0.73	0.50	1.45	0.01	0.00	0.01
43.00	0.73	0.50	1.45	0.01	0.00	0.01
43.05	0.73	0.50	1.45	0.01	0.00	0.01
43.10	0.73	0.50	1.45	0.01	0.00	0.01
43.15	0.73	0.50	1.45	0.00	0.00	0.00
43.20	0.73	0.50	1.45	0.00	0.00	0.00
43.25	0.73	0.50	1.45	0.00	0.00	0.00
43.30	0.73	0.50	1.45	0.00	0.00	0.00
43.35	0.73	0.50	1.45	0.00	0.00	0.00
43.40	0.73	0.50	1.45	0.00	0.00	0.00
43.45	0.73	0.50	1.45	0.00	0.00	0.00
43.50	0.73	0.50	1.45	0.00	0.00	0.00
43.55	0.73	0.50	1.45	0.00	0.00	0.00
43.60	0.73	0.50	1.45	0.00	0.00	0.00
43.65	0.73	0.50	1.45	0.00	0.00	0.00
43.70	0.73	0.50	1.45	0.00	0.00	0.00
43.75	0.73	0.50	1.45	0.00	0.00	0.00
43.80	0.73	0.50	1.45	0.00	0.00	0.00
43.85	0.73	0.50	1.45	0.00	0.00	0.00
43.90	0.73	0.50	1.45	0.00	0.00	0.00
43.95	0.73	0.50	1.45	0.00	0.00	0.00
44.00	0.73	0.50	1.45	0.00	0.00	0.00
44.05	0.73	0.50	1.45	0.00	0.00	0.00
44.10	0.73	0.50	1.45	0.00	0.00	0.00
44.15	0.73	0.50	1.46	0.00	0.00	0.00
44.20	0.73	0.50	1.46	0.00	0.00	0.00
44.25	0.73	0.50	1.46	0.00	0.00	0.00
44.30	0.73	0.50	1.46	0.00	0.00	0.00
44.35	0.73	0.50	1.46	0.00	0.00	0.00
44.40	0.73	0.50	1.46	0.00	0.00	0.00
44.45	0.73	0.50	1.46	0.00	0.00	0.00
44.50	0.73	0.50	1.46	0.00	0.00	0.00

44.55	0.73	0.50	1.46	0.00	0.00	0.00
44.60	0.73	0.50	1.46	0.00	0.00	0.00
44.65	0.73	0.50	1.46	0.00	0.00	0.00
44.70	0.73	0.50	1.46	0.00	0.00	0.00
44.75	0.73	0.50	1.46	0.00	0.00	0.00
44.80	0.73	0.50	1.46	0.00	0.00	0.00
44.85	0.73	0.50	1.46	0.00	0.00	0.00
44.90	0.73	0.50	1.46	0.00	0.00	0.00
44.95	0.73	0.50	1.46	0.00	0.00	0.00
45.00	0.73	0.50	1.46	0.00	0.00	0.00
45.05	0.73	0.50	1.46	0.00	0.00	0.00
45.10	0.73	0.50	1.46	0.00	0.00	0.00
45.15	0.73	0.50	1.46	0.00	0.00	0.00
45.20	0.73	0.50	1.46	0.00	0.00	0.00
45.25	0.73	0.50	1.46	0.00	0.00	0.00
45.30	0.73	0.50	1.46	0.00	0.00	0.00
45.35	0.73	0.50	1.46	0.00	0.00	0.00
45.40	0.73	0.50	1.46	0.00	0.00	0.00
45.45	0.73	0.50	1.46	0.00	0.00	0.00
45.50	0.73	0.50	1.46	0.00	0.00	0.00
45.55	0.73	0.50	1.46	0.00	0.00	0.00
45.60	0.73	0.50	1.46	0.00	0.00	0.00
45.65	0.73	0.50	1.46	0.00	0.00	0.00
45.70	0.73	0.50	1.46	0.00	0.00	0.00
45.75	0.73	0.50	1.46	0.00	0.00	0.00
45.80	0.73	0.50	1.46	0.00	0.00	0.00
45.85	0.72	0.50	1.46	0.00	0.00	0.00
45.90	0.72	0.50	1.46	0.00	0.00	0.00
45.95	0.72	0.50	1.46	0.00	0.00	0.00
46.00	0.72	0.50	1.46	0.00	0.00	0.00
46.05	0.72	0.50	1.46	0.00	0.00	0.00
46.10	0.72	0.50	1.46	0.00	0.00	0.00
46.15	0.72	0.50	1.46	0.00	0.00	0.00
46.20	0.72	0.50	1.46	0.00	0.00	0.00
46.25	0.72	0.50	1.46	0.00	0.00	0.00
46.30	0.72	0.50	1.46	0.00	0.00	0.00
46.35	0.72	0.50	1.46	0.00	0.00	0.00
46.40	0.72	0.50	1.46	0.00	0.00	0.00
46.45	0.72	0.50	1.46	0.00	0.00	0.00
46.50	0.72	0.50	1.46	0.00	0.00	0.00
46.55	0.72	0.50	1.46	0.00	0.00	0.00
46.60	0.72	0.50	1.46	0.00	0.00	0.00
46.65	0.72	0.49	1.46	0.00	0.00	0.00
46.70	0.72	0.49	1.46	0.00	0.00	0.00
46.75	0.72	0.49	1.46	0.00	0.00	0.00
46.80	0.72	0.49	1.46	0.00	0.00	0.00
46.85	0.72	0.49	1.46	0.00	0.00	0.00
46.90	0.72	0.49	1.46	0.00	0.00	0.00
46.95	0.72	0.49	1.46	0.00	0.00	0.00
47.00	0.72	0.49	1.46	0.00	0.00	0.00
47.05	0.72	0.49	1.46	0.00	0.00	0.00
47.10	0.72	0.49	1.46	0.00	0.00	0.00
47.15	0.72	0.49	1.46	0.00	0.00	0.00
47.20	0.72	0.49	1.46	0.00	0.00	0.00

47.25	0.72	0.49	1.46	0.00	0.00	0.00
47.30	0.72	0.49	1.46	0.00	0.00	0.00
47.35	0.72	0.49	1.46	0.00	0.00	0.00
47.40	0.72	0.49	1.46	0.00	0.00	0.00
47.45	0.72	0.49	1.46	0.00	0.00	0.00
47.50	0.72	0.49	1.46	0.00	0.00	0.00
47.55	0.72	0.49	1.46	0.00	0.00	0.00
47.60	0.72	0.49	1.46	0.00	0.00	0.00
47.65	0.72	0.49	1.46	0.00	0.00	0.00
47.70	0.72	0.49	1.46	0.00	0.00	0.00
47.75	0.72	0.49	1.46	0.00	0.00	0.00
47.80	0.72	0.49	1.46	0.00	0.00	0.00
47.85	0.72	0.49	1.46	0.00	0.00	0.00
47.90	0.72	0.49	1.47	0.00	0.00	0.00
47.95	0.72	0.49	1.47	0.00	0.00	0.00
48.00	0.72	0.49	1.47	0.00	0.00	0.00
48.05	0.72	0.49	1.47	0.00	0.00	0.00
48.10	0.72	0.49	1.47	0.00	0.00	0.00
48.15	0.72	0.49	1.47	0.00	0.00	0.00
48.20	0.72	0.49	1.47	0.00	0.00	0.00
48.25	0.72	0.49	1.47	0.00	0.00	0.00
48.30	0.72	0.49	1.47	0.00	0.00	0.00
48.35	0.72	0.49	1.47	0.00	0.00	0.00
48.40	0.72	0.49	1.47	0.00	0.00	0.00
48.45	0.72	0.49	1.47	0.00	0.00	0.00
48.50	0.72	0.49	1.47	0.00	0.00	0.00
48.55	0.72	0.49	1.47	0.00	0.00	0.00
48.60	0.72	0.49	1.47	0.00	0.00	0.00
48.65	0.72	0.49	1.47	0.00	0.00	0.00
48.70	0.72	0.49	1.47	0.00	0.00	0.00
48.75	0.72	0.49	1.47	0.00	0.00	0.00
48.80	0.72	0.49	1.47	0.00	0.00	0.00
48.85	0.72	0.49	1.47	0.00	0.00	0.00
48.90	0.72	0.49	1.47	0.00	0.00	0.00
48.95	0.72	0.49	1.47	0.00	0.00	0.00
49.00	0.72	0.49	1.47	0.00	0.00	0.00
49.05	0.72	0.49	1.47	0.00	0.00	0.00
49.10	0.72	0.49	1.47	0.00	0.00	0.00
49.15	0.72	0.49	1.47	0.00	0.00	0.00
49.20	0.72	0.49	1.47	0.00	0.00	0.00
49.25	0.72	0.49	1.47	0.00	0.00	0.00
49.30	0.72	0.49	1.47	0.00	0.00	0.00
49.35	0.72	0.49	1.47	0.00	0.00	0.00
49.40	0.72	0.49	1.47	0.00	0.00	0.00
49.45	0.72	0.49	1.47	0.00	0.00	0.00
49.50	0.72	0.49	1.47	0.00	0.00	0.00
49.55	0.72	0.49	1.47	0.00	0.00	0.00
49.60	0.72	0.49	1.47	0.00	0.00	0.00
49.65	0.72	0.49	1.47	0.00	0.00	0.00
49.70	0.72	0.49	1.47	0.00	0.00	0.00
49.75	0.72	0.49	1.47	0.00	0.00	0.00
49.80	0.72	0.49	1.47	0.00	0.00	0.00
49.85	0.72	0.49	1.47	0.00	0.00	0.00
49.90	0.72	0.49	1.47	0.00	0.00	0.00

49.95	0.72	0.49	1.47	0.00	0.00	0.00
50.00	0.72	0.49	1.47	0.00	0.00	0.00
50.05	0.72	0.49	1.47	0.00	0.00	0.00
50.10	0.72	0.49	1.47	0.00	0.00	0.00
50.15	0.72	0.49	1.47	0.00	0.00	0.00
50.20	0.72	0.49	1.47	0.00	0.00	0.00
50.25	0.72	0.48	1.47	0.00	0.00	0.00
50.30	0.71	0.48	1.48	0.00	0.00	0.00
50.35	0.71	0.48	1.48	0.00	0.00	0.00
50.40	0.71	0.48	1.48	0.00	0.00	0.00
50.45	0.71	0.48	1.48	0.00	0.00	0.00
50.50	0.71	0.48	1.48	0.00	0.00	0.00
50.55	0.71	0.48	1.48	0.00	0.00	0.00
50.60	0.71	0.48	1.48	0.00	0.00	0.00
50.65	0.71	0.48	1.48	0.00	0.00	0.00
50.70	0.71	0.48	1.48	0.00	0.00	0.00
50.75	0.71	0.48	1.48	0.00	0.00	0.00
50.80	0.71	0.48	1.48	0.00	0.00	0.00
50.85	0.71	0.48	1.48	0.00	0.00	0.00
50.90	0.71	0.48	1.48	0.00	0.00	0.00
50.95	0.71	0.48	1.48	0.00	0.00	0.00
51.00	0.71	0.48	1.48	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

1 atm (atmosphere) = 1 tsf (ton/ft2)

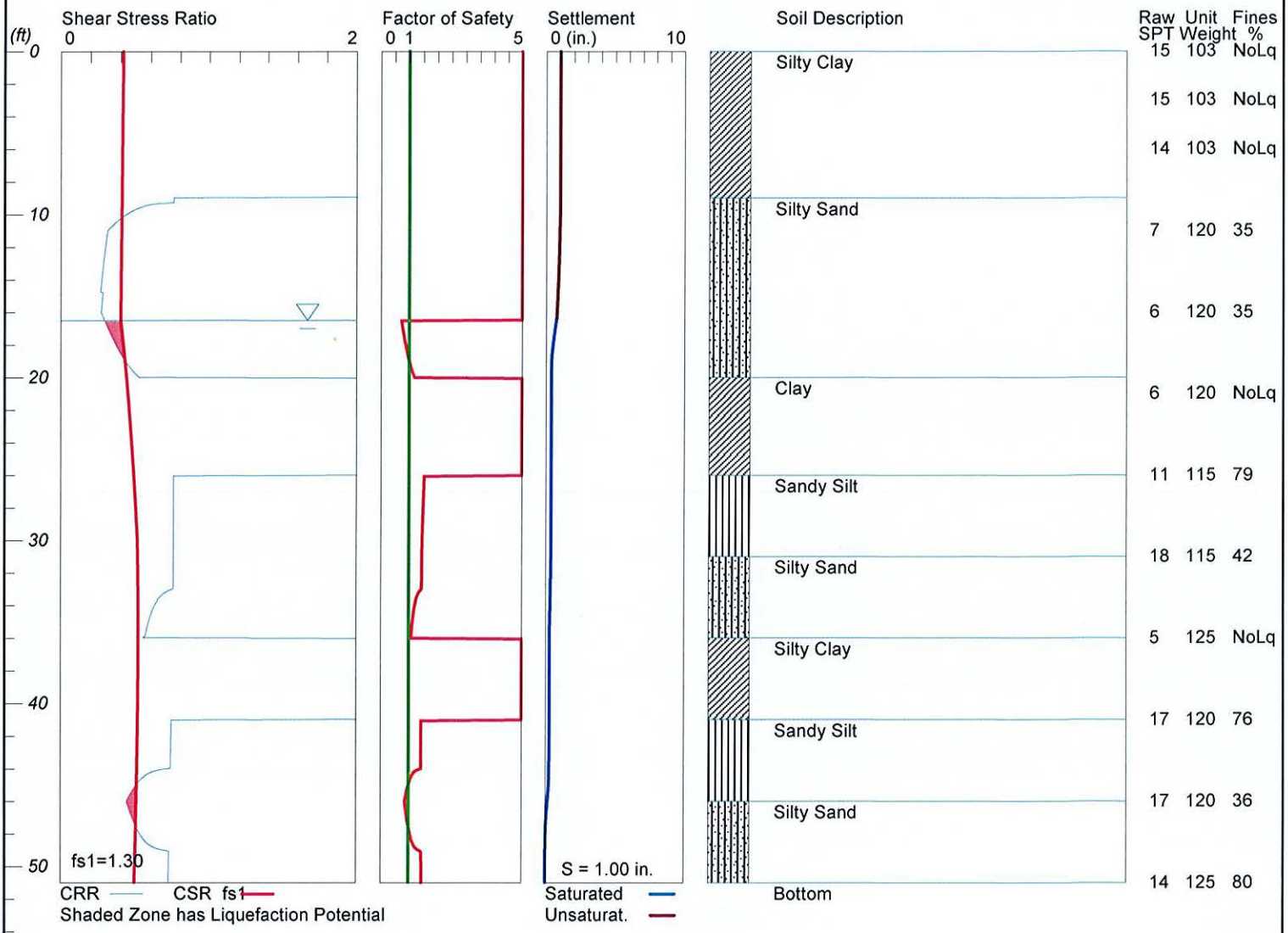
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

FSD Site #5

Hole No.=B-2 Water Depth=16.5 ft

Magnitude=6.39
Acceleration=0.492g



Raw SPT	Unit Weight	Fines %
15	103	NoLq
15	103	NoLq
14	103	NoLq
7	120	35
6	120	35
6	120	NoLq
11	115	79
18	115	42
5	125	NoLq
17	120	76
17	120	36
14	125	80

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LIQUEFACTION ANALYSIS SUMMARY
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Input File Name: O:\b. PROJECT FILES (ACTIVE)\18500-18599\18503 Fairfax SD New Site #5 PEA & Title V Oswell & Zephyr\Office\GeoHazard\LiquefyPro files\18503 B-2 LiquefyPro.liq
Title: FSD Site #5
Subtitle: 18503 - B2

Surface Elev.=
Hole No.=B-2
Depth of Hole= 51.00 ft
Water Table during Earthquake= 16.50 ft
Water Table during In-Situ Testing= 24.00 ft
Max. Acceleration= 0.49 g
Earthquake Magnitude= 6.39

Input Data:
Surface Elev.=
Hole No.=B-2
Depth of Hole=51.00 ft
Water Table during Earthquake= 16.50 ft
Water Table during In-Situ Testing= 24.00 ft
Max. Acceleration=0.49 g
Earthquake Magnitude=6.39
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu, M-correction
3. Fines Correction for Liquefaction: Modify Stark/Olson
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	15.00	103.00	NoLiq
3.00	15.00	103.00	NoLiq
6.00	14.00	103.00	NoLiq
11.00	7.00	120.00	35.00
16.00	6.00	120.00	35.00
21.00	6.00	120.00	NoLiq
26.00	11.00	115.00	79.00
31.00	18.00	115.00	42.00
36.00	5.00	125.00	NoLiq
41.00	17.00	120.00	76.00
46.00	17.00	120.00	36.00
51.00	14.00	125.00	80.00

Output Results:

Settlement of Saturated Sands=0.75 in.
Settlement of Unsaturated Sands=0.25 in.
Total Settlement of Saturated and Unsaturated Sands=1.00 in.
Differential Settlement=0.500 to 0.660 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.42	5.00	0.75	0.25	1.00
0.05	2.00	0.42	5.00	0.75	0.25	1.00
0.10	2.00	0.42	5.00	0.75	0.25	1.00
0.15	2.00	0.42	5.00	0.75	0.25	1.00
0.20	2.00	0.42	5.00	0.75	0.25	1.00
0.25	2.00	0.42	5.00	0.75	0.25	1.00
0.30	2.00	0.42	5.00	0.75	0.25	1.00
0.35	2.00	0.42	5.00	0.75	0.25	1.00
0.40	2.00	0.42	5.00	0.75	0.25	1.00
0.45	2.00	0.42	5.00	0.75	0.25	1.00
0.50	2.00	0.42	5.00	0.75	0.25	1.00
0.55	2.00	0.42	5.00	0.75	0.25	1.00
0.60	2.00	0.42	5.00	0.75	0.25	1.00
0.65	2.00	0.42	5.00	0.75	0.25	1.00
0.70	2.00	0.42	5.00	0.75	0.25	1.00
0.75	2.00	0.42	5.00	0.75	0.25	1.00
0.80	2.00	0.41	5.00	0.75	0.25	1.00
0.85	2.00	0.41	5.00	0.75	0.25	1.00
0.90	2.00	0.41	5.00	0.75	0.25	1.00
0.95	2.00	0.41	5.00	0.75	0.25	1.00
1.00	2.00	0.41	5.00	0.75	0.25	1.00
1.05	2.00	0.41	5.00	0.75	0.25	1.00
1.10	2.00	0.41	5.00	0.75	0.25	1.00
1.15	2.00	0.41	5.00	0.75	0.25	1.00
1.20	2.00	0.41	5.00	0.75	0.25	1.00
1.25	2.00	0.41	5.00	0.75	0.25	1.00
1.30	2.00	0.41	5.00	0.75	0.25	1.00

1.35	2.00	0.41	5.00	0.75	0.25	1.00
1.40	2.00	0.41	5.00	0.75	0.25	1.00
1.45	2.00	0.41	5.00	0.75	0.25	1.00
1.50	2.00	0.41	5.00	0.75	0.25	1.00
1.55	2.00	0.41	5.00	0.75	0.25	1.00
1.60	2.00	0.41	5.00	0.75	0.25	1.00
1.65	2.00	0.41	5.00	0.75	0.25	1.00
1.70	2.00	0.41	5.00	0.75	0.25	1.00
1.75	2.00	0.41	5.00	0.75	0.25	1.00
1.80	2.00	0.41	5.00	0.75	0.25	1.00
1.85	2.00	0.41	5.00	0.75	0.25	1.00
1.90	2.00	0.41	5.00	0.75	0.25	1.00
1.95	2.00	0.41	5.00	0.75	0.25	1.00
2.00	2.00	0.41	5.00	0.75	0.25	1.00
2.05	2.00	0.41	5.00	0.75	0.25	1.00
2.10	2.00	0.41	5.00	0.75	0.25	1.00
2.15	2.00	0.41	5.00	0.75	0.25	1.00
2.20	2.00	0.41	5.00	0.75	0.25	1.00
2.25	2.00	0.41	5.00	0.75	0.25	1.00
2.30	2.00	0.41	5.00	0.75	0.25	1.00
2.35	2.00	0.41	5.00	0.75	0.25	1.00
2.40	2.00	0.41	5.00	0.75	0.25	1.00
2.45	2.00	0.41	5.00	0.75	0.25	1.00
2.50	2.00	0.41	5.00	0.75	0.25	1.00
2.55	2.00	0.41	5.00	0.75	0.25	1.00
2.60	2.00	0.41	5.00	0.75	0.25	1.00
2.65	2.00	0.41	5.00	0.75	0.25	1.00
2.70	2.00	0.41	5.00	0.75	0.25	1.00
2.75	2.00	0.41	5.00	0.75	0.25	1.00
2.80	2.00	0.41	5.00	0.75	0.25	1.00
2.85	2.00	0.41	5.00	0.75	0.25	1.00
2.90	2.00	0.41	5.00	0.75	0.25	1.00
2.95	2.00	0.41	5.00	0.75	0.25	1.00
3.00	2.00	0.41	5.00	0.75	0.25	1.00
3.05	2.00	0.41	5.00	0.75	0.25	1.00
3.10	2.00	0.41	5.00	0.75	0.25	1.00
3.15	2.00	0.41	5.00	0.75	0.25	1.00
3.20	2.00	0.41	5.00	0.75	0.25	1.00
3.25	2.00	0.41	5.00	0.75	0.25	1.00
3.30	2.00	0.41	5.00	0.75	0.25	1.00
3.35	2.00	0.41	5.00	0.75	0.25	1.00
3.40	2.00	0.41	5.00	0.75	0.25	1.00
3.45	2.00	0.41	5.00	0.75	0.25	1.00
3.50	2.00	0.41	5.00	0.75	0.25	1.00
3.55	2.00	0.41	5.00	0.75	0.25	1.00
3.60	2.00	0.41	5.00	0.75	0.25	1.00
3.65	2.00	0.41	5.00	0.75	0.25	1.00
3.70	2.00	0.41	5.00	0.75	0.25	1.00
3.75	2.00	0.41	5.00	0.75	0.25	1.00
3.80	2.00	0.41	5.00	0.75	0.25	1.00
3.85	2.00	0.41	5.00	0.75	0.25	1.00
3.90	2.00	0.41	5.00	0.75	0.25	1.00
3.95	2.00	0.41	5.00	0.75	0.25	1.00
4.00	2.00	0.41	5.00	0.75	0.25	1.00

4.05	2.00	0.41	5.00	0.75	0.25	1.00
4.10	2.00	0.41	5.00	0.75	0.25	1.00
4.15	2.00	0.41	5.00	0.75	0.25	1.00
4.20	2.00	0.41	5.00	0.75	0.25	1.00
4.25	2.00	0.41	5.00	0.75	0.25	1.00
4.30	2.00	0.41	5.00	0.75	0.25	1.00
4.35	2.00	0.41	5.00	0.75	0.25	1.00
4.40	2.00	0.41	5.00	0.75	0.25	1.00
4.45	2.00	0.41	5.00	0.75	0.25	1.00
4.50	2.00	0.41	5.00	0.75	0.25	1.00
4.55	2.00	0.41	5.00	0.75	0.25	1.00
4.60	2.00	0.41	5.00	0.75	0.25	1.00
4.65	2.00	0.41	5.00	0.75	0.25	1.00
4.70	2.00	0.41	5.00	0.75	0.25	1.00
4.75	2.00	0.41	5.00	0.75	0.25	1.00
4.80	2.00	0.41	5.00	0.75	0.25	1.00
4.85	2.00	0.41	5.00	0.75	0.25	1.00
4.90	2.00	0.41	5.00	0.75	0.25	1.00
4.95	2.00	0.41	5.00	0.75	0.25	1.00
5.00	2.00	0.41	5.00	0.75	0.25	1.00
5.05	2.00	0.41	5.00	0.75	0.25	1.00
5.10	2.00	0.41	5.00	0.75	0.25	1.00
5.15	2.00	0.41	5.00	0.75	0.25	1.00
5.20	2.00	0.41	5.00	0.75	0.25	1.00
5.25	2.00	0.41	5.00	0.75	0.25	1.00
5.30	2.00	0.41	5.00	0.75	0.25	1.00
5.35	2.00	0.41	5.00	0.75	0.25	1.00
5.40	2.00	0.41	5.00	0.75	0.25	1.00
5.45	2.00	0.41	5.00	0.75	0.25	1.00
5.50	2.00	0.41	5.00	0.75	0.25	1.00
5.55	2.00	0.41	5.00	0.75	0.25	1.00
5.60	2.00	0.41	5.00	0.75	0.25	1.00
5.65	2.00	0.41	5.00	0.75	0.25	1.00
5.70	2.00	0.41	5.00	0.75	0.25	1.00
5.75	2.00	0.41	5.00	0.75	0.25	1.00
5.80	2.00	0.41	5.00	0.75	0.25	1.00
5.85	2.00	0.41	5.00	0.75	0.25	1.00
5.90	2.00	0.41	5.00	0.75	0.25	1.00
5.95	2.00	0.41	5.00	0.75	0.25	1.00
6.00	2.00	0.41	5.00	0.75	0.25	1.00
6.05	2.00	0.41	5.00	0.75	0.25	1.00
6.10	2.00	0.41	5.00	0.75	0.25	1.00
6.15	2.00	0.41	5.00	0.75	0.25	1.00
6.20	2.00	0.41	5.00	0.75	0.25	1.00
6.25	2.00	0.41	5.00	0.75	0.25	1.00
6.30	2.00	0.41	5.00	0.75	0.25	1.00
6.35	2.00	0.41	5.00	0.75	0.25	1.00
6.40	2.00	0.41	5.00	0.75	0.25	1.00
6.45	2.00	0.41	5.00	0.75	0.25	1.00
6.50	2.00	0.41	5.00	0.75	0.25	1.00
6.55	2.00	0.41	5.00	0.75	0.25	1.00
6.60	2.00	0.41	5.00	0.75	0.25	1.00
6.65	2.00	0.41	5.00	0.75	0.25	1.00
6.70	2.00	0.41	5.00	0.75	0.25	1.00

6.75	2.00	0.41	5.00	0.75	0.25	1.00
6.80	2.00	0.41	5.00	0.75	0.25	1.00
6.85	2.00	0.41	5.00	0.75	0.25	1.00
6.90	2.00	0.41	5.00	0.75	0.25	1.00
6.95	2.00	0.41	5.00	0.75	0.25	1.00
7.00	2.00	0.41	5.00	0.75	0.25	1.00
7.05	2.00	0.41	5.00	0.75	0.25	1.00
7.10	2.00	0.41	5.00	0.75	0.25	1.00
7.15	2.00	0.41	5.00	0.75	0.25	1.00
7.20	2.00	0.41	5.00	0.75	0.25	1.00
7.25	2.00	0.41	5.00	0.75	0.25	1.00
7.30	2.00	0.41	5.00	0.75	0.25	1.00
7.35	2.00	0.41	5.00	0.75	0.25	1.00
7.40	2.00	0.41	5.00	0.75	0.25	1.00
7.45	2.00	0.41	5.00	0.75	0.25	1.00
7.50	2.00	0.41	5.00	0.75	0.25	1.00
7.55	2.00	0.41	5.00	0.75	0.25	1.00
7.60	2.00	0.41	5.00	0.75	0.25	1.00
7.65	2.00	0.41	5.00	0.75	0.25	1.00
7.70	2.00	0.41	5.00	0.75	0.25	1.00
7.75	2.00	0.41	5.00	0.75	0.25	1.00
7.80	2.00	0.41	5.00	0.75	0.25	1.00
7.85	2.00	0.41	5.00	0.75	0.25	1.00
7.90	2.00	0.41	5.00	0.75	0.25	1.00
7.95	2.00	0.41	5.00	0.75	0.25	1.00
8.00	2.00	0.41	5.00	0.75	0.25	1.00
8.05	2.00	0.41	5.00	0.75	0.25	1.00
8.10	2.00	0.41	5.00	0.75	0.25	1.00
8.15	2.00	0.41	5.00	0.75	0.25	1.00
8.20	2.00	0.41	5.00	0.75	0.25	1.00
8.25	2.00	0.41	5.00	0.75	0.25	1.00
8.30	2.00	0.41	5.00	0.75	0.25	1.00
8.35	2.00	0.41	5.00	0.75	0.25	1.00
8.40	2.00	0.41	5.00	0.75	0.25	1.00
8.45	2.00	0.41	5.00	0.75	0.25	1.00
8.50	2.00	0.41	5.00	0.75	0.25	1.00
8.55	2.00	0.41	5.00	0.75	0.25	1.00
8.60	2.00	0.41	5.00	0.75	0.25	1.00
8.65	2.00	0.41	5.00	0.75	0.25	1.00
8.70	2.00	0.41	5.00	0.75	0.25	1.00
8.75	2.00	0.41	5.00	0.75	0.25	1.00
8.80	2.00	0.41	5.00	0.75	0.25	1.00
8.85	2.00	0.41	5.00	0.75	0.25	1.00
8.90	2.00	0.41	5.00	0.75	0.25	1.00
8.95	2.00	0.41	5.00	0.75	0.25	1.00
9.00	0.75	0.41	5.00	0.75	0.25	1.00
9.05	0.75	0.41	5.00	0.75	0.25	1.00
9.10	0.75	0.41	5.00	0.75	0.25	1.00
9.15	0.75	0.41	5.00	0.75	0.25	1.00
9.20	0.75	0.41	5.00	0.75	0.25	1.00
9.25	0.75	0.41	5.00	0.75	0.25	1.00
9.30	0.75	0.41	5.00	0.75	0.25	1.00
9.35	0.65	0.41	5.00	0.75	0.25	1.00
9.40	0.60	0.41	5.00	0.75	0.25	1.00

9.45	0.58	0.41	5.00	0.75	0.25	1.00
9.50	0.56	0.41	5.00	0.75	0.25	1.00
9.55	0.54	0.41	5.00	0.75	0.25	1.00
9.60	0.52	0.41	5.00	0.75	0.25	1.00
9.65	0.51	0.41	5.00	0.75	0.25	1.00
9.70	0.50	0.41	5.00	0.75	0.25	1.00
9.75	0.49	0.41	5.00	0.75	0.25	0.99
9.80	0.48	0.41	5.00	0.75	0.25	0.99
9.85	0.47	0.41	5.00	0.75	0.25	0.99
9.90	0.46	0.41	5.00	0.75	0.25	0.99
9.95	0.45	0.41	5.00	0.75	0.25	0.99
10.00	0.44	0.41	5.00	0.75	0.24	0.99
10.05	0.43	0.41	5.00	0.75	0.24	0.99
10.10	0.42	0.41	5.00	0.75	0.24	0.99
10.15	0.41	0.41	5.00	0.75	0.24	0.99
10.20	0.41	0.41	5.00	0.75	0.24	0.99
10.25	0.40	0.41	5.00	0.75	0.24	0.99
10.30	0.39	0.41	5.00	0.75	0.24	0.99
10.35	0.39	0.41	5.00	0.75	0.24	0.98
10.40	0.38	0.41	5.00	0.75	0.24	0.98
10.45	0.37	0.41	5.00	0.75	0.23	0.98
10.50	0.37	0.41	5.00	0.75	0.23	0.98
10.55	0.36	0.41	5.00	0.75	0.23	0.98
10.60	0.36	0.41	5.00	0.75	0.23	0.98
10.65	0.35	0.41	5.00	0.75	0.23	0.97
10.70	0.34	0.41	5.00	0.75	0.22	0.97
10.75	0.34	0.41	5.00	0.75	0.22	0.97
10.80	0.33	0.41	5.00	0.75	0.22	0.97
10.85	0.33	0.41	5.00	0.75	0.22	0.97
10.90	0.32	0.41	5.00	0.75	0.22	0.97
10.95	0.32	0.41	5.00	0.75	0.22	0.97
11.00	0.31	0.41	5.00	0.75	0.22	0.96
11.05	0.31	0.41	5.00	0.75	0.22	0.96
11.10	0.31	0.40	5.00	0.75	0.22	0.96
11.15	0.31	0.40	5.00	0.75	0.21	0.96
11.20	0.31	0.40	5.00	0.75	0.21	0.96
11.25	0.31	0.40	5.00	0.75	0.21	0.96
11.30	0.31	0.40	5.00	0.75	0.21	0.96
11.35	0.31	0.40	5.00	0.75	0.21	0.96
11.40	0.31	0.40	5.00	0.75	0.21	0.96
11.45	0.30	0.40	5.00	0.75	0.21	0.96
11.50	0.30	0.40	5.00	0.75	0.21	0.95
11.55	0.30	0.40	5.00	0.75	0.21	0.95
11.60	0.30	0.40	5.00	0.75	0.21	0.95
11.65	0.30	0.40	5.00	0.75	0.20	0.95
11.70	0.30	0.40	5.00	0.75	0.20	0.95
11.75	0.30	0.40	5.00	0.75	0.20	0.95
11.80	0.30	0.40	5.00	0.75	0.20	0.95
11.85	0.30	0.40	5.00	0.75	0.20	0.95
11.90	0.30	0.40	5.00	0.75	0.20	0.95
11.95	0.30	0.40	5.00	0.75	0.20	0.94
12.00	0.30	0.40	5.00	0.75	0.20	0.94
12.05	0.30	0.40	5.00	0.75	0.20	0.94
12.10	0.30	0.40	5.00	0.75	0.19	0.94

12.15	0.30	0.40	5.00	0.75	0.19	0.94
12.20	0.29	0.40	5.00	0.75	0.19	0.94
12.25	0.29	0.40	5.00	0.75	0.19	0.94
12.30	0.29	0.40	5.00	0.75	0.19	0.94
12.35	0.29	0.40	5.00	0.75	0.19	0.93
12.40	0.29	0.40	5.00	0.75	0.19	0.93
12.45	0.29	0.40	5.00	0.75	0.18	0.93
12.50	0.29	0.40	5.00	0.75	0.18	0.93
12.55	0.29	0.40	5.00	0.75	0.18	0.93
12.60	0.29	0.40	5.00	0.75	0.18	0.93
12.65	0.29	0.40	5.00	0.75	0.18	0.93
12.70	0.29	0.40	5.00	0.75	0.18	0.92
12.75	0.29	0.40	5.00	0.75	0.18	0.92
12.80	0.29	0.40	5.00	0.75	0.17	0.92
12.85	0.29	0.40	5.00	0.75	0.17	0.92
12.90	0.29	0.40	5.00	0.75	0.17	0.92
12.95	0.28	0.40	5.00	0.75	0.17	0.92
13.00	0.28	0.40	5.00	0.75	0.17	0.91
13.05	0.28	0.40	5.00	0.75	0.17	0.91
13.10	0.28	0.40	5.00	0.75	0.16	0.91
13.15	0.28	0.40	5.00	0.75	0.16	0.91
13.20	0.28	0.40	5.00	0.75	0.16	0.91
13.25	0.28	0.40	5.00	0.75	0.16	0.91
13.30	0.28	0.40	5.00	0.75	0.16	0.90
13.35	0.28	0.40	5.00	0.75	0.16	0.90
13.40	0.28	0.40	5.00	0.75	0.15	0.90
13.45	0.28	0.40	5.00	0.75	0.15	0.90
13.50	0.28	0.40	5.00	0.75	0.15	0.90
13.55	0.28	0.40	5.00	0.75	0.15	0.90
13.60	0.28	0.40	5.00	0.75	0.15	0.89
13.65	0.28	0.40	5.00	0.75	0.14	0.89
13.70	0.28	0.40	5.00	0.75	0.14	0.89
13.75	0.28	0.40	5.00	0.75	0.14	0.89
13.80	0.28	0.40	5.00	0.75	0.14	0.89
13.85	0.27	0.40	5.00	0.75	0.14	0.88
13.90	0.27	0.40	5.00	0.75	0.13	0.88
13.95	0.27	0.40	5.00	0.75	0.13	0.88
14.00	0.27	0.40	5.00	0.75	0.13	0.88
14.05	0.27	0.40	5.00	0.75	0.13	0.88
14.10	0.27	0.40	5.00	0.75	0.13	0.87
14.15	0.27	0.40	5.00	0.75	0.12	0.87
14.20	0.27	0.40	5.00	0.75	0.12	0.87
14.25	0.27	0.40	5.00	0.75	0.12	0.87
14.30	0.27	0.40	5.00	0.75	0.12	0.86
14.35	0.27	0.40	5.00	0.75	0.11	0.86
14.40	0.27	0.40	5.00	0.75	0.11	0.86
14.45	0.27	0.40	5.00	0.75	0.11	0.86
14.50	0.27	0.40	5.00	0.75	0.11	0.85
14.55	0.27	0.40	5.00	0.75	0.10	0.85
14.60	0.27	0.40	5.00	0.75	0.10	0.85
14.65	0.27	0.40	5.00	0.75	0.10	0.85
14.70	0.27	0.40	5.00	0.75	0.10	0.84
14.75	0.27	0.40	5.00	0.75	0.09	0.84
14.80	0.28	0.40	5.00	0.75	0.09	0.84

14.85	0.28	0.40	5.00	0.75	0.09	0.84
14.90	0.28	0.40	5.00	0.75	0.09	0.83
14.95	0.28	0.40	5.00	0.75	0.09	0.83
15.00	0.28	0.40	5.00	0.75	0.08	0.83
15.05	0.28	0.40	5.00	0.75	0.08	0.83
15.10	0.28	0.40	5.00	0.75	0.08	0.83
15.15	0.28	0.40	5.00	0.75	0.08	0.82
15.20	0.28	0.40	5.00	0.75	0.07	0.82
15.25	0.28	0.40	5.00	0.75	0.07	0.82
15.30	0.28	0.40	5.00	0.75	0.07	0.82
15.35	0.28	0.40	5.00	0.75	0.07	0.81
15.40	0.28	0.40	5.00	0.75	0.06	0.81
15.45	0.27	0.40	5.00	0.75	0.06	0.81
15.50	0.27	0.40	5.00	0.75	0.06	0.80
15.55	0.27	0.40	5.00	0.75	0.05	0.80
15.60	0.27	0.40	5.00	0.75	0.05	0.80
15.65	0.27	0.40	5.00	0.75	0.05	0.80
15.70	0.27	0.40	5.00	0.75	0.05	0.79
15.75	0.27	0.40	5.00	0.75	0.04	0.79
15.80	0.27	0.40	5.00	0.75	0.04	0.79
15.85	0.27	0.40	5.00	0.75	0.04	0.78
15.90	0.27	0.40	5.00	0.75	0.03	0.78
15.95	0.27	0.40	5.00	0.75	0.03	0.78
16.00	0.27	0.40	5.00	0.75	0.03	0.78
16.05	0.27	0.40	5.00	0.75	0.03	0.77
16.10	0.27	0.40	5.00	0.75	0.02	0.77
16.15	0.28	0.40	5.00	0.75	0.02	0.77
16.20	0.28	0.40	5.00	0.75	0.02	0.76
16.25	0.28	0.40	5.00	0.75	0.01	0.76
16.30	0.28	0.40	5.00	0.75	0.01	0.76
16.35	0.28	0.40	5.00	0.75	0.01	0.76
16.40	0.29	0.40	5.00	0.75	0.01	0.75
16.45	0.29	0.40	5.00	0.75	0.00	0.75
16.50	0.29	0.40	0.73*	0.75	0.00	0.75
16.55	0.29	0.40	0.73*	0.74	0.00	0.74
16.60	0.30	0.40	0.74*	0.73	0.00	0.73
16.65	0.30	0.40	0.74*	0.72	0.00	0.72
16.70	0.30	0.40	0.75*	0.71	0.00	0.71
16.75	0.30	0.40	0.75*	0.70	0.00	0.70
16.80	0.31	0.40	0.76*	0.69	0.00	0.69
16.85	0.31	0.40	0.76*	0.69	0.00	0.69
16.90	0.31	0.40	0.77*	0.68	0.00	0.68
16.95	0.31	0.41	0.77*	0.67	0.00	0.67
17.00	0.32	0.41	0.78*	0.66	0.00	0.66
17.05	0.32	0.41	0.78*	0.65	0.00	0.65
17.10	0.32	0.41	0.79*	0.64	0.00	0.64
17.15	0.32	0.41	0.79*	0.64	0.00	0.64
17.20	0.33	0.41	0.80*	0.63	0.00	0.63
17.25	0.33	0.41	0.80*	0.62	0.00	0.62
17.30	0.33	0.41	0.81*	0.61	0.00	0.61
17.35	0.33	0.41	0.81*	0.61	0.00	0.61
17.40	0.34	0.41	0.82*	0.60	0.00	0.60
17.45	0.34	0.41	0.82*	0.59	0.00	0.59
17.50	0.34	0.41	0.83*	0.58	0.00	0.58

17.55	0.34	0.41	0.83*	0.58	0.00	0.58
17.60	0.35	0.41	0.84*	0.57	0.00	0.57
17.65	0.35	0.41	0.84*	0.56	0.00	0.56
17.70	0.35	0.41	0.85*	0.55	0.00	0.55
17.75	0.35	0.41	0.85*	0.55	0.00	0.55
17.80	0.36	0.42	0.86*	0.54	0.00	0.54
17.85	0.36	0.42	0.86*	0.53	0.00	0.53
17.90	0.36	0.42	0.87*	0.53	0.00	0.53
17.95	0.36	0.42	0.87*	0.52	0.00	0.52
18.00	0.37	0.42	0.88*	0.51	0.00	0.51
18.05	0.37	0.42	0.89*	0.51	0.00	0.51
18.10	0.37	0.42	0.89*	0.50	0.00	0.50
18.15	0.38	0.42	0.90*	0.49	0.00	0.49
18.20	0.38	0.42	0.90*	0.49	0.00	0.49
18.25	0.38	0.42	0.91*	0.48	0.00	0.48
18.30	0.38	0.42	0.91*	0.47	0.00	0.47
18.35	0.39	0.42	0.92*	0.47	0.00	0.47
18.40	0.39	0.42	0.93*	0.46	0.00	0.46
18.45	0.39	0.42	0.93*	0.46	0.00	0.46
18.50	0.40	0.42	0.94*	0.45	0.00	0.45
18.55	0.40	0.42	0.94*	0.45	0.00	0.45
18.60	0.40	0.42	0.95*	0.44	0.00	0.44
18.65	0.41	0.42	0.96*	0.44	0.00	0.44
18.70	0.41	0.43	0.96*	0.43	0.00	0.43
18.75	0.41	0.43	0.97*	0.43	0.00	0.43
18.80	0.42	0.43	0.98*	0.42	0.00	0.42
18.85	0.42	0.43	0.98*	0.42	0.00	0.42
18.90	0.42	0.43	0.99*	0.42	0.00	0.42
18.95	0.43	0.43	1.00*	0.42	0.00	0.42
19.00	0.43	0.43	1.01	0.41	0.00	0.41
19.05	0.43	0.43	1.01	0.41	0.00	0.41
19.10	0.44	0.43	1.02	0.41	0.00	0.41
19.15	0.44	0.43	1.03	0.41	0.00	0.41
19.20	0.45	0.43	1.04	0.41	0.00	0.41
19.25	0.45	0.43	1.04	0.41	0.00	0.41
19.30	0.45	0.43	1.05	0.41	0.00	0.41
19.35	0.46	0.43	1.06	0.40	0.00	0.40
19.40	0.46	0.43	1.07	0.40	0.00	0.40
19.45	0.47	0.43	1.08	0.40	0.00	0.40
19.50	0.47	0.43	1.09	0.40	0.00	0.40
19.55	0.48	0.43	1.10	0.40	0.00	0.40
19.60	0.48	0.43	1.10	0.40	0.00	0.40
19.65	0.49	0.44	1.11	0.40	0.00	0.40
19.70	0.49	0.44	1.12	0.40	0.00	0.40
19.75	0.50	0.44	1.13	0.40	0.00	0.40
19.80	0.50	0.44	1.15	0.40	0.00	0.40
19.85	0.51	0.44	1.16	0.39	0.00	0.39
19.90	0.51	0.44	1.17	0.39	0.00	0.39
19.95	0.52	0.44	1.18	0.39	0.00	0.39
20.00	0.52	0.44	1.19	0.39	0.00	0.39
20.05	2.00	0.44	5.00	0.39	0.00	0.39
20.10	2.00	0.44	5.00	0.39	0.00	0.39
20.15	2.00	0.44	5.00	0.39	0.00	0.39
20.20	2.00	0.44	5.00	0.39	0.00	0.39

20.25	2.00	0.44	5.00	0.39	0.00	0.39
20.30	2.00	0.44	5.00	0.39	0.00	0.39
20.35	2.00	0.44	5.00	0.39	0.00	0.39
20.40	2.00	0.44	5.00	0.39	0.00	0.39
20.45	2.00	0.44	5.00	0.39	0.00	0.39
20.50	2.00	0.44	5.00	0.39	0.00	0.39
20.55	2.00	0.44	5.00	0.39	0.00	0.39
20.60	2.00	0.44	5.00	0.39	0.00	0.39
20.65	2.00	0.45	5.00	0.39	0.00	0.39
20.70	2.00	0.45	5.00	0.39	0.00	0.39
20.75	2.00	0.45	5.00	0.39	0.00	0.39
20.80	2.00	0.45	5.00	0.39	0.00	0.39
20.85	2.00	0.45	5.00	0.39	0.00	0.39
20.90	2.00	0.45	5.00	0.39	0.00	0.39
20.95	2.00	0.45	5.00	0.39	0.00	0.39
21.00	2.00	0.45	5.00	0.39	0.00	0.39
21.05	2.00	0.45	5.00	0.39	0.00	0.39
21.10	2.00	0.45	5.00	0.39	0.00	0.39
21.15	2.00	0.45	5.00	0.39	0.00	0.39
21.20	2.00	0.45	5.00	0.39	0.00	0.39
21.25	2.00	0.45	5.00	0.39	0.00	0.39
21.30	2.00	0.45	5.00	0.39	0.00	0.39
21.35	2.00	0.45	5.00	0.39	0.00	0.39
21.40	2.00	0.45	5.00	0.39	0.00	0.39
21.45	2.00	0.45	5.00	0.39	0.00	0.39
21.50	2.00	0.45	5.00	0.39	0.00	0.39
21.55	2.00	0.45	5.00	0.39	0.00	0.39
21.60	2.00	0.45	5.00	0.39	0.00	0.39
21.65	2.00	0.45	5.00	0.39	0.00	0.39
21.70	2.00	0.45	5.00	0.39	0.00	0.39
21.75	2.00	0.46	5.00	0.39	0.00	0.39
21.80	2.00	0.46	5.00	0.39	0.00	0.39
21.85	2.00	0.46	5.00	0.39	0.00	0.39
21.90	2.00	0.46	5.00	0.39	0.00	0.39
21.95	2.00	0.46	5.00	0.39	0.00	0.39
22.00	2.00	0.46	5.00	0.39	0.00	0.39
22.05	2.00	0.46	5.00	0.39	0.00	0.39
22.10	2.00	0.46	5.00	0.39	0.00	0.39
22.15	2.00	0.46	5.00	0.39	0.00	0.39
22.20	2.00	0.46	5.00	0.39	0.00	0.39
22.25	2.00	0.46	5.00	0.39	0.00	0.39
22.30	2.00	0.46	5.00	0.39	0.00	0.39
22.35	2.00	0.46	5.00	0.39	0.00	0.39
22.40	2.00	0.46	5.00	0.39	0.00	0.39
22.45	2.00	0.46	5.00	0.39	0.00	0.39
22.50	2.00	0.46	5.00	0.39	0.00	0.39
22.55	2.00	0.46	5.00	0.39	0.00	0.39
22.60	2.00	0.46	5.00	0.39	0.00	0.39
22.65	2.00	0.46	5.00	0.39	0.00	0.39
22.70	2.00	0.46	5.00	0.39	0.00	0.39
22.75	2.00	0.46	5.00	0.39	0.00	0.39
22.80	2.00	0.46	5.00	0.39	0.00	0.39
22.85	2.00	0.46	5.00	0.39	0.00	0.39
22.90	2.00	0.46	5.00	0.39	0.00	0.39

22.95	2.00	0.47	5.00	0.39	0.00	0.39
23.00	2.00	0.47	5.00	0.39	0.00	0.39
23.05	2.00	0.47	5.00	0.39	0.00	0.39
23.10	2.00	0.47	5.00	0.39	0.00	0.39
23.15	2.00	0.47	5.00	0.39	0.00	0.39
23.20	2.00	0.47	5.00	0.39	0.00	0.39
23.25	2.00	0.47	5.00	0.39	0.00	0.39
23.30	2.00	0.47	5.00	0.39	0.00	0.39
23.35	2.00	0.47	5.00	0.39	0.00	0.39
23.40	2.00	0.47	5.00	0.39	0.00	0.39
23.45	2.00	0.47	5.00	0.39	0.00	0.39
23.50	2.00	0.47	5.00	0.39	0.00	0.39
23.55	2.00	0.47	5.00	0.39	0.00	0.39
23.60	2.00	0.47	5.00	0.39	0.00	0.39
23.65	2.00	0.47	5.00	0.39	0.00	0.39
23.70	2.00	0.47	5.00	0.39	0.00	0.39
23.75	2.00	0.47	5.00	0.39	0.00	0.39
23.80	2.00	0.47	5.00	0.39	0.00	0.39
23.85	2.00	0.47	5.00	0.39	0.00	0.39
23.90	2.00	0.47	5.00	0.39	0.00	0.39
23.95	2.00	0.47	5.00	0.39	0.00	0.39
24.00	2.00	0.47	5.00	0.39	0.00	0.39
24.05	2.00	0.47	5.00	0.39	0.00	0.39
24.10	2.00	0.47	5.00	0.39	0.00	0.39
24.15	2.00	0.47	5.00	0.39	0.00	0.39
24.20	2.00	0.48	5.00	0.39	0.00	0.39
24.25	2.00	0.48	5.00	0.39	0.00	0.39
24.30	2.00	0.48	5.00	0.39	0.00	0.39
24.35	2.00	0.48	5.00	0.39	0.00	0.39
24.40	2.00	0.48	5.00	0.39	0.00	0.39
24.45	2.00	0.48	5.00	0.39	0.00	0.39
24.50	2.00	0.48	5.00	0.39	0.00	0.39
24.55	2.00	0.48	5.00	0.39	0.00	0.39
24.60	2.00	0.48	5.00	0.39	0.00	0.39
24.65	2.00	0.48	5.00	0.39	0.00	0.39
24.70	2.00	0.48	5.00	0.39	0.00	0.39
24.75	2.00	0.48	5.00	0.39	0.00	0.39
24.80	2.00	0.48	5.00	0.39	0.00	0.39
24.85	2.00	0.48	5.00	0.39	0.00	0.39
24.90	2.00	0.48	5.00	0.39	0.00	0.39
24.95	2.00	0.48	5.00	0.39	0.00	0.39
25.00	2.00	0.48	5.00	0.39	0.00	0.39
25.05	2.00	0.48	5.00	0.39	0.00	0.39
25.10	2.00	0.48	5.00	0.39	0.00	0.39
25.15	2.00	0.48	5.00	0.39	0.00	0.39
25.20	2.00	0.48	5.00	0.39	0.00	0.39
25.25	2.00	0.48	5.00	0.39	0.00	0.39
25.30	2.00	0.48	5.00	0.39	0.00	0.39
25.35	2.00	0.48	5.00	0.39	0.00	0.39
25.40	2.00	0.48	5.00	0.39	0.00	0.39
25.45	2.00	0.48	5.00	0.39	0.00	0.39
25.50	2.00	0.48	5.00	0.39	0.00	0.39
25.55	2.00	0.49	5.00	0.39	0.00	0.39
25.60	2.00	0.49	5.00	0.39	0.00	0.39

25.65	2.00	0.49	5.00	0.39	0.00	0.39
25.70	2.00	0.49	5.00	0.39	0.00	0.39
25.75	2.00	0.49	5.00	0.39	0.00	0.39
25.80	2.00	0.49	5.00	0.39	0.00	0.39
25.85	2.00	0.49	5.00	0.39	0.00	0.39
25.90	2.00	0.49	5.00	0.39	0.00	0.39
25.95	2.00	0.49	5.00	0.39	0.00	0.39
26.00	2.00	0.49	5.00	0.39	0.00	0.39
26.05	0.75	0.49	1.54	0.39	0.00	0.39
26.10	0.75	0.49	1.54	0.39	0.00	0.39
26.15	0.75	0.49	1.54	0.39	0.00	0.39
26.20	0.75	0.49	1.54	0.39	0.00	0.39
26.25	0.75	0.49	1.54	0.39	0.00	0.39
26.30	0.75	0.49	1.54	0.39	0.00	0.39
26.35	0.75	0.49	1.54	0.39	0.00	0.39
26.40	0.75	0.49	1.53	0.39	0.00	0.39
26.45	0.75	0.49	1.53	0.39	0.00	0.39
26.50	0.75	0.49	1.53	0.39	0.00	0.39
26.55	0.75	0.49	1.53	0.39	0.00	0.39
26.60	0.75	0.49	1.53	0.39	0.00	0.39
26.65	0.75	0.49	1.53	0.39	0.00	0.39
26.70	0.75	0.49	1.53	0.39	0.00	0.39
26.75	0.75	0.49	1.53	0.39	0.00	0.39
26.80	0.75	0.49	1.53	0.39	0.00	0.39
26.85	0.75	0.49	1.52	0.39	0.00	0.39
26.90	0.75	0.49	1.52	0.39	0.00	0.39
26.95	0.75	0.49	1.52	0.39	0.00	0.39
27.00	0.75	0.49	1.52	0.39	0.00	0.39
27.05	0.75	0.50	1.52	0.39	0.00	0.39
27.10	0.75	0.50	1.52	0.39	0.00	0.39
27.15	0.75	0.50	1.52	0.39	0.00	0.39
27.20	0.75	0.50	1.52	0.39	0.00	0.39
27.25	0.75	0.50	1.52	0.39	0.00	0.39
27.30	0.75	0.50	1.52	0.39	0.00	0.39
27.35	0.75	0.50	1.51	0.39	0.00	0.39
27.40	0.75	0.50	1.51	0.39	0.00	0.39
27.45	0.75	0.50	1.51	0.39	0.00	0.39
27.50	0.75	0.50	1.51	0.39	0.00	0.39
27.55	0.75	0.50	1.51	0.39	0.00	0.39
27.60	0.75	0.50	1.51	0.39	0.00	0.39
27.65	0.75	0.50	1.51	0.39	0.00	0.39
27.70	0.75	0.50	1.51	0.39	0.00	0.39
27.75	0.75	0.50	1.51	0.39	0.00	0.39
27.80	0.75	0.50	1.51	0.39	0.00	0.39
27.85	0.75	0.50	1.51	0.39	0.00	0.39
27.90	0.75	0.50	1.50	0.39	0.00	0.39
27.95	0.75	0.50	1.50	0.39	0.00	0.39
28.00	0.75	0.50	1.50	0.39	0.00	0.39
28.05	0.75	0.50	1.50	0.39	0.00	0.39
28.10	0.75	0.50	1.50	0.39	0.00	0.39
28.15	0.75	0.50	1.50	0.39	0.00	0.39
28.20	0.75	0.50	1.50	0.39	0.00	0.39
28.25	0.75	0.50	1.50	0.39	0.00	0.39
28.30	0.75	0.50	1.50	0.39	0.00	0.39

28.35	0.75	0.50	1.50	0.39	0.00	0.39
28.40	0.75	0.50	1.50	0.39	0.00	0.39
28.45	0.75	0.50	1.49	0.39	0.00	0.39
28.50	0.75	0.50	1.49	0.39	0.00	0.39
28.55	0.75	0.50	1.49	0.39	0.00	0.39
28.60	0.75	0.50	1.49	0.39	0.00	0.39
28.65	0.75	0.51	1.49	0.39	0.00	0.39
28.70	0.75	0.51	1.49	0.39	0.00	0.39
28.75	0.75	0.51	1.49	0.39	0.00	0.39
28.80	0.75	0.51	1.49	0.39	0.00	0.39
28.85	0.75	0.51	1.49	0.39	0.00	0.39
28.90	0.75	0.51	1.49	0.39	0.00	0.39
28.95	0.75	0.51	1.49	0.39	0.00	0.39
29.00	0.75	0.51	1.48	0.39	0.00	0.39
29.05	0.75	0.51	1.48	0.39	0.00	0.39
29.10	0.75	0.51	1.48	0.39	0.00	0.39
29.15	0.75	0.51	1.48	0.39	0.00	0.39
29.20	0.75	0.51	1.48	0.39	0.00	0.39
29.25	0.75	0.51	1.48	0.39	0.00	0.39
29.30	0.75	0.51	1.48	0.39	0.00	0.39
29.35	0.75	0.51	1.48	0.39	0.00	0.39
29.40	0.75	0.51	1.48	0.39	0.00	0.39
29.45	0.75	0.51	1.48	0.39	0.00	0.39
29.50	0.75	0.51	1.48	0.39	0.00	0.39
29.55	0.75	0.51	1.48	0.39	0.00	0.39
29.60	0.75	0.51	1.47	0.39	0.00	0.39
29.65	0.75	0.51	1.47	0.39	0.00	0.39
29.70	0.75	0.51	1.47	0.39	0.00	0.39
29.75	0.75	0.51	1.47	0.39	0.00	0.39
29.80	0.75	0.51	1.47	0.39	0.00	0.39
29.85	0.75	0.51	1.47	0.39	0.00	0.39
29.90	0.75	0.51	1.47	0.39	0.00	0.39
29.95	0.75	0.51	1.47	0.39	0.00	0.39
30.00	0.75	0.51	1.47	0.39	0.00	0.39
30.05	0.75	0.51	1.47	0.39	0.00	0.39
30.10	0.75	0.51	1.47	0.39	0.00	0.39
30.15	0.75	0.51	1.47	0.39	0.00	0.39
30.20	0.75	0.51	1.47	0.39	0.00	0.39
30.25	0.75	0.51	1.47	0.39	0.00	0.39
30.30	0.75	0.51	1.47	0.39	0.00	0.39
30.35	0.75	0.51	1.47	0.39	0.00	0.39
30.40	0.75	0.51	1.47	0.39	0.00	0.39
30.45	0.75	0.51	1.47	0.39	0.00	0.39
30.50	0.75	0.51	1.47	0.39	0.00	0.39
30.55	0.75	0.51	1.47	0.39	0.00	0.39
30.60	0.75	0.51	1.47	0.39	0.00	0.39
30.65	0.75	0.51	1.46	0.39	0.00	0.39
30.70	0.75	0.51	1.46	0.39	0.00	0.39
30.75	0.75	0.51	1.46	0.39	0.00	0.39
30.80	0.75	0.51	1.46	0.39	0.00	0.39
30.85	0.75	0.51	1.46	0.39	0.00	0.39
30.90	0.75	0.51	1.46	0.38	0.00	0.38
30.95	0.75	0.51	1.46	0.38	0.00	0.38
31.00	0.75	0.51	1.46	0.38	0.00	0.38

31.05	0.75	0.51	1.46	0.38	0.00	0.38
31.10	0.75	0.52	1.46	0.38	0.00	0.38
31.15	0.75	0.52	1.46	0.38	0.00	0.38
31.20	0.75	0.52	1.46	0.38	0.00	0.38
31.25	0.75	0.52	1.46	0.38	0.00	0.38
31.30	0.75	0.52	1.46	0.38	0.00	0.38
31.35	0.75	0.52	1.46	0.38	0.00	0.38
31.40	0.75	0.52	1.46	0.38	0.00	0.38
31.45	0.75	0.52	1.46	0.38	0.00	0.38
31.50	0.75	0.52	1.46	0.38	0.00	0.38
31.55	0.75	0.52	1.46	0.38	0.00	0.38
31.60	0.75	0.52	1.46	0.38	0.00	0.38
31.65	0.75	0.52	1.46	0.37	0.00	0.37
31.70	0.75	0.52	1.46	0.37	0.00	0.37
31.75	0.75	0.52	1.46	0.37	0.00	0.37
31.80	0.75	0.52	1.46	0.37	0.00	0.37
31.85	0.75	0.52	1.46	0.37	0.00	0.37
31.90	0.75	0.52	1.46	0.37	0.00	0.37
31.95	0.75	0.52	1.46	0.37	0.00	0.37
32.00	0.75	0.52	1.46	0.37	0.00	0.37
32.05	0.75	0.52	1.46	0.37	0.00	0.37
32.10	0.75	0.52	1.46	0.37	0.00	0.37
32.15	0.75	0.52	1.46	0.37	0.00	0.37
32.20	0.75	0.52	1.46	0.37	0.00	0.37
32.25	0.75	0.52	1.46	0.37	0.00	0.37
32.30	0.75	0.52	1.46	0.36	0.00	0.36
32.35	0.75	0.52	1.46	0.36	0.00	0.36
32.40	0.75	0.52	1.46	0.36	0.00	0.36
32.45	0.75	0.52	1.46	0.36	0.00	0.36
32.50	0.75	0.52	1.46	0.36	0.00	0.36
32.55	0.75	0.52	1.46	0.36	0.00	0.36
32.60	0.75	0.52	1.46	0.36	0.00	0.36
32.65	0.75	0.52	1.46	0.36	0.00	0.36
32.70	0.75	0.52	1.46	0.36	0.00	0.36
32.75	0.75	0.52	1.46	0.36	0.00	0.36
32.80	0.75	0.52	1.46	0.36	0.00	0.36
32.85	0.75	0.52	1.46	0.35	0.00	0.35
32.90	0.75	0.52	1.45	0.35	0.00	0.35
32.95	0.75	0.52	1.45	0.35	0.00	0.35
33.00	0.75	0.52	1.45	0.35	0.00	0.35
33.05	0.74	0.52	1.42	0.35	0.00	0.35
33.10	0.72	0.52	1.40	0.35	0.00	0.35
33.15	0.71	0.52	1.38	0.35	0.00	0.35
33.20	0.70	0.52	1.36	0.35	0.00	0.35
33.25	0.69	0.52	1.34	0.35	0.00	0.35
33.30	0.69	0.52	1.33	0.35	0.00	0.35
33.35	0.68	0.52	1.31	0.35	0.00	0.35
33.40	0.67	0.52	1.30	0.34	0.00	0.34
33.45	0.67	0.52	1.29	0.34	0.00	0.34
33.50	0.66	0.52	1.28	0.34	0.00	0.34
33.55	0.66	0.52	1.27	0.34	0.00	0.34
33.60	0.65	0.52	1.26	0.34	0.00	0.34
33.65	0.65	0.52	1.25	0.34	0.00	0.34
33.70	0.64	0.52	1.24	0.34	0.00	0.34

33.75	0.64	0.52	1.24	0.34	0.00	0.34
33.80	0.64	0.52	1.24	0.34	0.00	0.34
33.85	0.64	0.52	1.23	0.34	0.00	0.34
33.90	0.63	0.52	1.22	0.33	0.00	0.33
33.95	0.63	0.52	1.22	0.33	0.00	0.33
34.00	0.63	0.52	1.21	0.33	0.00	0.33
34.05	0.62	0.52	1.20	0.33	0.00	0.33
34.10	0.62	0.52	1.20	0.33	0.00	0.33
34.15	0.62	0.52	1.19	0.33	0.00	0.33
34.20	0.62	0.52	1.19	0.33	0.00	0.33
34.25	0.61	0.52	1.18	0.33	0.00	0.33
34.30	0.61	0.52	1.18	0.33	0.00	0.33
34.35	0.61	0.52	1.18	0.32	0.00	0.32
34.40	0.61	0.52	1.17	0.32	0.00	0.32
34.45	0.61	0.52	1.17	0.32	0.00	0.32
34.50	0.60	0.52	1.16	0.32	0.00	0.32
34.55	0.60	0.52	1.16	0.32	0.00	0.32
34.60	0.60	0.52	1.16	0.32	0.00	0.32
34.65	0.60	0.52	1.15	0.32	0.00	0.32
34.70	0.60	0.52	1.15	0.32	0.00	0.32
34.75	0.59	0.52	1.15	0.32	0.00	0.32
34.80	0.59	0.52	1.14	0.31	0.00	0.31
34.85	0.59	0.52	1.14	0.31	0.00	0.31
34.90	0.59	0.52	1.14	0.31	0.00	0.31
34.95	0.59	0.52	1.13	0.31	0.00	0.31
35.00	0.59	0.52	1.13	0.31	0.00	0.31
35.05	0.58	0.52	1.13	0.31	0.00	0.31
35.10	0.58	0.52	1.12	0.31	0.00	0.31
35.15	0.58	0.52	1.12	0.31	0.00	0.31
35.20	0.58	0.52	1.12	0.30	0.00	0.30
35.25	0.58	0.52	1.12	0.30	0.00	0.30
35.30	0.58	0.52	1.11	0.30	0.00	0.30
35.35	0.58	0.52	1.11	0.30	0.00	0.30
35.40	0.58	0.52	1.11	0.30	0.00	0.30
35.45	0.57	0.52	1.11	0.30	0.00	0.30
35.50	0.57	0.52	1.10	0.30	0.00	0.30
35.55	0.57	0.52	1.10	0.30	0.00	0.30
35.60	0.57	0.52	1.10	0.30	0.00	0.30
35.65	0.57	0.52	1.10	0.29	0.00	0.29
35.70	0.57	0.52	1.10	0.29	0.00	0.29
35.75	0.57	0.52	1.09	0.29	0.00	0.29
35.80	0.57	0.52	1.09	0.29	0.00	0.29
35.85	0.57	0.52	1.09	0.29	0.00	0.29
35.90	0.56	0.52	1.09	0.29	0.00	0.29
35.95	0.56	0.52	1.07	0.29	0.00	0.29
36.00	0.55	0.52	1.06	0.29	0.00	0.29
36.05	2.00	0.52	5.00	0.29	0.00	0.29
36.10	2.00	0.52	5.00	0.29	0.00	0.29
36.15	2.00	0.52	5.00	0.29	0.00	0.29
36.20	2.00	0.52	5.00	0.29	0.00	0.29
36.25	2.00	0.52	5.00	0.29	0.00	0.29
36.30	2.00	0.52	5.00	0.29	0.00	0.29
36.35	2.00	0.52	5.00	0.29	0.00	0.29
36.40	2.00	0.52	5.00	0.29	0.00	0.29

36.45	2.00	0.52	5.00	0.29	0.00	0.29
36.50	2.00	0.52	5.00	0.29	0.00	0.29
36.55	2.00	0.52	5.00	0.29	0.00	0.29
36.60	2.00	0.52	5.00	0.29	0.00	0.29
36.65	2.00	0.52	5.00	0.29	0.00	0.29
36.70	2.00	0.52	5.00	0.29	0.00	0.29
36.75	2.00	0.52	5.00	0.29	0.00	0.29
36.80	2.00	0.52	5.00	0.29	0.00	0.29
36.85	2.00	0.52	5.00	0.29	0.00	0.29
36.90	2.00	0.52	5.00	0.29	0.00	0.29
36.95	2.00	0.52	5.00	0.29	0.00	0.29
37.00	2.00	0.52	5.00	0.29	0.00	0.29
37.05	2.00	0.52	5.00	0.29	0.00	0.29
37.10	2.00	0.52	5.00	0.29	0.00	0.29
37.15	2.00	0.52	5.00	0.29	0.00	0.29
37.20	2.00	0.52	5.00	0.29	0.00	0.29
37.25	2.00	0.52	5.00	0.29	0.00	0.29
37.30	2.00	0.52	5.00	0.29	0.00	0.29
37.35	2.00	0.52	5.00	0.29	0.00	0.29
37.40	2.00	0.52	5.00	0.29	0.00	0.29
37.45	2.00	0.52	5.00	0.29	0.00	0.29
37.50	2.00	0.52	5.00	0.29	0.00	0.29
37.55	2.00	0.52	5.00	0.29	0.00	0.29
37.60	2.00	0.52	5.00	0.29	0.00	0.29
37.65	2.00	0.52	5.00	0.29	0.00	0.29
37.70	2.00	0.52	5.00	0.29	0.00	0.29
37.75	2.00	0.52	5.00	0.29	0.00	0.29
37.80	2.00	0.52	5.00	0.29	0.00	0.29
37.85	2.00	0.52	5.00	0.29	0.00	0.29
37.90	2.00	0.52	5.00	0.29	0.00	0.29
37.95	2.00	0.52	5.00	0.29	0.00	0.29
38.00	2.00	0.52	5.00	0.29	0.00	0.29
38.05	2.00	0.52	5.00	0.29	0.00	0.29
38.10	2.00	0.52	5.00	0.29	0.00	0.29
38.15	2.00	0.52	5.00	0.29	0.00	0.29
38.20	2.00	0.52	5.00	0.29	0.00	0.29
38.25	2.00	0.52	5.00	0.29	0.00	0.29
38.30	2.00	0.52	5.00	0.29	0.00	0.29
38.35	2.00	0.52	5.00	0.29	0.00	0.29
38.40	2.00	0.52	5.00	0.29	0.00	0.29
38.45	2.00	0.52	5.00	0.29	0.00	0.29
38.50	2.00	0.52	5.00	0.29	0.00	0.29
38.55	2.00	0.52	5.00	0.29	0.00	0.29
38.60	2.00	0.52	5.00	0.29	0.00	0.29
38.65	2.00	0.52	5.00	0.29	0.00	0.29
38.70	2.00	0.52	5.00	0.29	0.00	0.29
38.75	2.00	0.52	5.00	0.29	0.00	0.29
38.80	2.00	0.52	5.00	0.29	0.00	0.29
38.85	2.00	0.52	5.00	0.29	0.00	0.29
38.90	2.00	0.52	5.00	0.29	0.00	0.29
38.95	2.00	0.52	5.00	0.29	0.00	0.29
39.00	2.00	0.52	5.00	0.29	0.00	0.29
39.05	2.00	0.52	5.00	0.29	0.00	0.29
39.10	2.00	0.52	5.00	0.29	0.00	0.29

39.15	2.00	0.52	5.00	0.29	0.00	0.29
39.20	2.00	0.52	5.00	0.29	0.00	0.29
39.25	2.00	0.52	5.00	0.29	0.00	0.29
39.30	2.00	0.52	5.00	0.29	0.00	0.29
39.35	2.00	0.52	5.00	0.29	0.00	0.29
39.40	2.00	0.52	5.00	0.29	0.00	0.29
39.45	2.00	0.52	5.00	0.29	0.00	0.29
39.50	2.00	0.52	5.00	0.29	0.00	0.29
39.55	2.00	0.52	5.00	0.29	0.00	0.29
39.60	2.00	0.52	5.00	0.29	0.00	0.29
39.65	2.00	0.52	5.00	0.29	0.00	0.29
39.70	2.00	0.52	5.00	0.29	0.00	0.29
39.75	2.00	0.52	5.00	0.29	0.00	0.29
39.80	2.00	0.52	5.00	0.29	0.00	0.29
39.85	2.00	0.52	5.00	0.29	0.00	0.29
39.90	2.00	0.52	5.00	0.29	0.00	0.29
39.95	2.00	0.52	5.00	0.29	0.00	0.29
40.00	2.00	0.52	5.00	0.29	0.00	0.29
40.05	2.00	0.52	5.00	0.29	0.00	0.29
40.10	2.00	0.52	5.00	0.29	0.00	0.29
40.15	2.00	0.52	5.00	0.29	0.00	0.29
40.20	2.00	0.52	5.00	0.29	0.00	0.29
40.25	2.00	0.52	5.00	0.29	0.00	0.29
40.30	2.00	0.52	5.00	0.29	0.00	0.29
40.35	2.00	0.52	5.00	0.29	0.00	0.29
40.40	2.00	0.52	5.00	0.29	0.00	0.29
40.45	2.00	0.52	5.00	0.29	0.00	0.29
40.50	2.00	0.52	5.00	0.29	0.00	0.29
40.55	2.00	0.52	5.00	0.29	0.00	0.29
40.60	2.00	0.52	5.00	0.29	0.00	0.29
40.65	2.00	0.52	5.00	0.29	0.00	0.29
40.70	2.00	0.52	5.00	0.29	0.00	0.29
40.75	2.00	0.52	5.00	0.29	0.00	0.29
40.80	2.00	0.52	5.00	0.29	0.00	0.29
40.85	2.00	0.52	5.00	0.29	0.00	0.29
40.90	2.00	0.52	5.00	0.29	0.00	0.29
40.95	2.00	0.52	5.00	0.29	0.00	0.29
41.00	2.00	0.52	5.00	0.29	0.00	0.29
41.05	0.74	0.52	1.44	0.29	0.00	0.29
41.10	0.74	0.52	1.44	0.29	0.00	0.29
41.15	0.74	0.51	1.44	0.29	0.00	0.29
41.20	0.74	0.51	1.44	0.29	0.00	0.29
41.25	0.74	0.51	1.44	0.29	0.00	0.29
41.30	0.74	0.51	1.44	0.29	0.00	0.29
41.35	0.74	0.51	1.44	0.29	0.00	0.29
41.40	0.74	0.51	1.44	0.29	0.00	0.29
41.45	0.74	0.51	1.44	0.29	0.00	0.29
41.50	0.74	0.51	1.44	0.29	0.00	0.29
41.55	0.74	0.51	1.44	0.29	0.00	0.29
41.60	0.74	0.51	1.44	0.29	0.00	0.29
41.65	0.74	0.51	1.44	0.29	0.00	0.29
41.70	0.74	0.51	1.44	0.29	0.00	0.29
41.75	0.74	0.51	1.44	0.29	0.00	0.29
41.80	0.74	0.51	1.44	0.29	0.00	0.29

41.85	0.74	0.51	1.44	0.29	0.00	0.29
41.90	0.74	0.51	1.44	0.29	0.00	0.29
41.95	0.74	0.51	1.44	0.29	0.00	0.29
42.00	0.74	0.51	1.44	0.29	0.00	0.29
42.05	0.74	0.51	1.44	0.29	0.00	0.29
42.10	0.74	0.51	1.44	0.29	0.00	0.29
42.15	0.74	0.51	1.44	0.29	0.00	0.29
42.20	0.74	0.51	1.44	0.29	0.00	0.29
42.25	0.74	0.51	1.44	0.29	0.00	0.29
42.30	0.74	0.51	1.44	0.29	0.00	0.29
42.35	0.74	0.51	1.44	0.29	0.00	0.29
42.40	0.74	0.51	1.44	0.29	0.00	0.29
42.45	0.74	0.51	1.44	0.29	0.00	0.29
42.50	0.74	0.51	1.44	0.29	0.00	0.29
42.55	0.74	0.51	1.44	0.29	0.00	0.29
42.60	0.74	0.51	1.44	0.29	0.00	0.29
42.65	0.74	0.51	1.44	0.29	0.00	0.29
42.70	0.74	0.51	1.44	0.29	0.00	0.29
42.75	0.74	0.51	1.44	0.29	0.00	0.29
42.80	0.74	0.51	1.44	0.29	0.00	0.29
42.85	0.74	0.51	1.44	0.29	0.00	0.29
42.90	0.74	0.51	1.44	0.29	0.00	0.29
42.95	0.74	0.51	1.44	0.29	0.00	0.29
43.00	0.74	0.51	1.44	0.29	0.00	0.29
43.05	0.74	0.51	1.44	0.29	0.00	0.29
43.10	0.74	0.51	1.44	0.29	0.00	0.29
43.15	0.74	0.51	1.44	0.29	0.00	0.29
43.20	0.74	0.51	1.44	0.29	0.00	0.29
43.25	0.74	0.51	1.44	0.29	0.00	0.29
43.30	0.74	0.51	1.44	0.29	0.00	0.29
43.35	0.74	0.51	1.44	0.29	0.00	0.29
43.40	0.74	0.51	1.44	0.29	0.00	0.29
43.45	0.74	0.51	1.44	0.29	0.00	0.29
43.50	0.74	0.51	1.44	0.29	0.00	0.29
43.55	0.74	0.51	1.44	0.28	0.00	0.28
43.60	0.74	0.51	1.44	0.28	0.00	0.28
43.65	0.74	0.51	1.44	0.28	0.00	0.28
43.70	0.74	0.51	1.44	0.28	0.00	0.28
43.75	0.74	0.51	1.44	0.28	0.00	0.28
43.80	0.74	0.51	1.44	0.28	0.00	0.28
43.85	0.74	0.51	1.44	0.28	0.00	0.28
43.90	0.74	0.51	1.44	0.28	0.00	0.28
43.95	0.74	0.51	1.44	0.28	0.00	0.28
44.00	0.74	0.51	1.44	0.28	0.00	0.28
44.05	0.69	0.51	1.36	0.28	0.00	0.28
44.10	0.66	0.51	1.29	0.28	0.00	0.28
44.15	0.63	0.51	1.24	0.28	0.00	0.28
44.20	0.62	0.51	1.21	0.27	0.00	0.27
44.25	0.60	0.51	1.18	0.27	0.00	0.27
44.30	0.59	0.51	1.16	0.27	0.00	0.27
44.35	0.58	0.51	1.14	0.27	0.00	0.27
44.40	0.57	0.51	1.12	0.27	0.00	0.27
44.45	0.57	0.51	1.11	0.27	0.00	0.27
44.50	0.56	0.51	1.10	0.27	0.00	0.27

44.55	0.55	0.51	1.08	0.27	0.00	0.27
44.60	0.55	0.51	1.07	0.27	0.00	0.27
44.65	0.54	0.51	1.06	0.26	0.00	0.26
44.70	0.53	0.51	1.05	0.26	0.00	0.26
44.75	0.53	0.51	1.04	0.26	0.00	0.26
44.80	0.52	0.51	1.03	0.26	0.00	0.26
44.85	0.52	0.51	1.02	0.26	0.00	0.26
44.90	0.52	0.51	1.01	0.26	0.00	0.26
44.95	0.51	0.51	1.00	0.25	0.00	0.25
45.00	0.51	0.51	1.00*	0.25	0.00	0.25
45.05	0.50	0.51	0.99*	0.25	0.00	0.25
45.10	0.50	0.51	0.98*	0.25	0.00	0.25
45.15	0.50	0.51	0.97*	0.24	0.00	0.24
45.20	0.49	0.51	0.97*	0.24	0.00	0.24
45.25	0.49	0.51	0.96*	0.24	0.00	0.24
45.30	0.48	0.51	0.95*	0.23	0.00	0.23
45.35	0.48	0.51	0.95*	0.23	0.00	0.23
45.40	0.48	0.51	0.94*	0.23	0.00	0.23
45.45	0.47	0.51	0.93*	0.22	0.00	0.22
45.50	0.47	0.51	0.93*	0.22	0.00	0.22
45.55	0.47	0.51	0.92*	0.21	0.00	0.21
45.60	0.46	0.51	0.91*	0.21	0.00	0.21
45.65	0.46	0.51	0.91*	0.21	0.00	0.21
45.70	0.46	0.51	0.90*	0.20	0.00	0.20
45.75	0.45	0.51	0.90*	0.20	0.00	0.20
45.80	0.45	0.51	0.89*	0.19	0.00	0.19
45.85	0.45	0.51	0.88*	0.19	0.00	0.19
45.90	0.45	0.51	0.88*	0.18	0.00	0.18
45.95	0.44	0.51	0.87*	0.18	0.00	0.18
46.00	0.44	0.51	0.87*	0.17	0.00	0.17
46.05	0.44	0.51	0.87*	0.16	0.00	0.16
46.10	0.44	0.51	0.87*	0.16	0.00	0.16
46.15	0.45	0.51	0.88*	0.15	0.00	0.15
46.20	0.45	0.51	0.88*	0.15	0.00	0.15
46.25	0.45	0.51	0.89*	0.14	0.00	0.14
46.30	0.45	0.51	0.89*	0.14	0.00	0.14
46.35	0.45	0.51	0.89*	0.13	0.00	0.13
46.40	0.45	0.51	0.90*	0.13	0.00	0.13
46.45	0.46	0.51	0.90*	0.12	0.00	0.12
46.50	0.46	0.51	0.91*	0.12	0.00	0.12
46.55	0.46	0.51	0.91*	0.11	0.00	0.11
46.60	0.46	0.51	0.91*	0.11	0.00	0.11
46.65	0.46	0.51	0.92*	0.10	0.00	0.10
46.70	0.47	0.51	0.92*	0.10	0.00	0.10
46.75	0.47	0.51	0.93*	0.10	0.00	0.10
46.80	0.47	0.51	0.93*	0.09	0.00	0.09
46.85	0.47	0.50	0.93*	0.09	0.00	0.09
46.90	0.47	0.50	0.94*	0.08	0.00	0.08
46.95	0.48	0.50	0.94*	0.08	0.00	0.08
47.00	0.48	0.50	0.95*	0.08	0.00	0.08
47.05	0.48	0.50	0.95*	0.07	0.00	0.07
47.10	0.48	0.50	0.96*	0.07	0.00	0.07
47.15	0.48	0.50	0.96*	0.07	0.00	0.07
47.20	0.49	0.50	0.97*	0.06	0.00	0.06

47.25	0.49	0.50	0.97*	0.06	0.00	0.06
47.30	0.49	0.50	0.98*	0.06	0.00	0.06
47.35	0.49	0.50	0.98*	0.05	0.00	0.05
47.40	0.50	0.50	0.99*	0.05	0.00	0.05
47.45	0.50	0.50	0.99*	0.05	0.00	0.05
47.50	0.50	0.50	1.00*	0.05	0.00	0.05
47.55	0.50	0.50	1.00	0.04	0.00	0.04
47.60	0.51	0.50	1.01	0.04	0.00	0.04
47.65	0.51	0.50	1.01	0.04	0.00	0.04
47.70	0.51	0.50	1.02	0.04	0.00	0.04
47.75	0.51	0.50	1.02	0.04	0.00	0.04
47.80	0.52	0.50	1.03	0.03	0.00	0.03
47.85	0.52	0.50	1.03	0.03	0.00	0.03
47.90	0.52	0.50	1.04	0.03	0.00	0.03
47.95	0.53	0.50	1.05	0.03	0.00	0.03
48.00	0.53	0.50	1.05	0.03	0.00	0.03
48.05	0.53	0.50	1.06	0.03	0.00	0.03
48.10	0.54	0.50	1.07	0.03	0.00	0.03
48.15	0.54	0.50	1.08	0.02	0.00	0.02
48.20	0.54	0.50	1.08	0.02	0.00	0.02
48.25	0.55	0.50	1.09	0.02	0.00	0.02
48.30	0.55	0.50	1.10	0.02	0.00	0.02
48.35	0.56	0.50	1.11	0.02	0.00	0.02
48.40	0.56	0.50	1.12	0.02	0.00	0.02
48.45	0.57	0.50	1.13	0.02	0.00	0.02
48.50	0.57	0.50	1.14	0.02	0.00	0.02
48.55	0.58	0.50	1.15	0.02	0.00	0.02
48.60	0.58	0.50	1.16	0.02	0.00	0.02
48.65	0.59	0.50	1.18	0.01	0.00	0.01
48.70	0.60	0.50	1.19	0.01	0.00	0.01
48.75	0.60	0.50	1.21	0.01	0.00	0.01
48.80	0.61	0.50	1.23	0.01	0.00	0.01
48.85	0.63	0.50	1.25	0.01	0.00	0.01
48.90	0.64	0.50	1.28	0.01	0.00	0.01
48.95	0.66	0.50	1.32	0.01	0.00	0.01
49.00	0.68	0.50	1.36	0.01	0.00	0.01
49.05	0.71	0.50	1.43	0.01	0.00	0.01
49.10	0.73	0.50	1.45	0.01	0.00	0.01
49.15	0.73	0.50	1.45	0.01	0.00	0.01
49.20	0.73	0.50	1.45	0.01	0.00	0.01
49.25	0.73	0.50	1.45	0.00	0.00	0.00
49.30	0.73	0.50	1.45	0.00	0.00	0.00
49.35	0.73	0.50	1.45	0.00	0.00	0.00
49.40	0.73	0.50	1.45	0.00	0.00	0.00
49.45	0.73	0.50	1.45	0.00	0.00	0.00
49.50	0.72	0.50	1.46	0.00	0.00	0.00
49.55	0.72	0.50	1.46	0.00	0.00	0.00
49.60	0.72	0.50	1.46	0.00	0.00	0.00
49.65	0.72	0.50	1.46	0.00	0.00	0.00
49.70	0.72	0.50	1.46	0.00	0.00	0.00
49.75	0.72	0.50	1.46	0.00	0.00	0.00
49.80	0.72	0.50	1.46	0.00	0.00	0.00
49.85	0.72	0.50	1.46	0.00	0.00	0.00
49.90	0.72	0.50	1.46	0.00	0.00	0.00

49.95	0.72	0.50	1.46	0.00	0.00	0.00
50.00	0.72	0.50	1.46	0.00	0.00	0.00
50.05	0.72	0.50	1.46	0.00	0.00	0.00
50.10	0.72	0.50	1.46	0.00	0.00	0.00
50.15	0.72	0.50	1.46	0.00	0.00	0.00
50.20	0.72	0.50	1.46	0.00	0.00	0.00
50.25	0.72	0.50	1.46	0.00	0.00	0.00
50.30	0.72	0.50	1.46	0.00	0.00	0.00
50.35	0.72	0.50	1.46	0.00	0.00	0.00
50.40	0.72	0.50	1.46	0.00	0.00	0.00
50.45	0.72	0.50	1.46	0.00	0.00	0.00
50.50	0.72	0.50	1.46	0.00	0.00	0.00
50.55	0.72	0.50	1.46	0.00	0.00	0.00
50.60	0.72	0.50	1.46	0.00	0.00	0.00
50.65	0.72	0.49	1.46	0.00	0.00	0.00
50.70	0.72	0.49	1.46	0.00	0.00	0.00
50.75	0.72	0.49	1.46	0.00	0.00	0.00
50.80	0.72	0.49	1.46	0.00	0.00	0.00
50.85	0.72	0.49	1.46	0.00	0.00	0.00
50.90	0.72	0.49	1.46	0.00	0.00	0.00
50.95	0.72	0.49	1.46	0.00	0.00	0.00
51.00	0.72	0.49	1.46	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)

CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

Soils Engineering Inc.

September 6, 2022 File No. 22-18503

Fairfax School District
1500 Fairfax Rd.
Bakersfield, CA 93307

Attention: Mr. David Mack

Subject: Pipeline & Aboveground Tank Survey
Proposed School Property
NW of S. Fairfax Rd. & E. Wilson Rd. – 17.37 Acres
in Bakersfield, CA

Dear Mr. David Mack:

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed a Pipeline and Aboveground Tank Survey of a proposed Elementary School Site #5. The proposed school property is located SW of the intersection of S. Oswell St. and Zephyr Ln. in Bakersfield, CA (site). See Plate 1 for a Location Map and Plate 2 for Plot Plan showing nearby pipelines..

Background
California Code of Regulations (CCR) Title 5, Section 14010(h) states that proposed school sites shall not be located within 1,500 feet of the easement of an aboveground water or fuel storage tank, aboveground pipeline, or underground pipeline that can pose a safety hazard as established by a risk analysis study. If the risks associated with potential hazards from the pipeline can be mitigated, exemptions to specific sections of these regulations may be granted as described under CCR Title 5 Sections 14010(u) and 14011(n).

The purpose of this survey is to identify potential imminent health and safety risks to future students, faculty, and staff associated with a possible accidental release from high-pressure water and crude oil pipelines or aboveground storage tank located within 1,500 feet of the site.

Pipeline Locations
SEI conducted a survey of the pipelines located within 1500 feet of the proposed school site (See Plate 2). This included contacting East Niles Community Services, PG&E, Southern California Gas (SCG), Crimson Oil, and Kern Oil representatives to see if any high-pressure (>80 psi) pipelines were present within 1500 feet of the proposed school property. SEI also reviewed available local and regional pipeline maps of the area surrounding the site and did a neighborhood survey for evidence of pipeline markers or street markings that may indicate the

presence of a high-pressure pipeline. No high-pressure petroleum pipelines appear to be within 1500' of the proposed school property border.

A nearby 4" PG & E natural gas distribution line is present along the eastern side of S. Oswell St with a psi <80. The Bakersfield Pipeline Map (Plate 2A) shows the abandoned Chevron Pipelines and Kern Oil pipelines (identified as Shell Oil) over 1500' east from the site at low pressure. The National Pipeline Map (Plate 2B) does not show any high-pressure pipelines within 1500' of the site area. See plates 2, 2A and 2B for the pipeline locations.

Aboveground Storage Tanks
No large aboveground storage tanks (ASTs) appear to be present within 1500' of the site. There is a domestic wastewater treatment plant over 1500' that has large ASTs to the northwest of the site.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east trending N-S. In an event a full diameter rupture, the estimated water release impact is calculated under the assumption that an average design velocity is 5 feet per second, time to shut-off is 5 minutes, drain down after shut off is assumed negligible, and that the assumed spill pool depth is assumed to be 1.0ft. The impact distance for a circular pool is 52' in which does not affect the site. The impact distance for a rectangular channel with a width of 20' is 105' in which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. will help control the water from a potential release. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended.

Conclusions
Based on this survey the following conclusions are presented:

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the school property border.

- Water pipelines are present within 1500' of the site. A 50' setback is recommended from S. Oswell St. Future improvements (expansion of S. Oswell St. with a curb) may minimize the risk of a potential release encroaching onto the site.

- No large aboveground water storage tanks are present within 1500' of the school property border.

Recommendations
The following is recommended:

- No mitigation for oil/gas pipelines or ASTs is warranted for this site.

- A 50' setback is recommended west of S. Oswell St. due to a 16" Diameter Water Main present 55' east of the site.

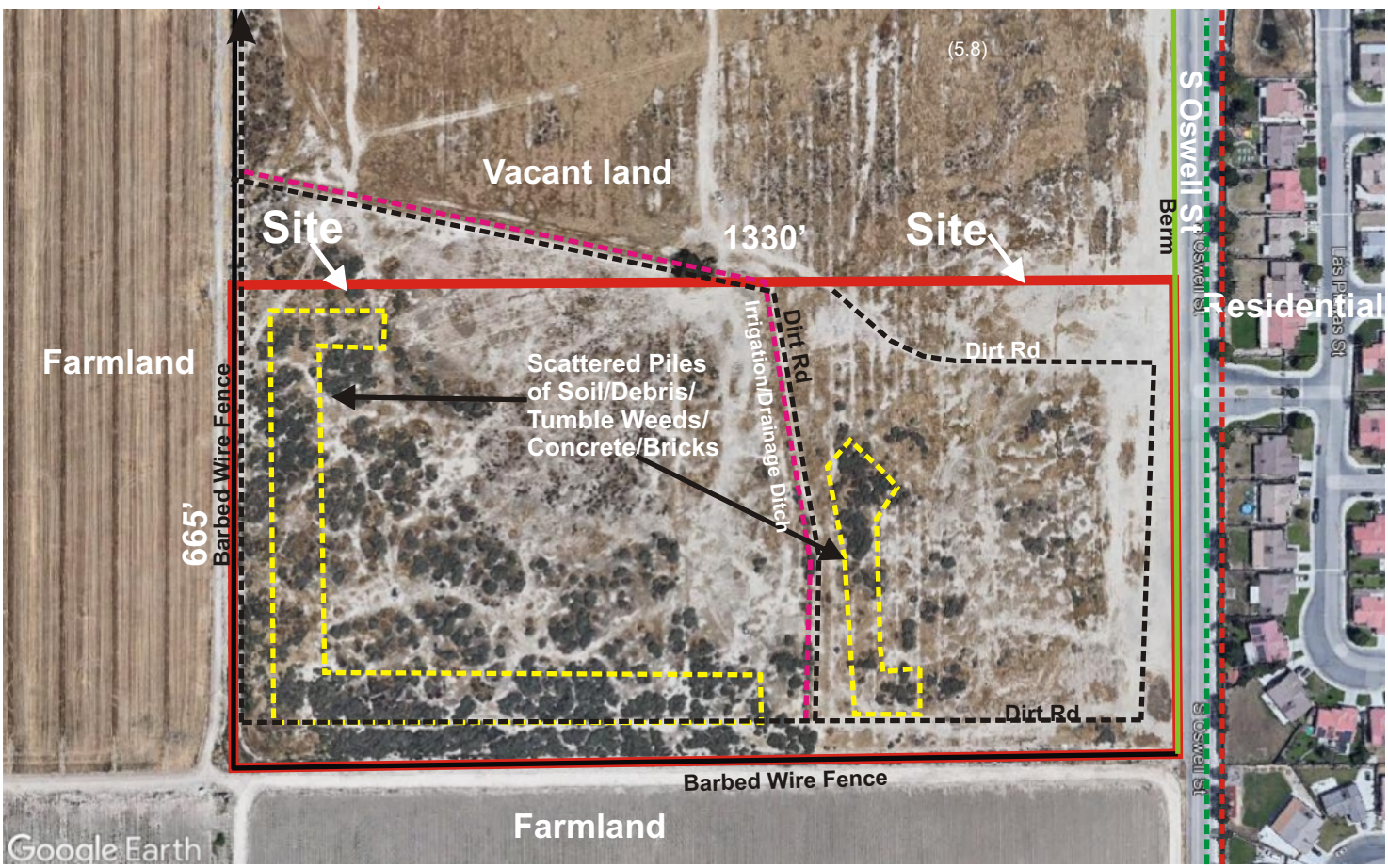
Please call (661) 831-5100 for assistance or any questions concerning this report.

Sincerely,
SOILS ENGINEERING, INC.

Robert J. Becker. P.G., C.E.G.
Environmental Division Manager

Attachments: Location Map, Plate 1
Plot Plan, Plate 2
Bakersfield Pipeline Map, Plate 2A
National Pipeline Map, Plate 2B

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Location Map	**PLATE** 1



16" Water Main Pipeline

HP Distribution Main
Natural Gas 4PL-5'

0 ft 200 ft 400 ft

Approximate Scale

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

Plot Plan

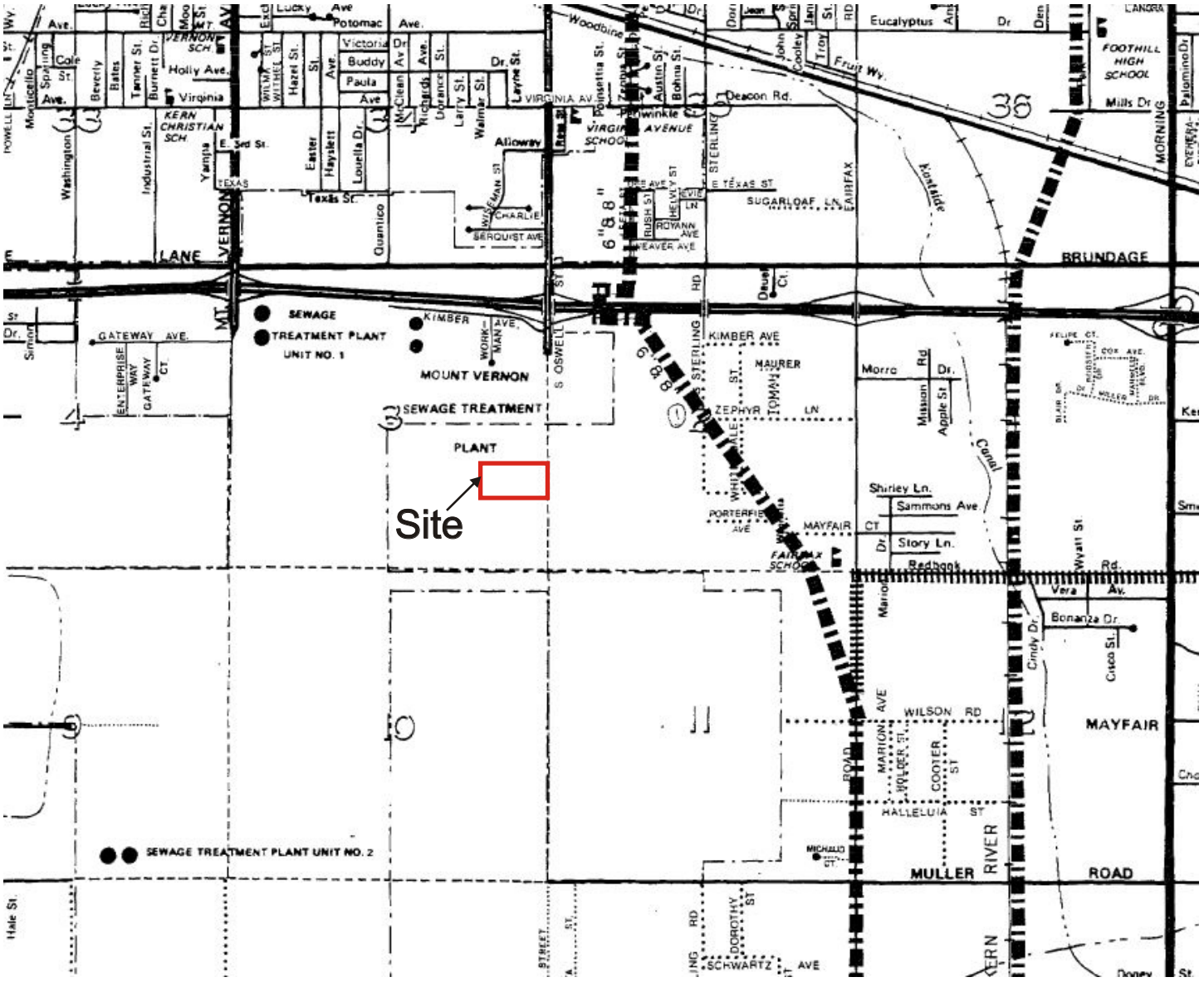
PLATE
2

N

0 1/4 ½ 1 mile

Scale

High-Pressure Pipeline

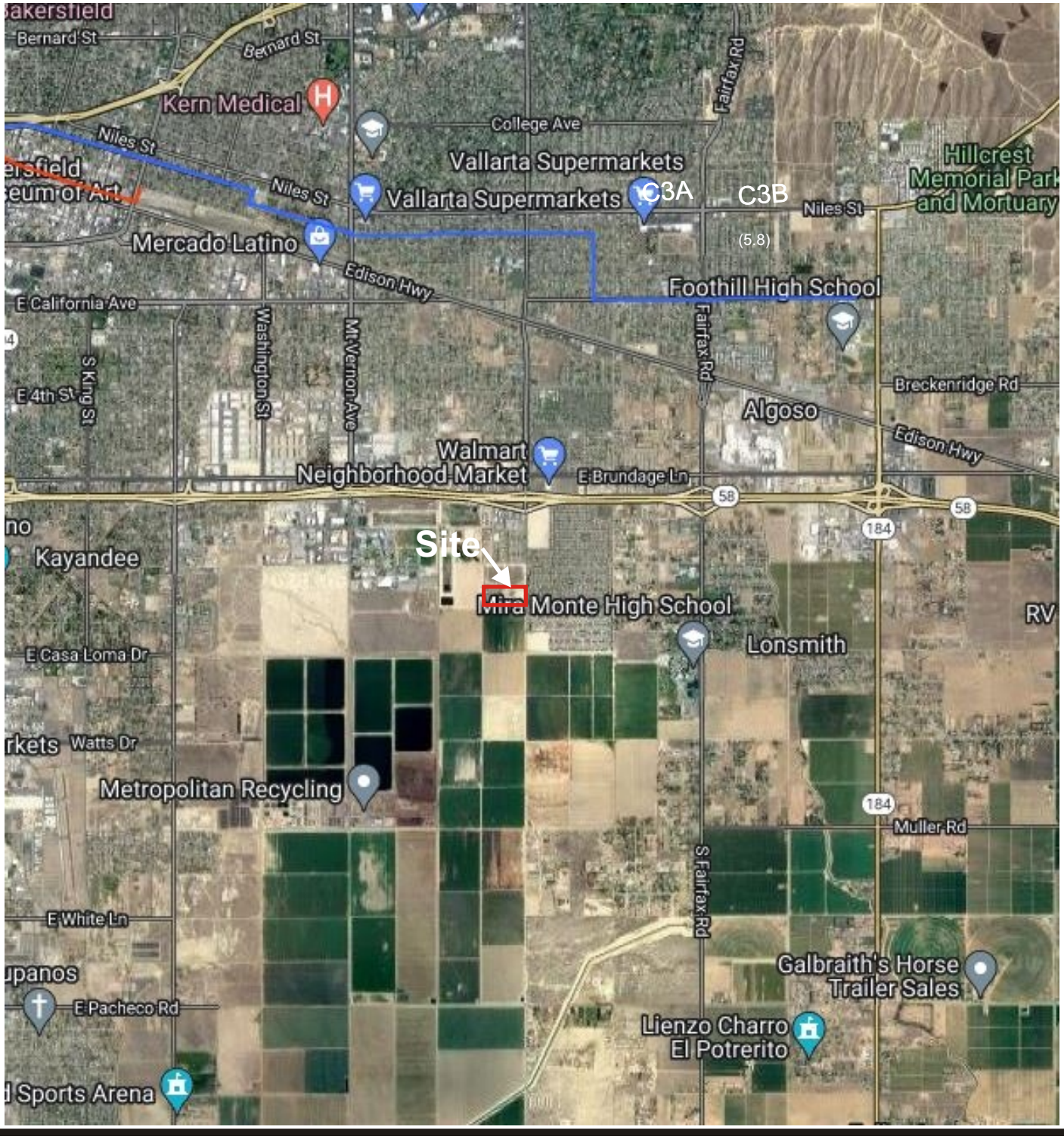


SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Bakersfield Pipeline Map**	**PLATE** **2A**

Red = High Pressure Hazardous Material Pipelines
Blue = High Pressure Petroleum Pipelines (Natural Gas, Crude Oil)

0 ½ 1 mile
Scale

N



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **National Pipeline Map**	**PLATE** **2B**

Fairfax School District

Geotechnical Engineering Services
Fairfax Elementary School #5, PEA & Title V Investigation
SW Corner Oswell St. & Zephyr Lane., Bakersfield, CA.

SEI File No. 22-18503
September 1, 2022

TABLE 1

TEST LOCATION	USCS	% < # 200	CONSOLIDATION				DIRECT SHEAR		UNCONFINED COMPRESSION		E.I.	ATTERBERG LIMITS			R-VALUE @ 300 psi		MAXIMUM DENSITY	
			C_C	C_S	S.P. (psf)	HV %	C, (ksf)	F.A.	Q_U, (psi)	C, (ksf)		LL	PL	PI	R.V.	E.P. (psi)	MDD (pcf)	O.M.
B-1 @ 0-5'	CL	53									50							
B-1 @ 6'	CL		0.08	0.02	741	0.1												
B-1 @ 11'	ML	66																
B-1 @ 26'	ML	89																
B-1 @ 36'	SM	40																
B-1 @ 46'	SM	38																
B-2 @ 21'	CL	67																
B-2 @ 26'	ML	79																
B-2 @ 31'	SM	42																
B-2 @ 41'	ML	76																

CONSOLIDATION
Cc - Compression Index
Cs - Swell Index
S.P. (psf) - Swell Pressure
HV % - Heave Precentage / Collapase

UNCONFINED COMPRESSION
Q_U (psi) - Unconfined Compression Strength
C, (ksf) - Cohesion

DIRECT SHEAR
C (ksf) - Cohesion
F.A. - Friction Angle

E.I. - EXPANSION INDEX
ATTERBERG LIMITS
LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

(R)ESISTANCE VALUE
RV - R-Value @ 300 psi
EP - Expansion Press @ 300 psi

MAXIMUM DENSITY
MDD (pcf) - Max Dry Density
O.M. - Optimum Moisture

Soils Engineering Inc.

September 6, 2022 File No. 22-18503

Mr. David Mack
Fairfax School District
1500 S. Fairfax
Bakersfield, CA 93307

Subject: Hazardous Waste Landfills, Potential Hazardous Sites & Naturally Occurring Asbestos at Proposed School Site SW of S. Oswell St. & Zephyr Ln. – ~20.25 Acres in Bakersfield, CA

Dear Mr. Mack:

A visual site reconnaissance and a regulatory database review indicate that no current or former hazardous waste landfills are located on the subject site or within 1-mile of the proposed school property. Section 17213 of the California Education Code and Section 21151.8 of the California Public Resources Code prohibit construction of a school upon a current or former hazardous waste disposal site or solid waste disposal site. Based on information reviewed the proposed school property is not situated upon a current or former disposal site. See Plate 1 for a Location Map and Plate 2 for a Plot Plan.

A regulatory database search conducted by EDR, Inc. dated July 12, 2022, indicates that no facilities with current or historical hazardous waste activities are present within ¼ mile of the site that would be an environmental concern. In addition, the Kern County Department of Environmental Health Services and the Bakersfield Fire Department have no records of facilities that have any current environmental issues which could impact the site area. SEI is not aware of any facilities within ¼ mile of the site, which might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials, substances, or wastes that might affect the proposed school property.

A sewage treatment plants is located approximately 2000’ northwest of the subject site, which may periodically emit nuisance odors that reach the site area but does not appear to be a significant environmental threat to the site.

The nearest oil wells ever drilled were non-producing and located approximately 280’ to the north, ~320’ to the south, ~730’ to the southeast, and ~-980’ to the east of the site (see Plate 3). The site is within the boundary of the Edison Oil/Gas Field. There is a low to moderate potential that any significant subsurface oilfield related gases (hydrogen sulfide, methane etc.) are present in the subsurface at elevated concentrations based on the adjacent oil wells and the location of the site in which sits within the Edison Oil/Gas Field. This will be further evaluated during a soil gas survey under DTSC oversight.

4400 YEAGER WAY
Bakersfield, CA 93313-2019
Phone: 661-831-5100
Fax: 661-831-2111
info@soilsengineering.com
www.soilsengineering.com

No naturally occurring asbestos (NOA) is known to be present within 10 miles of the subject site area based on a review of the map "A General Location Guide For Ultramafic Rocks In California - Areas More Likely To Contain Naturally Occurring Asbestos", Division of Mines and Geology, The State of California, Open-File Report 2000-19.

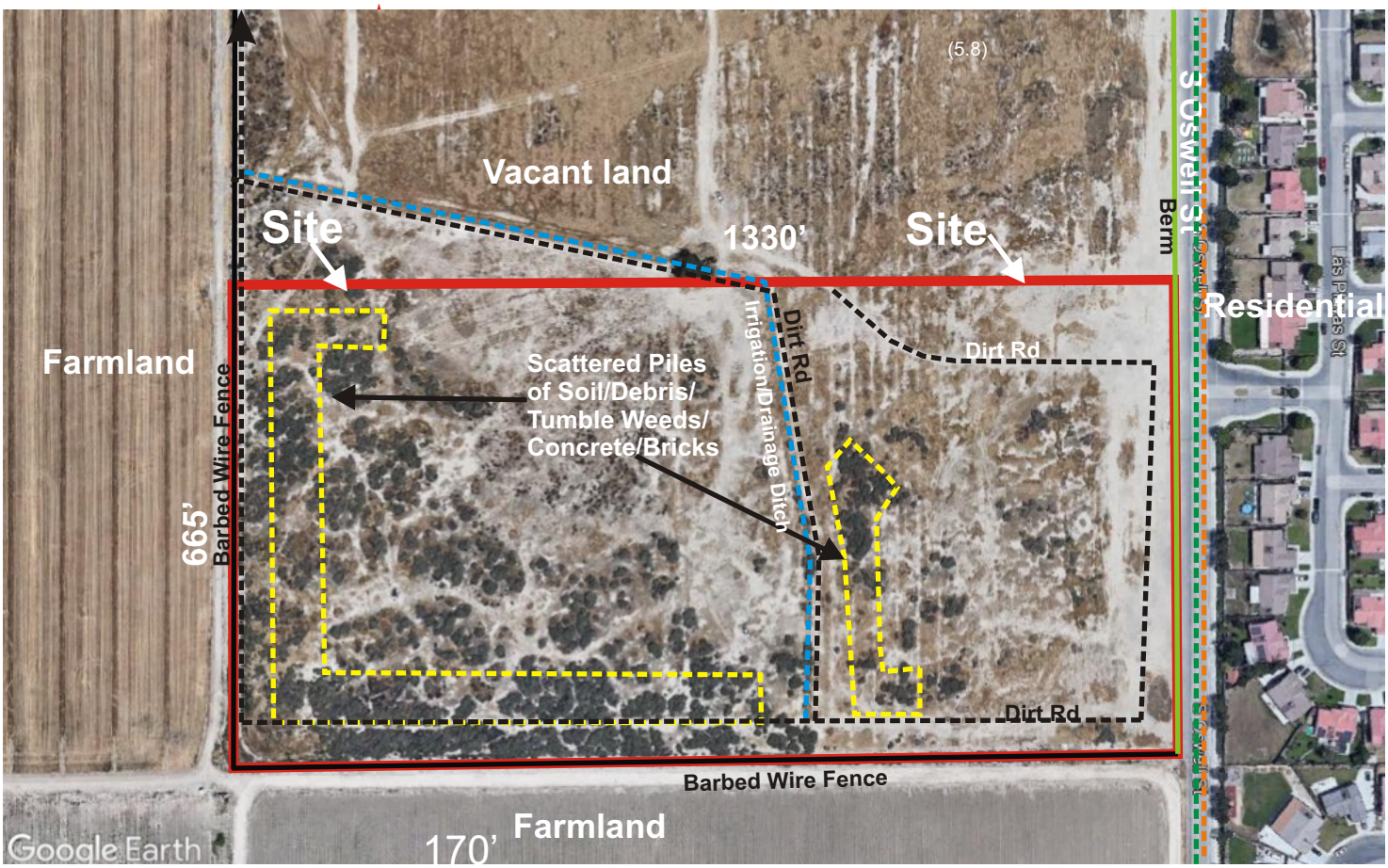
Please contact us if you have any questions or if we can be of further assistance at (661) 831-5100.

Respectfully submitted,
SOILS ENGINEERING, INC.

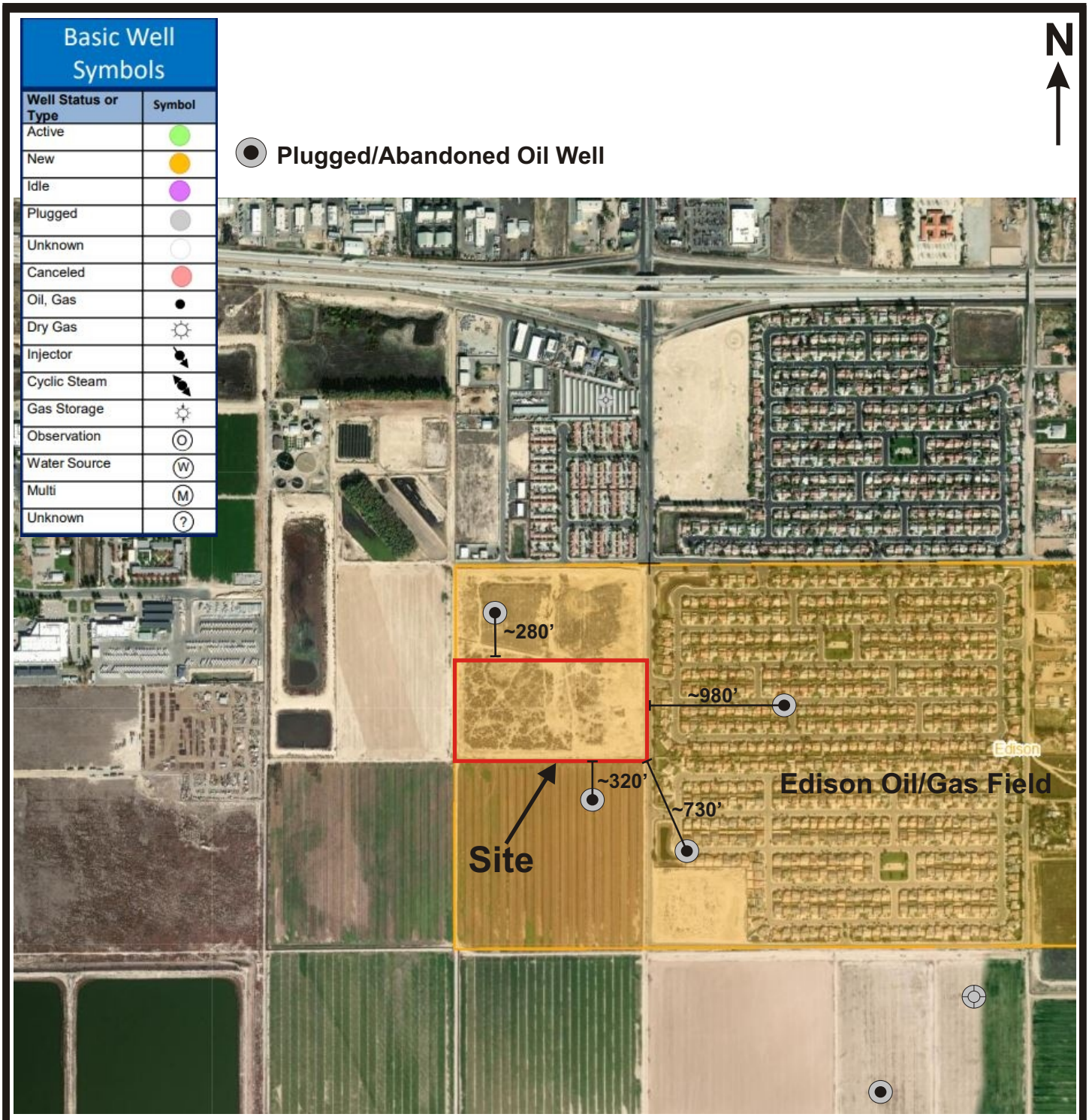
Robert J. Becker. P.G., C.E.G.
Environmental Division Manager

Enclosures: Location Map, Plate 1
Plot Plan, Plate 2
CalGEM Map, Plate 3

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Location Map	**PLATE** **1**



SOILS ENGINEERING, INC. 4400 Yeager Way Bakersfield, CA 93313 (661) 831 - 5100 DATE: 8/22 PROJECT: #18503	FSD Proposed School Site #5 SW of S. Oswell St. and Zephyr Lane Bakersfield, CA **Plot Plan**	PLATE 2



SOILS ENGINEERING, INC. 4400 Yeager Way Bakersfield, CA 93313 (661) 831 - 5100 DATE: 8/22 PROJECT: #18503	FSD Proposed School Site #5 SW of S. Oswell St. and Zephyr Lane Bakersfield, CA CalGEM Map	PLATE 3

Soils Engineering Inc.

September 6, 2022 File No. 22-18503

Fairfax School District
1500 Fairfax Rd.
Bakersfield, CA 93307

Attention: Mr. David Mack

Subject: Pipeline & Aboveground Tank Survey
Proposed School Property
NW of S. Fairfax Rd. & E. Wilson Rd. – 17.37 Acres
in Bakersfield, CA

Dear Mr. David Mack:

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed a Pipeline and Aboveground Tank Survey of a proposed Elementary School Site #5. The proposed school property is located SW of the intersection of S. Oswell St. and Zephyr Ln. in Bakersfield, CA (site). See Plate 1 for a Location Map and Plate 2 for Plot Plan showing nearby pipelines..

Background
California Code of Regulations (CCR) Title 5, Section 14010(h) states that proposed school sites shall not be located within 1,500 feet of the easement of an aboveground water or fuel storage tank, aboveground pipeline, or underground pipeline that can pose a safety hazard as established by a risk analysis study. If the risks associated with potential hazards from the pipeline can be mitigated, exemptions to specific sections of these regulations may be granted as described under CCR Title 5 Sections 14010(u) and 14011(n).

The purpose of this survey is to identify potential imminent health and safety risks to future students, faculty, and staff associated with a possible accidental release from high-pressure water and crude oil pipelines or aboveground storage tank located within 1,500 feet of the site.

Pipeline Locations
SEI conducted a survey of the pipelines located within 1500 feet of the proposed school site (See Plate 2). This included contacting East Niles Community Services, PG&E, Southern California Gas (SCG), Crimson Oil, and Kern Oil representatives to see if any high-pressure (>80 psi) pipelines were present within 1500 feet of the proposed school property. SEI also reviewed available local and regional pipeline maps of the area surrounding the site and did a neighborhood survey for evidence of pipeline markers or street markings that may indicate the

presence of a high-pressure pipeline. No high-pressure petroleum pipelines appear to be within 1500' of the proposed school property border.

A nearby 4" PG & E natural gas distribution line is present along the eastern side of S. Oswell St with a psi <80. The Bakersfield Pipeline Map (Plate 2A) shows the abandoned Chevron Pipelines and Kern Oil pipelines (identified as Shell Oil) over 1500' east from the site at low pressure. The National Pipeline Map (Plate 2B) does not show any high-pressure pipelines within 1500' of the site area. See plates 2, 2A and 2B for the pipeline locations.

Aboveground Storage Tanks
No large aboveground storage tanks (ASTs) appear to be present within 1500' of the site. There is a domestic wastewater treatment plant over 1500' that has large ASTs to the northwest of the site.

There is a 16" Diameter Water Main Pipeline located approximately 55' to the east trending N-S. In an event a full diameter rupture, the estimated water release impact is calculated under the assumption that an average design velocity is 5 feet per second, time to shut-off is 5 minutes, drain down after shut off is assumed negligible, and that the assumed spill pool depth is assumed to be 1.0ft. The impact distance for a circular pool is 52' in which does not affect the site. The impact distance for a rectangular channel with a width of 20' is 105' in which would encroach onto the site a total of 50'. There is a curb on the east side of S. Oswell St. and a future curb along with the western expansion of S. Oswell St. will help control the water from a potential release. Local gradients (gentle southern slope) will also control the flow of water. A 50' setback from S. Oswell St. is recommended.

Conclusions
Based on this survey the following conclusions are presented:

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the school property border.

- Water pipelines are present within 1500' of the site. A 50' setback is recommended from S. Oswell St. Future improvements (expansion of S. Oswell St. with a curb) may minimize the risk of a potential release encroaching onto the site.

- No large aboveground water storage tanks are present within 1500' of the school property border.

Recommendations
The following is recommended:

- No mitigation for oil/gas pipelines or ASTs is warranted for this site.

- A 50' setback is recommended west of S. Oswell St. due to a 16" Diameter Water Main present 55' east of the site.

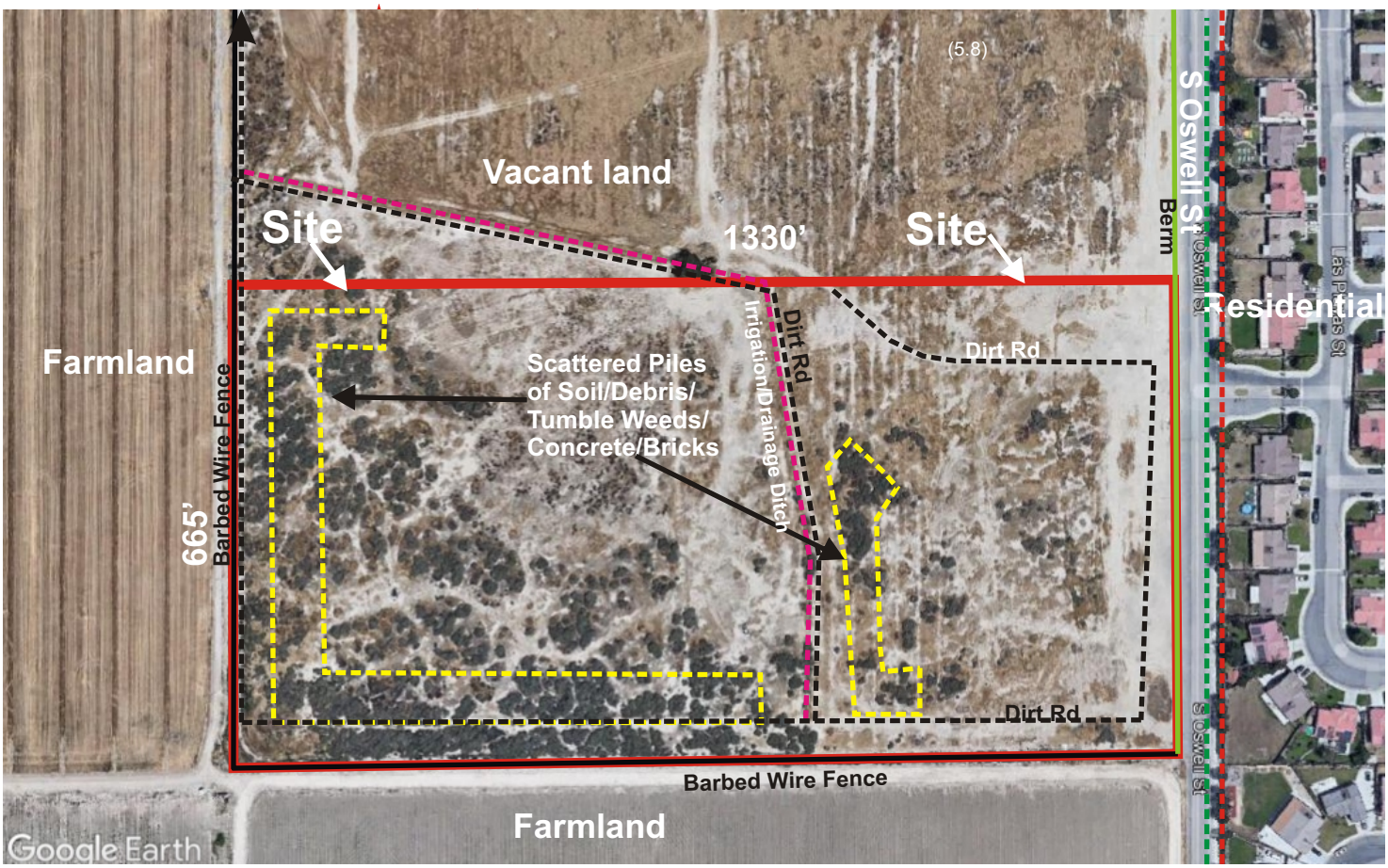
Please call (661) 831-5100 for assistance or any questions concerning this report.

Sincerely,
SOILS ENGINEERING, INC.

Robert J. Becker. P.G., C.E.G.
Environmental Division Manager

Attachments: Location Map, Plate 1
Plot Plan, Plate 2
Bakersfield Pipeline Map, Plate 2A
National Pipeline Map, Plate 2B

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Location Map	**PLATE** 1



16" Water Main Pipeline

HP Distribution Main
Natural Gas 4PL-5'

0 ft 200 ft 400 ft

Approximate Scale

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

Plot Plan

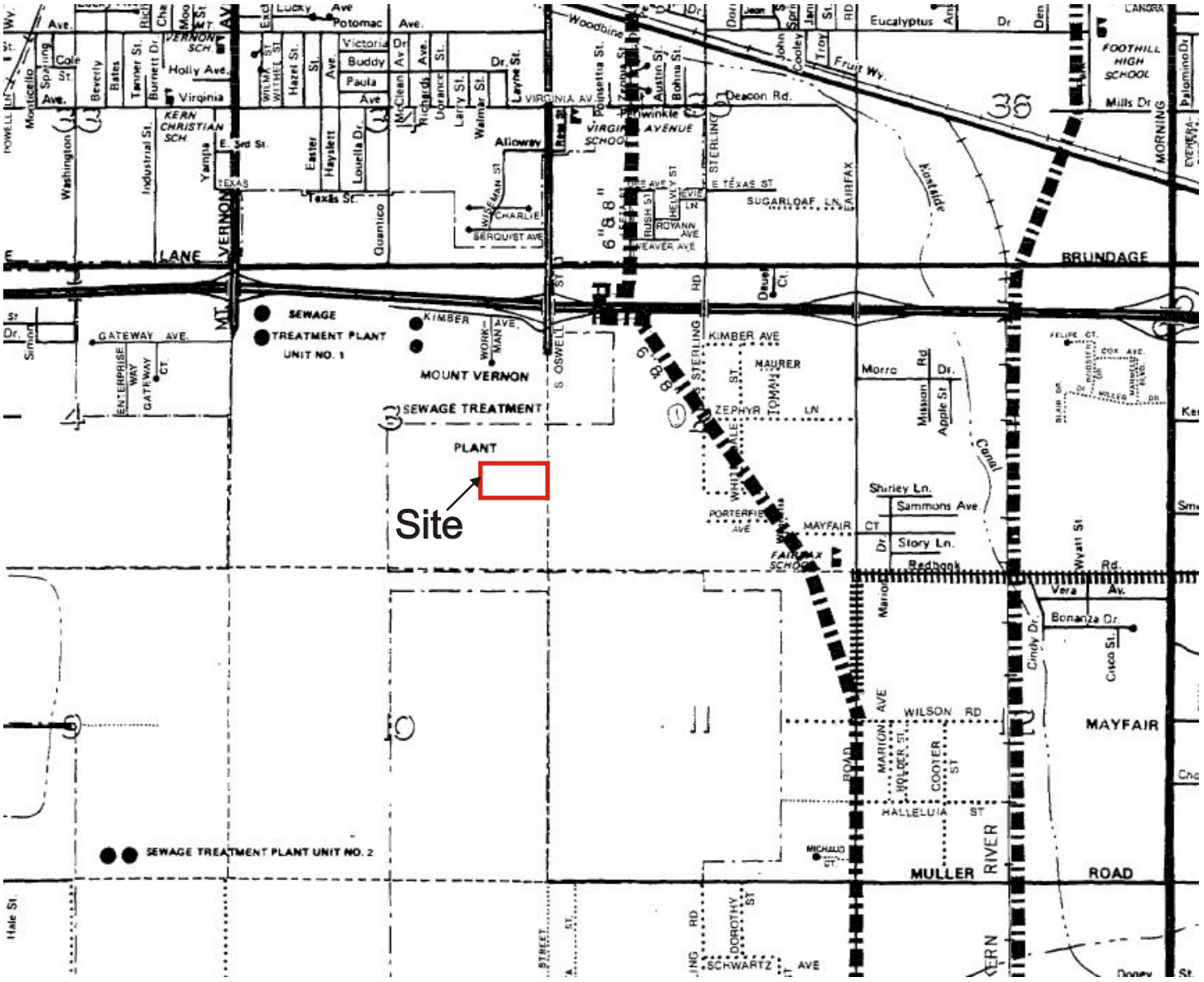
PLATE
2

N

0 1/4 ½ 1 mile

Scale

High-Pressure Pipeline

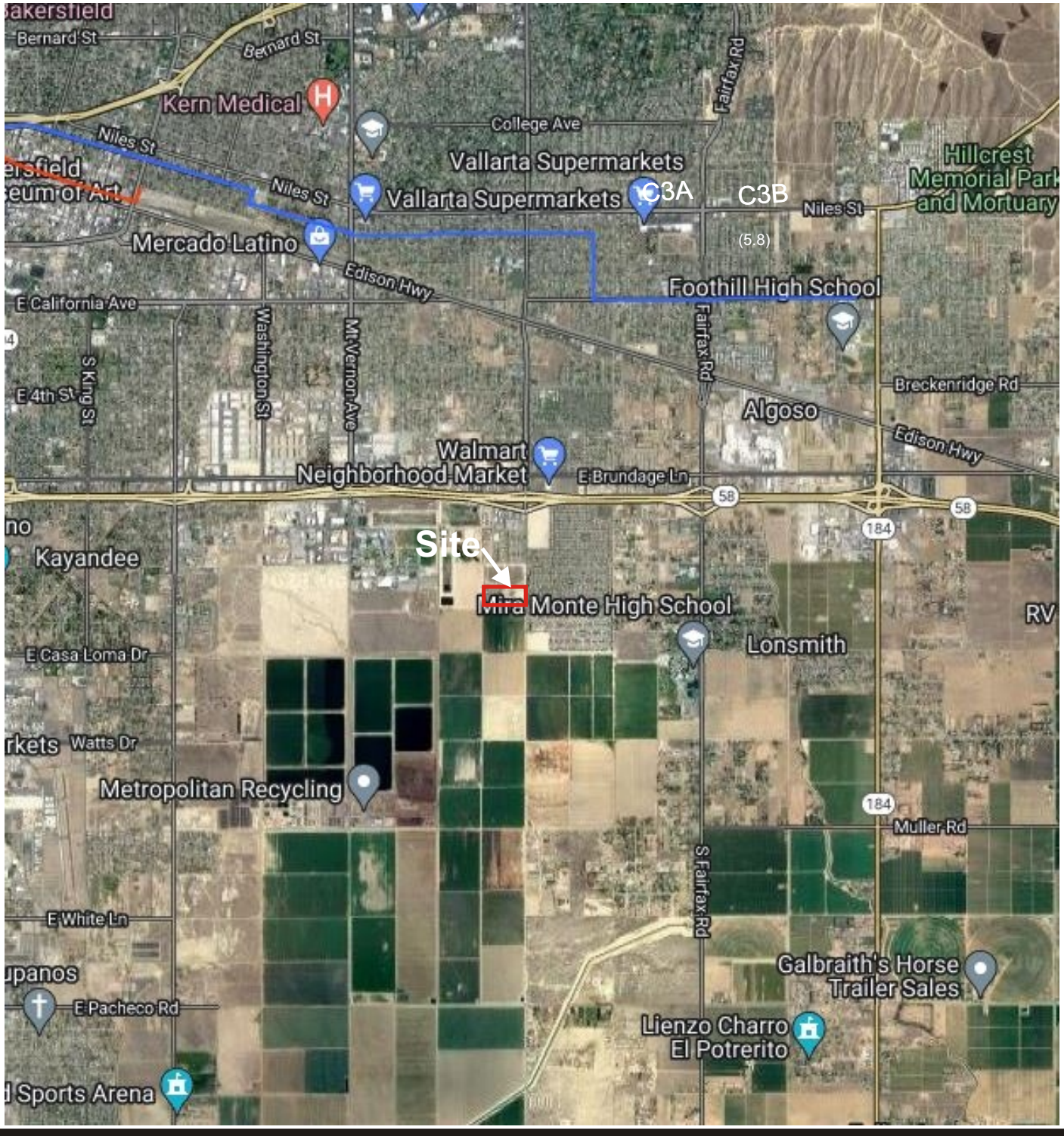


SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Bakersfield Pipeline Map**	**PLATE** **2A**

Red = High Pressure Hazardous Material Pipelines
Blue = High Pressure Petroleum Pipelines (Natural Gas, Crude Oil)

0 ½ 1 mile
Scale

N



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **National Pipeline Map**	**PLATE** **2B**

Soils Engineering Inc.

September 6, 2022 File No. 22-18503

Mr. David Mack
Fairfax School District
1500 S. Fairfax Rd.
Bakersfield, CA 93307

Subject: Power Line Information at Proposed School Property
SW of S. Oswell St. & E. Zephyr Ln. – ~20.25 Acres
in Bakersfield, CA

Dear Mr. Wilken:

Without a CDE approved exemption request, all proposed school sites shall meet at least the following California *Code of Regulations Title 5* Section 14010(c) setbacks as measured from the edge of easement of overhead transmission lines to the usable portions of the school site (including usable joint-use areas, but excluding gross acreage not available for school uses):

Overhead transmission line easement setbacks
100 feet for 50-133kV line (interpreted by CDE up to <200kV)
150 feet for 220-230 kV line
350 feet for 500-550 kV line

Underground transmission line easement setbacks
25 feet for 50-133kV line (interpreted by CDE up to <200kV)
37.5 feet for 220-230kV line
87.5 feet for 500-550 kV line

A visual site reconnaissance by SEI personnel and discussions with PG&E personnel indicate that no power lines are present within 350' of the site boundaries that carry ≥50 Kilovolt (kV) power overhead or underground. There are a couple of underground powerlines that carry 21 Kilovolt (kV) on the east side of S. Oswell St. No setbacks from these power lines are required since they carry power <50 kV.

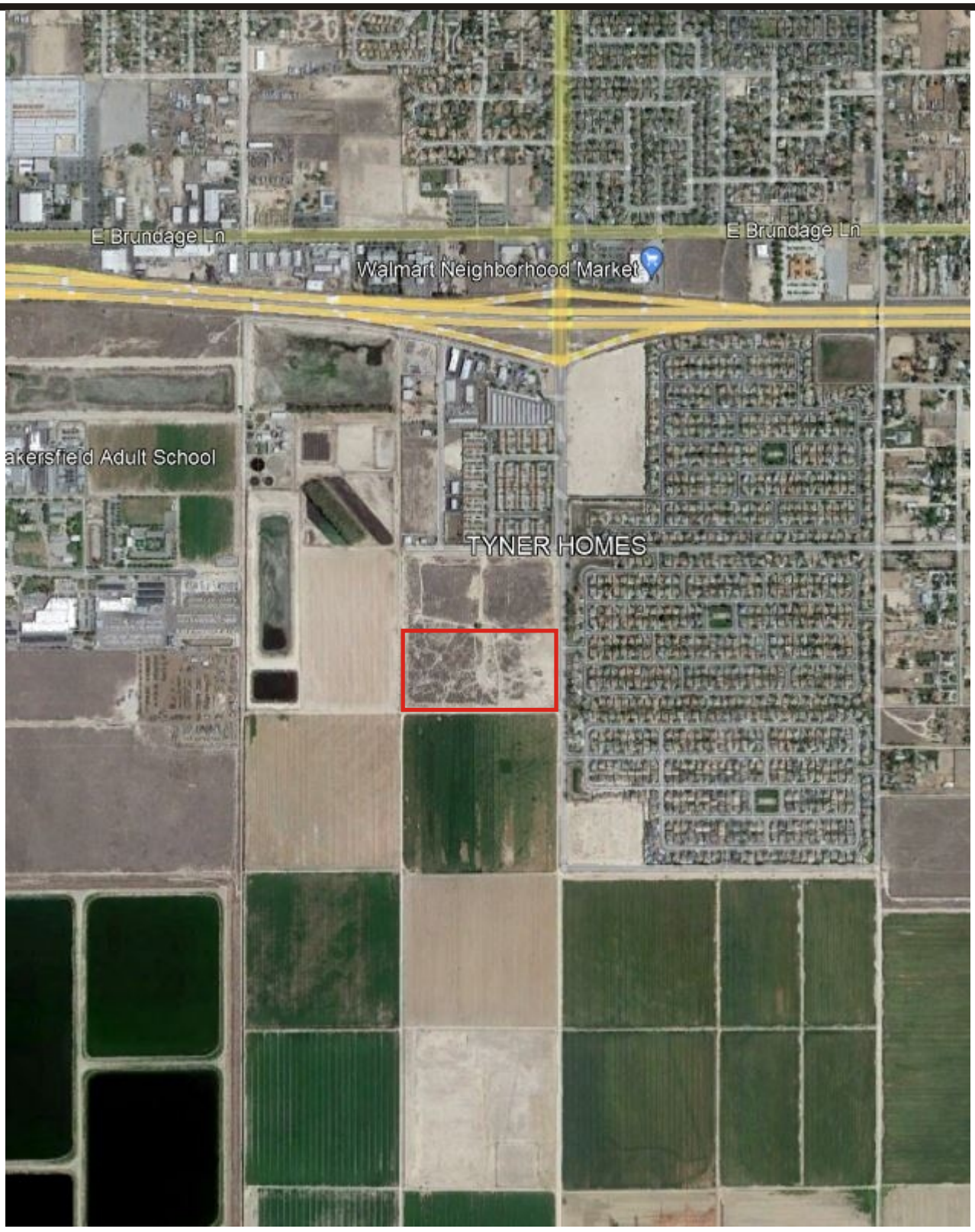
4400 YEAGER WAY
BAKERSFIELD, CA 93313-2019
Phone: 661 831 5100
Fax: 661 831 2111
info@soilsengineering.com
www.soilsengineering.com

Please contact SEI if you have any questions or if we can be of further assistance at (661) 831-5100.

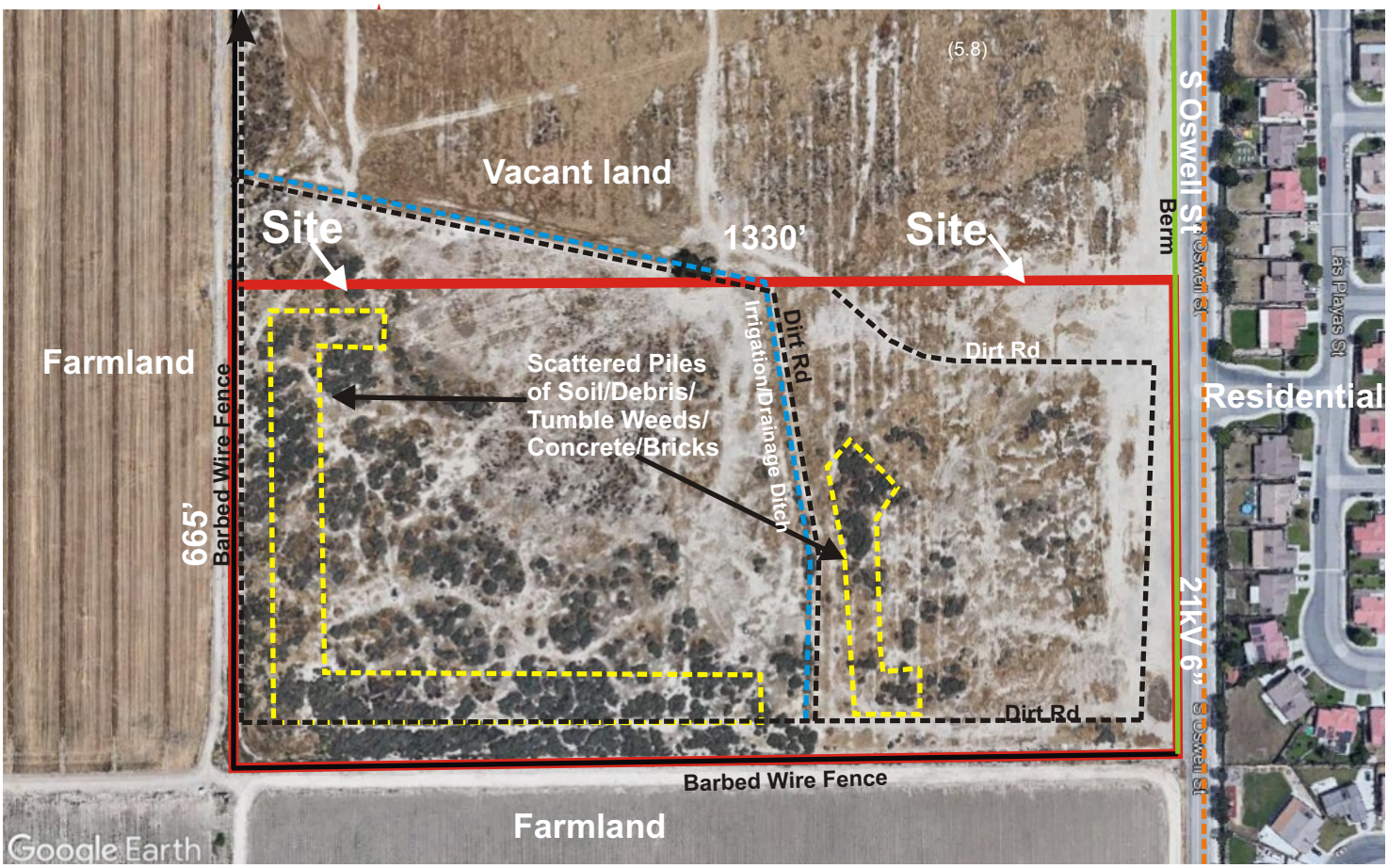
Respectfully submitted,
SOILS ENGINEERING, INC.

Robert J. Becker. P.G., C.E.G.
Environmental Division Manager

Enclosures: Location Map, Plate 1
Plot Plan, Plate 2



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** Location Map	**PLATE** 1



SOILS ENGINEERING, INC. 4400 Yeager Way Bakersfield, CA 93313 (661) 831 - 5100 DATE: 8/22 PROJECT: #18503	FSD Proposed School Site #5 SW of S. Oswell St. and Zephyr Lane Bakersfield, CA **Plot Plan**	PLATE 2

SUPPLEMENTAL SITE INVESTIGATION (SSI) COMPLETION REPORT

PROPOSED NEW SCHOOL SITE #5
SOUTHWEST OF S. OSWELL ST. & ZEPHYR LANE
BAKERSFIELD, CALIFORNIA

Prepared For:

Fairfax School District
1500 S. Fairfax Road
Bakersfield, CA. 93307
Attn: David Mack

File No. 22-18503

Prepared By:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA. 93313

February 2023

SUPPLEMENTAL SITE INVESTIGATION COMPLETION REPORT
NEW PROPOSED SCHOOL SITE #5
SOUTHWEST OF S. OSWELL STREET & ZEPHYR LANE
BAKERSFIELD, CA

Southern ½ of APN: 173-191-01
Site Code:104860

This Supplemental Site Investigation Completion Report (SSI Report) for the New Proposed School Site #5 (site) in Bakersfield, California, was prepared by SOILS ENGINEERING INC. (SEI) on behalf of the Fairfax School District (FSD) in a manner consistent with the level of care and skill ordinarily exercised by professional geologists and environmental scientists. This SSI Report was prepared under the technical direction of the undersigned, who is a California Professional Geologist.

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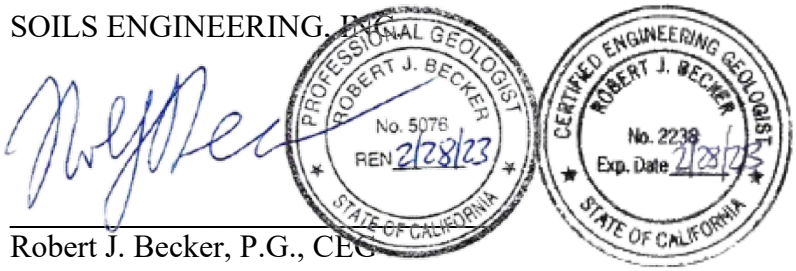
SOILS ENGINEERING, INC.



Robert J. Becker, P.G., CEG

Date: February 7, 2023

TABLES

PLATES

APPENIDICES

SUPPLEMENTAL SITE INVESTIGATION COMPLETION REPORT
NEW PROPOSED SCHOOL SITE #5
SOUTHWEST OF S. OSWELL STREET & ZEPHYR LANE
BAKERSFIELD, CA

Southern ½ of APN: 173-191-01
Site Code:104860

Executive Summary

On the behalf of the Fairfax School District (FSD), Soils Engineering, Inc. (SEI) has completed a Supplemental Site Investigation (SSI) at the Proposed School Site #5 in Bakersfield, CA (site). The SSI was conducted to further evaluate soil and soil gas conditions within the proposed school site area of potential concern identified during a Preliminary Environmental Assessment (PEA). The field work followed the approved SSI Workplan dated December 22, 2022, along with conditional requirements from the DTSC in a letter dated January 24, 2023. See Plate 1 for a Location Map and Plate 2 for a Plot Plan of the site.

On January 26, 2023, SEI conducted soil sampling and a soil gas survey at 4 locations at the site. This included soil sampling at depths of 5', 10' and 15' in the 4 soil gas borings (SG1 to SG4) which were analyzed for arsenic. A duplicate soil sample (SG2-10'-2) was also collected and analyzed for arsenic as was the original sample (SG2-10') at that location.

See Plate 3 for the SSI soil sample locations.

A soil gas survey was conducted on January 26, 2023, to evaluate the soil vapor in the subsurface at four (4) on-site locations (SG1 to SG4). These were located:

a) Nearest to the two (2) closest off-site abandoned oil wells (SG1 and SG3) and at the northeastern (SG3) and southwestern (SG2) corners of the site to evaluate the nearby historical oilfield activities at depths of 5' (all locations), 13', 14' or 15' and 26', 39' or 40' at each location for Methane, Hydrogen Sulfide (H2S) & VOCs. See Plate 3 for locations.

Soil gas samples were collected by advancing a sealed steel probe with a Geoprobe unit to the proposed sampling depths (5',15' and 40' bgs.) then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. Vapor probe installation depths were evaluated for the presence of non-permeable intervals (clay) at the proposed installation depths. In boring SG1 clayey material was present at 15' and 40', so the vapor probes were set at 13' and 39' with a little less clay content. In boring SG2 clayey material was present at 15' so the probe was set at 14' in a little less clayey material. In boring SG3 a very sandy layer at 30' had water present so the deepest probe was set below the water zone at 26' instead of 40'. In boring SG4 clayey material was present at 15' and 40' so the probes were set at 18' and 37' in a little less clayey material. Groundwater was encountered in borings SG1 (~30'), SG2 (~35') and SG3 (~30'). At least one-foot of dry granular

bentonite was placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole was grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole was marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling by an on-site lab chemist. The amount of vapor volume purged during each sampling event was 3 purge volumes. A leak test was conducted during each sampling interval utilizing Isopropanol (IPA) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a summa canister or Tedlar bag (low flow probes) was utilized to collect the vapor sample at each sampling interval to be analyzed for Methane and H2S at the on-site mobile lab and for VOCs by EPA Method TO-15 at a stationary lab. A duplicate vapor sample was collected at sampling location SG2-5' for quality control evaluation. See Appendix B for the soil vapor boring logs showing the profile of the soil vapor completions.

This scope of work was conducted in general accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

Soil was continuously cored to a depth of 18' at SG2 and to the maximum depth achieved in borings SG1, SG3 and SG4 and evaluated in the field for petroleum staining and odor and photoionization readings (PID). As stated above groundwater was encountered at depths ranging from 30' to 35' in borings SG1, SG2 and SG3, but not in SG4. Soil samples were collected at depths of 5', 10' and 15' in each boring with the samples collected in acetate sleeves, sealed with Teflon-lined plastic caps, labeled and placed into a cooler with blue ice. The soil samples were all analyzed for arsenic by EPA Method 6010B at Positive Lab Services in Los Angeles, CA. One (1) duplicate soil sample (SG2-10'-2) was also collected and analyzed for the same constituents as the original sample (SG2-10') at that location.

The results of the SSI soil samples analyzed for arsenic are presented on Table 1 along with the PEA soil sample results. Arsenic concentrations ranged from 4.04 mg/kg to 30.7 mg/kg (SG3-10') in the discrete background soil samples analyzed for arsenic. See Table 1 for the complete analytical results from the PEA & SSI and Appendix A for a copy of the SSI analytical reports.

The highest arsenic reported was 30.7 mg/kg in sample SG3-10'. A re-run of sample SG3-10' had an arsenic result of 21.8 mg/kg. Since all of soil samples were collected at depths of 5' or deeper all of these samples should be considered background arsenic concentrations. Based on background arsenic sampling at other eastern Bakersfield school locations the 30.7 mg/kg and 21.8 mg/kg of arsenic is on the higher end of the range of regional background arsenic concentrations in this area (see Table 3). Utilizing the program ProUCL the on-site near surface (0 to 6", 2' to 2.5') arsenic results were evaluated per the DTSC's "Arsenic Strategies – Determination of Arsenic Remediation Development of Arsenic Cleanup Goals (January 16, 2009)" to determine if the results are part of one community population or more. The on-site near surface arsenic results fall into a reasonably straight line on the Q-Q Plot (See Appendix C) indicating part of one community population and therefore arsenic should not be considered a constituent of concern. In addition, all of the near surface (0 to 6" and 2' to 2.5') arsenic results (highest is 17.5 mg/kg) are less than the highest

background arsenic result (30.7 mg/kg/21.8 mg/kg on re-run). See Appendix C for a copy of the ProUCL data and graphs.

The soil gas survey analytical results are presented on Table 2 and indicate that none of the soil gas samples collected and analyzed had elevated Methane, H2S or VOC concentrations of potential concern. Methane concentrations ranged from <10 ppmV to 510 ppmV (SG1-5') which is below a methane concentration of potential concern (1,000 ppmV). None of the vapor samples had any H2S concentrations reported. Minor concentrations of benzene (<0.2 to 6.4 ug/m3), toluene (<2.5 to 46 ug/m3), ethylbenzene (<0.2 to 19 ug/m3), total xylenes (<0.2 to 106 ug/m3), naphthalene (<0.2 to 3.4 ug/m3), 1,2,4-Trimethylbenzene (<0.2 to 45 ug/m3) and 1,3,5-Trimethylbenzene (<0.2 to 14 ug/m3) were reported in the soil gas samples. All of these soil gas results are below the DTSC Screening Levels for residential sites when the DTSC subslab attenuation factor of 0.001 is utilized. Only 3 of the samples (SG1-5', SG1-39' and SG3-5') had benzene concentrations reported slightly above the EPA screening level (3.23 ug/m3) and 2 samples (SG1-5' and SG1-13') had naphthalene concentrations slightly exceeding the EPA screening level (2.77 ug/m3) with an EPA subslab attenuation factor of 0.03 utilized as shown on Table 2. See Appendix A for complete copies of the SSI analytical reports and Appendix B for some pictures of the SSI activities conducted.

The SSI analytical results were added to the initial risk and hazard evaluation presented in the PEA Equivalent Report dated September 1, 2022, prepared by SEI.

The highest remaining concentrations of chemicals of potential concern reported in the SSI & PEA investigations were included in the human health screening evaluation. This included comparing the soil sample results to the EPA RSLs and the DTSC SLs for residential sites. The soil gas results were compared to the EPA Regional Screening Levels (RSLs) for ambient air and the DTSC Screening Levels (SLs) with an attenuation factor of 0.001. Based on an updated screening level evaluation of risk and hazard the chemicals of potential concern (COPCs) in the soil and soil gas samples are less than the risk level (1 x 10-6) and hazard level (1.0) of potential concern. In addition, the cumulative risk calculated (3.27 x 10-7) is less than the risk level (1 x 10-6) and the cumulative hazard level (0.867) is below a hazard level (1.0) of potential concern.

Any off-site fill material necessary for the site will be sampled and analyzed for potential constituents of concern in accordance with the DTSC's "Information Advisory Clean Imported Fill Material", dated October 2001.

If during field investigation activities or construction activities new areas of potential environmental concern are discovered at the site work will cease in these areas and the DTSC will be notified. SEI will discuss these areas with the DTSC to determine the appropriate actions to be taken to assess and/or remediate these new potential areas of concern.

1.0 INTRODUCTION

On the behalf of the Fairfax School District (FSD), Soils Engineering, Inc. (SEI) has prepared this Supplemental Site Investigation (SSI) Completion Report (SSI Report) for the Proposed School Site #5 located southwest of S. Oswell Street and Zephyr Lane in Bakersfield, CA (site). The Department of Toxic Substances Control (DTSC) has required that a Supplemental Site Investigation (SSI) be conducted at the site to evaluate potential areas of concern. This includes the nearby Edison Oilfield and abandoned oil wells and the concentrations of arsenic within the site area. SEI has included Plate 3 which shows the location of the soil sampling and soil gas borings conducted during the SSI. See Plate 1 for a Location Map and Plate 2 for a Plot Plan.

1.1 Supplemental Site Investigation (SSI) Objectives

SEI prepared a Supplemental Site Investigation Work Plan (SSI Work Plan) dated December 22, 2022, which was conditionally approved by the Department of Toxic Substances Control (DTSC) in a letter dated January 24, 2023, prior to conducting the sampling at the site. The SSI Work Plan described the proposed work to be completed to adequately assess the areas of potential concern at the site. The objective of this SSI is to evaluate the areas with potential chemicals of concern (methane, H2S, VOCs, and arsenic) that may need to be mitigated in order to ensure the safety of future occupants of the site. This information will be utilized to assess the risk and hazards that these chemicals of concern would have on future occupants if left in-place. Based on this assessment, the amount of soil or soil gas to be mitigated will be determined and a Removal Action Workplan (RAW) will be prepared for the site, if warranted.

1.2 Scope of Work

1.2.1 Soil Vapor Survey & Analytical Testing

Soils Engineering, Inc. (SEI) proposed to evaluate the soil vapor in the subsurface at four (4) on-site locations. These will be located closest to the 2 nearest oil wells or at the corners of the site to evaluate subsurface gases (methane, H2S & VOCs) for impact from nearby oil field activities since the site is within the Edison Oilfield. The following scope of work is proposed.

A soil vapor survey will be conducted at the four (4) locations stated above to evaluate methane, H2S and VOCs in the subsurface soil gas. Soil vapor samples will be collected at depths of 5', 15' and 40' at the locations shown on Plate 3. Soil gas samples will be collected by advancing a sealed steel probe with a Geoprobe unit (or equivalent) to the proposed sampling depths (5', 15' and 40' bgs.), then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. At least one-foot of dry granular bentonite will be placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole will be grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole will be marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling. The amount of vapor volume to be purged during each sampling event will be 3 purge volumes. A leak test will be conducted during each sampling interval utilizing n-propanol (or equivalent) as the tracer chemical. After purging 3 volumes of

vapors from the tubing, a clean syringe, glass bulb or summa canister will be utilized to collect the vapor sample at each sampling interval to be analyzed for VOCs by EPA Method 8260B at an on-site mobile analytical laboratory or a stationary lab. A duplicate vapor sample will be collected at one of the sampling locations for quality control evaluation. EPA Method TO-15 may also be utilized for VOC analysis at a stationary lab, if necessary, to achieve reporting limits less than the RSLs or SLs for some of the VOCs. Methane and H2S will also be tested for at each probe location by attaching a hand-held methane and H2S meter to the soil gas tubing and reporting the highest reading. Based on the analytical results of the initial soil vapor samples additional soil vapor borings may be conducted to define the extent of elevated vapor of concern in the subsurface.

This scope of work will be conducted in accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

1.2.2 Soil Sampling & Analytical Testing

Soil Sampling During Soil Gas Survey
The 4 soil vapor borings will be continuously sampled to a depth of 15' and then sampled at a depth of 40' to evaluate soil type and potential staining and odor. Vapor probe installation depths may be adjusted due to the presence of non-permeable intervals (clay) at the proposed installation depths of 5', 15' and 40'. Any sample interval with stained soil or high PID readings will be sealed with Teflon-lined caps, labeled and placed in a cooler with blue ice. EPA Method 5035 will be utilized to preserve the soil sample portion for VOC analysis, if warranted. At a minimum a soil sample will be collected at a depth of 5' and 10' for arsenic analysis at each boring location. The soil encountered will be screened for hydrocarbon content with a PID meter and the lithology described on a boring log.

The sampling equipment will be decontaminated between each sampling event to prevent cross-contamination.

Analytical Testing of Soil Samples
The 5' and 10' soil samples from the soil gas borings will be analyzed for arsenic by EPA Method 6010 at a stationary certified analytical laboratory. Soil samples collected because of the presence of petroleum staining and or high PID readings will be analyzed for TPH by EPA Method 8015, for PAHs by EPA Method 8270SIM or 8310 and for VOCs by 8260B at a stationary certified laboratory. The soil samples will be transported to a State certified analytical laboratory under chain of custody documents.

1.2.3 Baseline Risk Assessment

The analytical results from the previous PEA investigation and the new soil and vapor sample results will be used in the evaluation of risk and hazards from potential pathways at the site. This evaluation will be utilized to determine the appropriate removal action areas at the site, if warranted.

1.3 SSI Report Format

After receiving the results of the soil vapor and soil samples, this "Draft" Supplemental Site Investigation Completion Report (SSI Report) was prepared. This SSI Report consists of the following main sections: 1.0 Introduction, 2.0 Summary of Site Background, 3.0 Sampling Activities and Results, 4.0 Risk Evaluation, 5.0 Quality Assurance Project Plan (QAPP) Implementation, 6.0 Health and Safety Plan Implementation, 7.0 Field Variances, 8.0 Conclusions and Recommendations, 9.0 Limitations and 10.0 References. Attachments included in this report consist of analytical results in table format, a location map, a plot plan, sample location maps, sample result maps and complete analytical reports, including Quality Assurance/Quality Control data.

2.0 SUMMARY OF SITE BACKGROUND

2.1 Site Description and Location

The site is approximately 20.25 acres and consists of the southern half of one (1) parcel (APN: 173-191-01) located southwest of S. Oswell St. and Zephyr Lane. in Bakersfield, CA as shown on the attached Location Map (Plate 1) and Plot Plan (Plate 2). The site is a vacant field that has a moderate amount of vegetation. There are traces of an irrigation/drainage ditch adjacent to the center of the site to the east trending north south. Just east of the irrigation/drainage ditch, there are multiple scattered piles that appear to contain some combination of soil/debris/vegetation/concrete/bricks/asphaltic material. These piles are also scattered along the western half of the southern border and along the western border of the site. There are also dirt roads along the eastern, southern, and the northeastern border. There is also a dirt berm along the eastern border to limited on-site access and barbed wire fencing along the western and southern borders. Farmlands borders the site to the south and west of the property. To the north there is vacant land and there is S. Oswell Street and residential properties to the east.

Available records kept by the County of Kern, City of Bakersfield, aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to the 1970s. From 2017 to 2020, there were soil piles on the southeastern portion of the site. Currently the site is vacant land.

See Plate 4 for a Conceptual Site Model showing the potential pathways and potential environmental issues at this site.

2.2 Summary of PEA Equivalent Investigation

A Preliminary Environmental Assessment (PEA) Equivalent Report dated September 1, 2022, was prepared by SEI for the FSD for the Site #5 area. The following is a summary of that investigation along with conclusions and recommendations for the site.

To assess near surface soil conditions within the site area, SEI collected a total of 64 on-site soil samples in general accordance with the Department of Toxic Substances Controls (DTSC's) PEA Guidance Manual and the DTSC's Interim Guidance for Sampling Agricultural Properties (3rd Revision). The soil samples were collected at depth intervals of 0" to 6" and 2' to 2.5' below ground surface (bgs) at the on-site sampling locations as shown on Plate 2A. The area was divided into eight (8) grid sections (C1 to C8) with four (4) sample locations (A, B, C & D) per grid section. Soil samples collected within areas of current or former fill material piles were also analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), and Total Petroleum Hydrocarbons (TPH C5 to C36). This included samples C5A-3" C5C-3", C6C-3", C7D-3", C8B-3", and C8D-3". A duplicate soil sample (C3E-3") was collected at sample location C3B-3" and analyzed for OCPs and arsenic for Quality Control/Quality Assurance. The deeper -2' soil samples were analyzed if the corresponding -3" soil sample had one of the highest concentrations reported of OCPs or arsenic. This included soil samples C3B-2', C5C-2', C8A-3", C8C-3", C8A-2', C8B-2', C8C-2', C8D-2' and C7D-2' for OCPs and samples C1B-2', C2B-2', C3B-2', C5A-2', C6B-2', C6C-2', C7B-2' and C7D-2' for arsenic. In addition, two (2) background soil samples (B1@6' and B2@6') collected at a depth of 6' in the two (2) geotechnical soil borings were also analyzed for arsenic for background comparison purposes.

Discrete soil samples were also collected at 3 locations (BM1 to BM3) within the eastern edge berm piles and were analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPH C5 to C36) and pH. EPA Method 5035 was utilized to preserve the soil sample portion for the VOC analysis.

The soil samples were shipped to Positive Lab Services in Los Angeles, CA in a cooler with blue ice along with completed chain of custody documents.

The analytical results of the 0" to 6" composite samples (C1A,B,C,D-3" to C8A,B,C,D-3") and the 0 to 6" (-3") and 2' to 2.5' (-2') discrete soil samples analyzed for organo-chlorine pesticides (OCPs) within the site area during this investigation, indicate that only minor concentration 4,4'-DDD (up to 0.0192 mg/kg), 4,4'-DDE (up to 0.0236 mg/kg), 4,4'-DDT (up to 0.125 mg/kg) and dieldrin (up to 0.00818mg/kg) were reported. All of these results are well below the EPA Regional Screening Levels (RSLs) and the DTSC Screening Levels (SLs) for these constituents.

The analytical results of on-site arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg with an average of 11.9 mg/kg in the soil samples analyzed. Two (2) background soil samples collected at a depth of 6' had arsenic concentrations reported at 11.5 mg/kg and 9.2 mg/kg. A duplicate sample C3E-3" (same as C3B-3") was also analyzed for arsenic with a similar result. Lead concentrations from the soil samples collected in the former fill areas and in the soil berms ranged from 1.97 to 23.7 mg/kg indicating no concentrations exceeding the DTSC SL of 80 mg/kg in these areas.

The 3 soil berm pile samples had no elevated concentrations of OCPs, TPH, VOCs, CAM 17 Metals or pH reported.

See Table 1 for the soil sample analytical results. See Plate 2A for the soil sample locations.

The highest concentrations of chemicals of potential concern (COPC) reported in the soil samples were included in a human health screening evaluation. This included the following COPCs: 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg, The highest arsenic concentration (17.8 mg/kg) is within the East Bakersfield area background arsenic concentrations as shown on Table 3 and was eliminated from the risk and hazard evaluation.

Based on a comparison of the highest concentrations of COPC's reported with the DTSC SLs and the EPA RSLs the total cumulative risk is 3.265 x 10-7 and the total cumulative hazard is 0.017066 for all pathways.

These results indicate:

1. The risk and hazard levels appear to be acceptable for the proposed school area.
2. The historical agricultural use and occasional dumping of fill materials do not appear to have caused an elevated risk or hazard level to future occupants at the proposed school site.

The PEA equivalent investigation indicates:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were

collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

DTSC Comments on the PEA Equivalent Report
The DTSC comments during a Project Scoping Meeting via a video conference call on December 19, 2022 on the PEA Equivalent Report included the following:

A supplemental site investigation (SSI) is necessary to address the possibility of subsurface gases (methane, volatile organic compounds (VOCs) and hydrogen sulfide (H2S)) being present from nearby oil field activities that might be a threat for vapor intrusion into future buildings on-site. The site is located within the boundaries of the Edison Oil & Gas Field with the nearest oil wells drilled ~280' to the north and ~320' to the south which were both dry holes (no oil production).

The on-site arsenic concentrations in the subsurface soil was also discussed with the highest on-site arsenic concentration reported being 17.8 mg/kg. The DTSC requested the on-site arsenic concentrations by evaluated per the DTSC's "Arsenic Strategies – Determination of Arsenic Remediation Development of Arsenic Cleanup Goals (January 16, 2009)".

The SSI Workplan included the requirements that the DTSC has stated in their comments to address the potential environmental issues at this site.

3.0 SSI SAMPLING ACTIVITIES AND RESULTS

3.1 Summary of Activities

3.1.1 Boring Clearance
SEI contacted Underground Service Alert to determine if any underground utilities were present at the pre-marked boring locations. None of the borings were located in marked utility locations.

3.2 Soil Vapor Sampling and Analysis

3.2.1 Sample Locations and Rationale
A soil gas survey was conducted on January 26, 2023, to evaluate the soil vapor in the subsurface at four (4) on-site locations (SG1 to SG4). These were located:

- Nearest to the two (2) closest off-site abandoned oil wells (SG1 and SG3) and at the northeastern (SG3) and southwestern (SG2) corners of the site to evaluate the nearby historical oilfield activities at depths of 5' (all locations), 13', 14' or 15' and 26', 39' or 40' at each location for Methane, Hydrogen Sulfide (H2S) & VOCs. See Plate 3.

3.2.1.1 Soil Gas Borings
On January 26, 2023, InterPhase Environmental Inc. (InterPhase) advanced four (4) borings (SG1 to SG4) to depths of approximately 30' to 40' bgs. utilizing a Geoprobe hydraulic push rig. This was to collect representative vapor samples at approximate depths of 5' (SG1 to SG4), 13' (SG1), 14' (SG2), 15' (SG3), 18' (SG4), 26' (SG3), 37' (SG4), 39' (SG1) and 40' bgs (SG2) at these locations. The vapor samples were collected per the sampling protocol described in Section 3.2.2. Soil vapor borings SG1, SG2, SG3 and SG4 were located along southern, northern and eastern borders of the

site to evaluate the nearby abandoned oil wells and the Edison Oilfield for Methane, H2S and VOCs vapors in the subsurface. See Plate 3 for the approximate locations of these soil gas borings.

3.2.2 Sample Collection Procedures

3.2.2.1 Vapor Sampling

Soil vapor samples were collected at depths of 5', 13' and 39' at SG1, at 5', 14' and 40' at SG2, at 5', 15' and 26' at SG3 and at 5', 18' and 37' at SG4 at the locations shown on Plate 3. Soil gas samples were collected by advancing a sealed steel probe with a Geoprobe unit to the proposed sampling depths (5',15' and 40' bgs.) then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. Vapor probe installation depths were evaluated for the presence of non-permeable intervals (clay) at the proposed installation depths. In boring SG1 clayey material was present at 15' and 40', so the vapor probes were set at 13' and 39' with a little less clay content. In boring SG2 clayey material was present at 15' so the probe was set at 14' in a little less clayey material. In boring SG3 a very sandy layer at 30' had water present so the deepest probe was set below the water zone at 26' instead of 40' due to heaving sands. In boring SG4 clayey material was present at 15' and 40' so the probes were set at 18' and 37' in a little less clayey material. Groundwater was encountered in borings SG1 (~30'), SG2 (~35') and SG3 (~30'). At least one-foot of dry granular bentonite was placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole was grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole was marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling by an on-site lab chemist. The amount of vapor volume purged during each sampling event was 3 purge volumes. A leak test was conducted during each sampling interval utilizing Isopropanol (IPA) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a summa canister or Tedlar bag (low flow samples) was utilized to collect the vapor sample at each sampling interval to be analyzed for Methane and H2S at the on-site mobile lab and for VOCs by EPA Method TO-15 at a stationary lab. A duplicate vapor sample was collected at sampling location SG2-5' for quality control evaluation. See Appendix B for the soil vapor boring logs showing the profile of the soil vapor completions.

This scope of work was conducted in general accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

The soil gas analytical testing results reported are included on Table 2 and on the soil gas boring logs in Appendix B.

3.2.2.2 Decontamination

The vapor sampling materials (summas, syringes, tubing, etc.) utilized during vapor sampling were properly decontaminated or replaced between each sample.

3.2.3 Sample Handling Procedures

The vapor samples were collected in summa canisters or Tedlar bags (low volume recovery probes) by an A & R Lab chemist were taken to an on-site mobile A & R Lab (ARL) for analysis of Methane and H2S and taken to a stationary AR Lab under chain of custody documents for VOC analysis. The chain-of-custody documents included the sample ID, date, time, and chemical analysis requested, along with client and project information.

3.2.4 Vapor Matrix Analytical Procedures

The vapor samples collected during this SSI were analyzed for chemicals of concern as proposed in the SSI Workplan. This included Methane by EPA Method 8015, H2S by Hach Model HS-C and VOCs by EPA Method TO-15. The chemical analyses were conducted by ARL, a State of California certified analytical laboratory utilizing low detection limits. SEI utilized an RKI Eagle Meter after ARL's sampling to test each probe for Methane and H2S. The highest reading observed on the RKI Eagle Meter was recorded. See Table 2 for the analytical methods employed and results.

3.2.5 Vapor Matrix Analytical Results

3.2.5.1 Methane, H2S, and Volatile Organic Compounds (VOCs)

A total of 13 vapor samples were analyzed for Methane, H2S and VOCs during the SSI sampling event. The soil gas survey analytical results are presented on Table 2 and indicate that none of the soil gas samples collected and analyzed had elevated Methane, H2S or VOC concentrations of potential concern. Methane concentrations ranged from <10 ppmV to 510 ppmV (SG1-5') which is below a methane concentration of potential concern (1,000 ppmV). None of the vapor samples had any H2S concentrations reported. Minor concentrations of benzene (<0.2 to 6.4 ug/m3), toluene (<2.5 to 46 ug/m3), ethylbenzene (<0.2 to 19 ug/m3), total xylenes (<0.2 to 106 ug/m3), naphthalene (<0.2 to 3.4 ug/m3), 1,2,4-Trimethylbenzene (<0.2 to 45 ug/m3) and 1,3,5-Trimethylbenzene (<0.2 to 14 ug/m3) were reported in the soil gas samples. All of these soil gas results are below the DTSC Screening Levels for residential sites when the DTSC subslab attenuation factor of 0.001 is utilized. Only 3 of the samples (SG1-5', SG1-39' and SG3-5') had benzene concentrations reported slightly above the EPA screening level (3.23 ug/m3) and 2 samples (SG1-5' and SG1-13') had naphthalene concentrations slightly exceeding the EPA screening level (2.77 ug/m3) with an EPA subslab attenuation factor of 0.03 utilized as shown on Table 2. See Table 2 for the vapor sample results and Appendix A for the complete SSI analytical reports.

3.3 Soil Matrix Sampling and Analysis

3.3.1 Sample Locations and Rationale

To assess background arsenic concentrations soil samples were collected at depths of 5', 10' and 15' in the 4 soil gas borings. If elevated concentrations of concern were identified in the field or reported in the analytical results, step-out soil borings would have been conducted further out from the previous boring location until this area of concern was adequately defined.

3.3.2 Sample Collection Procedures

3.3.2.1 Soil Sampling

Discrete soil samples were collected at depths of 5', 10' and 15' within the four (4) soil gas borings to evaluate background arsenic concentrations. The samples were screened with a PID meter and visually checked for signs of petroleum hydrocarbons (staining and odor). No elevated PID readings or staining was observed so no soil samples were collected for VOC analysis. The soil samples were collected in acetate sleeves, sealed with Teflon-line plastic caps, labeled and placed into a cooler with blue ice. One (1) duplicate soil sample (SG2-10'-2) was also collected and analyzed for the same constituents as the original sample (SG2-10') at that location.

The soil encountered was described on a boring log.

3.3.2.2 Decontamination

The soil sampling equipment (Geoprobe rods, etc.) were decontaminated between each sampling event to prevent cross-contamination. The equipment was cleaned with a brush in a mixture of Alconox (or equivalent) and water and then rinsed in clean water. The decontamination water was changed when the wash water became too turbid and/or the rinse water was not clear.

3.3.3 Sample Handling Procedures

The soil samples were transported over-night to Positive Lab Service in Los Angeles, CA, along with completed chain-of-custody documents for chemical analysis in a sealed cooler with ice. The chain-of-custody documents included the sample ID, date, time, and chemical analysis requested, along with client and project information.

3.3.4 Soil Matrix Analytical Procedures

The following is a summary of the analytical testing conducted on the soil samples collected:

- Discrete soil samples SG1-5', SG1-10', SG1-15', SG2-5', SG2-10', SG2-10'-2 (duplicate), SG2-15', SG3-5', SG3-10', SG3-15', SG4-5', SG4-10' and SG4-15' were analyzed for arsenic by EPA Method 6010.

The chemical analyses were conducted by Positive Lab Services, a State of California certified analytical laboratory utilizing low detection limits. The other soil samples were kept on hold in a frozen state in case additional analyses was warranted.

Additional analysis conducted included:

- Retest of SG3-10' for arsenic by EPA Method 6010

See Table 1 for the analytical methods employed and results.

3.3.5 Soil Matrix Analytical Results

3.3.5.1 Arsenic

During the SSI sampling event the following number of samples were analyzed for the constituents listed below:

- 13 soil samples were analyzed for arsenic by EPA Method 6010

Arsenic concentrations ranged from 4.04 mg/kg to 30.7 mg/kg (re-run was 21.8 mg/kg) in the discrete soil samples analyzed for arsenic. See Table 1 for the complete analytical results from the PEA & SSI and Appendix A for a copy of the SSI analytical reports.

3.4 Disposal of Investigation Derived Wastes

The soil cuttings derived from the soil sampling events were examined for staining, odor and other indications of contamination. If no contamination was evident the soil cuttings, they were discarded at the surface. Decontamination water was examined for evidence of sheen and odor and disposed of on-site, if not visually impacted.

3.5 Description of Subsurface Lithology

The soil gas borings were continuously cored to a depth of 18' at SG2 and to the total depth explored at borings SG1, SG3 and SG4 and were examined to determine a subsurface lithologic profile. The collected soil in acetate sleeves were described by an SEI State of California professional geologist in accordance with the Uniform Soil Classification System. Earth materials encountered beneath the site consisted generally of intervals of Silty Sand (SM), Sandy and Clayey Silt (ML), Sandy or Silty Clay (CL) and Well Graded Sand (SW) in the top 40 feet below ground surface (bgs). These soils are classified as SM, ML, CL & SW respectively, in the Unified Soils Classification System. A PID meter was utilized to evaluate the soil for relative petroleum hydrocarbon concentrations and staining and odor was also evaluated in the soil cores. Groundwater was encountered in soil borings SG1 (~30'), SG2 (~35') and SG3 (~30') but not in SG4. This information is presented on the soil gas boring logs attached in Appendix B.

3.6 Discussion of SSI Results

The analytical results of the soil gas samples analyzed for Methane, H2S and VOCs during the SSI investigation indicate that there is not any elevated concentrations of potential concern of these constituents present in the subsurface at the site. The Methane, H2S and VOCs reported were compared to the EPA RSLs, DTSC Screening Levels (SLs) or Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) when divided by the empirically derived EPA attenuation factor (0.03) and the DTSC soil gas guidance (2011) attenuation factor of 0.001. Benzene vapor concentrations in 3 samples (SG1-5', SG1-39' and SG3-5') and naphthalene concentrations in 2 samples (SG1-5' and SG1-13') slightly exceeds the Soil Gas Screening Levels utilizing the EPA empirically derived attenuation factor (0.03). None of the vapor sample concentrations exceed the Soil Gas SLs when utilizing the DTSC Soil Gas Guidance (2011) attenuation factor of 0.001. The SSI soil vapor sampling results along with the EPA RSLs, DTSC

SLs and RWQCB ESLs are presented on Table 2 and the SSI analytical reports are included in Appendix A.

The analytical results of the soil samples analyzed for arsenic during the SSI investigation indicate that the background arsenic concentration is as high as 30.7 mg/kg (SG3-10'). The rerun of sample SG3-10' was 21.8 mg/kg for arsenic which appears to be more reasonable. No oil staining or significant petroleum odor was reported in any of the soil samples or soil cores examined during the SSI investigation. No PID readings were recorded above 0 ppm in any of the soil samples screened for VOCs.

4.0 RISK EVALUATION

4.1 Pre-SSI Risk Evaluation and Endangerment Determination

The risk and hazard evaluation in the PEA Equivalent Report are summarized below:

The highest concentrations of chemicals of potential concern reported in the PEA investigation were included in a comparison human health screening evaluation. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicated a low cancer risk and hazard for future occupants at this site.

4.2 Post SSI Risk Reassessment

4.2.1 Exposure Pathways and Media of Concern

The exposure pathways of concern are soil pathways (ingestion and absorption through skin contact) and air pathways (dust particles inhaled during soil disturbances and vapor intrusion from subsurface contaminates in soil and adjacent petroleum pipeline). Since groundwater will not be exposed at the surface, absorption and ingestion of groundwater was not evaluated. Soil may have residual concentrations of pesticides, petroleum hydrocarbons, VOCs, methane, H2S and metals. The release of these soil particles would be intermittent and should be considered as a threatened release not as an actual release at this site. SEI has prepared a Conceptual Site Model to show the potential exposure pathways at this site, which is included as Plate 4.

4.2.2 Post SSI Risk Evaluation and Endangerment Determination

Based on the analytical results reported in the soil and vapor samples collected at the site during the PEA and SSI, an updated hazard and risk analysis was conducted to evaluate the potential total risk and hazard at the site to human receptors.

SEI recommends the use of the DTSC AF of 0.001 for the risk and hazard evaluation of soil gas results. This recommendation is based on the following:

1) The soil gas samples were all collected along the borders of the site and therefore the maximum concentrations reported in the soil gas samples may not represent the entire site

area. The calculated risk and hazard utilizing the maximum soil gas concentrations will likely result in an over-estimation of risk and hazard for the whole site.

2) The future buildings will be placed within the more central area of the site and therefore will be farther away from the nearby abandoned oil wells and the soil gas sample locations thus reducing the potential for soil gas intrusion into the proposed buildings. In addition, the high amount of clay fraction in the subsurface soil makes the potential for vapor intrusion to occur lower since it has such low permeability.

3) All of the soil and soil gas samples were collected following the Quality Assurance/Quality Control Plan (QA/QC) included in the approved SSI Workplan for the site. This included the collection and analysis of duplicate soil and soil gas samples, conducting a shut-in pressure test and utilizing a trace gas (IPA) when collecting the soil gas samples. This ensures the data quality of the soil and soil gas results during this investigation can be relied on.

Based on the above three (3) lines of evidence, the DTSC default 0.001 AF for the maximum soil gas results is a more accurate representation of the risk and hazard for the whole site.

The highest concentrations of chemicals of potential concern (COPC) reported in the SSI and PEA investigations were included in a human health screening evaluation. This included the following COPCs: 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg, dieldrin at 0.00818 mg/kg, Methane at 510 ppmV, benzene at 6.4 ug/m3, toluene at 46 ug/m3, ethylbenzene at 19 ug/m3, xylenes at 106 ug/m3, 1,2,4-Trimethylbenzene at 45 ug/m3, 1,3,5-Trimethylbenzene at 14 ug/m3 and naphthalene at 3.4 ug/m3. The highest near surface on-site arsenic concentration (17.5 mg/kg at C2B-3") is within the on-site background arsenic concentration range (4.04 to 30.7 mg/kg (rerun was 21.8 mg/kg)) and appears to be part of a normal community population range of arsenic concentrations based on the program ProUCL statistical analysis conducted and was eliminated from the risk and hazard evaluation (see Appendix C for the ProUCL data and graphs). The highest lead concentration was 23.7 mg/kg which is below the DTSC screening level of 80 mg/kg. As stated in the PEA Guidance manual the following formulas are utilized for a basic screening level risk and hazard evaluation.

For a carcinogenic chemical: The screening concentration is based on a target cancer risk of one-in-a-million (10-6).

$$\frac{\text{Maximum concentration}}{\text{Screening concentration}} \times 10\text{-}6 = \text{Cancer Risk Screening concentration}$$

For a non-carcinogenic chemical: The screening concentration is based on a target Hazard Quotient (HQ) of one.

$$\frac{\text{Maximum concentration}}{\text{Screening concentration}} = \text{Hazard Quotient Screening concentration}$$

SCREENING LEVEL RISK & HAZARD CALCULATIONS

COPC	Maximum On-site Concentration Reported (mg/kg)	Cancer Endpoint EPA RSL or DTSC SL (mg/kg)	Screening Level Risk: Max Conc./RSL or SL x 10-6 = Cancer Risk	Non-Cancer Endpoint EPA RSL or DTSC SL (mg/kg)	Screening Level Hazard: Max Conc./RSL or SL x 1.0 = Hazard Quotient
Arsenic	17.8 (median = 11.9)	0.1*	Within on-site background (4.04 to 30.7 mg/kg, rerun was 21.8 mg/kg) collected at 5' to 15' bgs.	0.41*	Within on-site background (4.04 to 30.7 mg/kg, rerun was 21.8 mg/kg) collected at 5' to 15' bgs.
4,4'-DDD	0.0192	2.3	8.34783E-09	1.9	0.010105
4,4'-DDE	0.0236	2.0	1.18E-08	23	0.001026
4,4'-DDT	0.125	1.9	6.57895E-08	37	0.003378
Dieldrin	0.00818	0.034	2.40588E-07	3.2	0.002556
Lead	23.7	NA	WB	80*	0.296
Methane	510 ppmV	NA	NA	1,000**	0.51
Benzene (SG)	6.4 ug/m3	97 ug/m3 (DTSC AF)	6.6 x 10-8	3100 ug/m3 (DTSC AF)	0.00206
Toluene (SG)	46 ug/m3	NA	NA	310,000 ug/m3 (DTSC AF)	0.000148
Ethylbenzene (SG)	19 ug/m3	1100 ug/m3 (DTSC AF)	1.7 x 10-8	1,000,000 ug/m3 (DTSC AF)	0.000019
Xylenes Total (SG)	106 ug/m3	NA	NA	100,000 ug/m3 (DTSC AF)	0.00106
1,2,4-Trimethylbenzene (SG)	45 ug/m3	NA	NA	63000 ug/m3 (DTSC AF)	0.00022
1,3,5-Trimethylbenzene (SG)	14 ug/m3	NA	NA	63000 ug/m3 (DTSC AF)	0.00022
Naphthalene (SG)	3.4 ug/m3	NA	NA	83 ug/m3 (DTSC AF)	0.04096
CUMULATIVE RESULTS			**3.27 x 10-7**		**0.867**

COPC = Chemical of Potential Concern, RSL = EPA Regional Screening Level for residential sites (November 2022), *SL = HHRA Note 3 (May 2022), Conc. = Concentration, ESL = RWQCB SF Bay Environmental Screening Level for Indoor Air 2019 (Rev. 2), DTSC AF = Utilizing DTSC Attenuation Factor (0.001) from DTSC Soil Gas Guidance (2011), EPA AF = 0.03, SG = Soil Gas, WB = Within Regional Background concentrations.** = DTSC Advisory on Methane Assessment and Common Remedies at School Sites (6/16/05)

Based on this updated screening level evaluation of risk and hazard none of the COPCs exceed the risk (1 x 10-6) or hazard level (1.0) of potential concern. In addition, the cumulative risk is below a risk level of potential concern (<1 x 10-6) and the cumulative hazard level is below the hazard level (1.0) of potential concern.

4.2.3 Risk Characterization Summary

Based on a comparison of the highest concentrations of COPC's reported with the DTSC SLs and the EPA RSLs the total cumulative risk is 3.27 x 10-7 and the total cumulative hazard is 0.867 for all pathways.

These results indicate:

3. The risk and hazard levels appear to be acceptable for the proposed school area.
4. The limited historical agricultural use and the nearby oilfield activities do not appear to have caused an elevated risk or hazard level to future occupants at the proposed school site.

4.2.4 Uncertainty Analysis

This uncertainty analysis looks at areas of the human health screening evaluation, which may produce minor levels of uncertainty in the results of the evaluation.

This human health screening evaluation looks mainly at the transfer of contaminates from soil particles to school occupants through ingestion, absorption and dust inhalation. Some pathways that are not included in this evaluation include; transport of soil contaminates to groundwater, contaminated groundwater used to irrigate landscaping; contact and inhalation of chemicals in water while showering; and the drinking water pathway. A local water company regulated by local authorities will supply the water to the site.

One (1) duplicate soil sample and one (1) duplicate soil gas samples were collected and analyzed for the same constituents as the original samples during the SSI for QA/QC purposes. This was approximately 10% of the samples analyzed for constituents of potential concern. Additional soil samples were analyzed (all 15') for constituents of potential concern at depth causing the % of duplicates to be slightly <10% of the total number of soil samples analyzed.

EPA Method TO-15 was utilized at a stationary lab to analyze the vapor samples for VOCs so that the DLs were lower than the screening limits for the VOCs. At low volume recovery vapor probes the DLs were slightly higher.

Results of the human health screening evaluation using the maximum detected concentration values indicate that chemical concentrations detected at the site do not represent a threat to human health. The frequency and duration of soil contact activities would be a significant factor affecting the potential for adverse human health impacts from the site.

This health risk evaluation was based on the application of conservative methods and assumptions in all phases of the assessment. Because exposure point concentrations were derived from fate and transport modeling, conservative assumptions and methodology were necessarily employed to eliminate the possibility of underestimating risks. This practice, although commonly used in the risk assessment process to eliminate the possibility of underestimating risk, necessarily introduces a

significant level of conservatism in the conclusions derived from the assessment. Examples of some of the conservatism in this assessment include:

- It was assumed that potential receptors at the future School site will be exposed to chemicals in soil and dust 100 percent of the time while at the site. In reality, receptors at the site are not likely to be there for more than 8 hours a day, 5 days a week.

- It was assumed that chemicals of concern in the soil and soil gas were all at maximum detected concentrations across the whole site. In reality, the concentrations of chemicals of concern (if present) vary throughout the site at lower concentrations.

- The soil gas results represent the area along the far eastern edge of the site near the idle petroleum pipeline so utilizing the maximum concentrations in these soil gas samples may over-estimate the risk and hazard to the whole site.

- Carcinogenic risks for all pathways were based on a residential exposure of 350 days per year for 26 years. A more realistic exposure scenario for a school site would be to assume an exposure frequency of 180 days per year for a duration of 4 years, representing a typical school exposure scenario.

A risk assessment that relies upon conservative input values can be used as a valuable tool when risks are shown to be de minimus, as reported in this risk assessment. The reader of this risk assessment can confidently interpret the reported risk as a conservative overestimate of any site-related risks.

5.0 Quality Assurance Project Plan (QAPP) Implementation

This SSI was conducted in accordance with the Quality Assurance/Quality Control Plan included in SEI's SSI Work Plan dated December 22, 2022.

Low detection limits were utilized by the analytical laboratories for all analyses conducted.

In addition, the analytical laboratories provided QA/QC results for all of the analytical testing which are attached in Appendix A.

This analytical data was reviewed for accuracy and completeness.

Based on SEI's review, the analytical testing was conducted in compliance with the QA/QC Plan and the SSI Work Plan.

6.0 Health & Safety Plan Implementation

This SSI was conducted in accordance with a Site-Specific Health & Safety Plan including COVID-19 social distancing. This included conducting a tailgate safety meeting with the on-site personnel

prior to the beginning of the sampling events. During this tailgate safety meeting, the Health & Safety Plan was discussed and a map with directions to the nearest hospital was shown to all personnel. Social distancing was discussed and implemented during the SSI sampling event. The Health & Safety Plan was signed by all on-site personnel, and no safety concerns occurred during the sampling events.

7.0 Field Variances

The following variances to the approved SSI Work Plan were conducted during the implementation of the SSI:

- The subsurface soil conditions have a high % of clay fraction making high volume of soil vapor collection challenging at depths >5' bgs. Installation depths were altered slightly to try and get a more permeable material at the vapor probe install depth.

- Groundwater was encountered at a depth of ~30' in boring SG3 which caused the sand present to heave and prevented a deeper soil vapor probe installation than 26' at this location.

- Water was visibly present during the sampling of the soil vapor sample at SG1-40' preventing the collection of a high volume of sample.

- The high clay fraction prevented high volume samples at SG3-15', SG3-26', SG4-18' and SG4-37' so Tedlar bags were utilized instead of Summas increasing the DLs for these samples.

- Additional soil samples were collected at a depth of 15' at all 4 soil gas borings and analyzed for arsenic.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Based on field observations, analytical testing results and the updated risk and hazard evaluations the following conclusions are presented:

Based on the collection and analysis of soil and soil gas samples, historical review, risk and hazard analysis, and visual observations by field personnel the following is concluded;

1) The site may have had limited agricultural use for <10 years with the possible application of pesticides and herbicides during this time period. The site is located within the Edison Oilfield with abandoned oil wells located as close as 280' away.

2) Based on the fate and transport properties of OCPs and metals it is highly unlikely that concentrations of potential concern of these constituents would migrate to depths below 2.5' in

the soil (silty sand) encountered at this site. No additional sampling and analysis below a depth of 2.5' is warranted at the site.

3) Soil, soil gas and air are the likely potential pathways for any contaminates at the site. Groundwater is not considered a potential pathway at the site. In addition, all water utilized at the site will be from public water sources.

4) During the PEA soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

5) During the SSI additional deep soil samples (5', 10' and 15') were analyzed for arsenic to further evaluate the on-site background arsenic concentration. The on-site near surface arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples (0 to 6" and 2' to 2.5'). The on-site background arsenic concentrations ranged from 4.04 mg/kg to 30.7 mg/kg (re-run was 21.8 mg/kg). Based on a comparison of the on-site near surface arsenic concentrations (high of 17.8 mg/kg) and the deep background arsenic concentrations (high of 30.7 mg/kg (re-run 21.8 mg/kg)) and a statistical analysis of the on-site near surface arsenic concentrations it appears that the arsenic concentrations are within the range of the on-site and regional background arsenic concentrations and are part of one community population and not indicative of a release. Therefore, arsenic should not be considered a chemical of concern and should be excluded from the risk and hazard evaluation.

6) Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. A soil gas survey conducted at 4 locations along the borders of the site which included vapor samples collected at depths of 5', 13' to 18', 26', and 37' to 40' bgs which were analyzed for Methane, H2S and VOCs. No Methane, H2S or VOC concentrations of concern were reported in these vapor samples when compared to the DTSC's SL's utilizing the DTSC's default attenuation factor of 0.001 for soil gas results. Only 3 of the samples (SG1-5', SG1-39' and SG3-5') had benzene concentrations reported slightly above the EPA screening level (3.23 ug/m3) and 2 samples (SG1-5' and SG1-13') had naphthalene concentrations slightly exceeding the EPA screening level (2.77 ug/m3) with an EPA subslab attenuation factor of 0.03 utilized. SEI has recommended the use of the DTSC's default AF of 0.001 in the risk and hazard

evaluation of the soil gas maximum concentrations since the calculated results will more likely represent the whole site area.

7) The highest OCPs, Methane, and VOCs reported in the soil and soil gas samples were included in a human health screening evaluation. The results were a total cumulative risk of 3.27 x 10-7 and a total cumulative hazard of 0.867 for all pathways. These results are less than the cumulative risk level (1 x 10^{-6}) and the cumulative hazard level of 1.0 by potential pathways. This indicates that there is not an apparent elevated risk or hazard to future occupants at the site from the site soil and soil gas.

8.2 Recommendations

- SEI recommends no additional assessment or mitigation at this site.

- If during field investigation activities or construction activities new areas of potential environmental concern are discovered at the site work will cease in these areas and the DTSC will be notified. SEI will discuss these areas with the DTSC to determine the appropriate actions to be taken to assess and/or remediate these new potential areas of concern.

9.0 LIMITATIONS

This report was prepared for the exclusive use of the Fairfax School District as it relates to the property described. The discussion and conclusions presented in this report are based on:

- The test borings performed at this site.
- The observations of field personnel.
- The results of laboratory tests performed by Positive Lab Service of Los Angeles, CA, and A & R Laboratories of Ontario, CA
- Our understanding of the regulations of the California Regional Water Quality Control Board, the DTSC and the EPA.

Possible variations in the soil or groundwater conditions, which may exist beyond the points explored in this investigation, might effect the validity of this report, unless those variations or conditions come to our attention and are reviewed and assimilated into the conclusions and recommendations of this report. Also, changes in the hydrologic conditions found could occur with time due to variations in rainfall, temperature, regional water usage, or other factors, any of which could affect this report.

The services performed by SEI have been conducted in a manner consistent with the levels of care and skill ordinarily exercised by professionals currently practicing under similar conditions in California. The absence of contamination on or beneath the property cannot be guaranteed by this report. SEI is not responsible for any contamination or hazardous material found on the property. No other warranty, expressed or implied, is made.

10.0 REFERENCES

1. DTSC, Final DTSC PEA Guidance Manual dated October 2015.

2. DTSC Interim Guidance for Sampling Agricultural Land (Third Revision) dated August 7, 2008.

3. DTSC, 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 (revised June 9, 2006).

4. DTSC, Arsenic Strategies, Determination of Arsenic Remediation Development of Arsenic Cleanup Goals for Proposed and Existing School Sites, March 21, 2007.

5. DTSC, CA EPA, LA & SF RWQCB, Final Advisory Active Soil Gas Investigations dated July 2015.

6. DTSC, HUMAN AND ECOLOGICAL RISK OFFICE (HERO), HHRA Note Number 3, May 2022.

7. DTSC, HUMAN AND ECOLOGICAL RISK OFFICE (HERO), HHRA Note Number 2, April 2017.

8. DTSC, Advisory on Methane Assessment and Common Remedies at School Sites - 06/16/05.

9. Office of Emergency and Remedial Response (OERR) Directive 9345.3-02 dated May 1991.

10. USGS, Reported Historic Asbestos Mines, Historic Asbestos Prospects, and other Natural Occurrences of Asbestos in California, Map Sheet 59.

11. Wilson, S.A. et all, “Analysis of Soil Samples from the San Joaquin Valley of California”, United States Geological Survey (USGS), Open File Report 90-214, undated.

12. EPA, Regional Screening Level (RSL) Resident Soil Table (TR=1E-6, HQ=1) November 2022.

13. San Francisco Bay Regional Water Quality Board Environmental Screening Levels, 2019 (Rev. 2).

14. Soils Engineering, Inc., “Enhanced Phase 1 Environmental Site Assessment (PEA Equivalent Report)” For Proposed Elementary School #5, SW of S. Oswell St. & Zephyr Lane., Bakersfield, CA, dated September 1, 2022.

15. Soils Engineering, Inc., “SSI Work Plan”, Proposed New School Site #5, Southwest of S. Oswell St. & Zephyr Lane, Bakersfield, California, December 22, 2022.

TABLE 1
Composite & Discrete Soil Sample Analytical Results
PEA & SSI Results for Potential School Site #5
SW of Oswell St. & Zephyr Lane in Bakersfield, CA

CONSTITUENTS				COMPOSITE ON-SITE SOIL SAMPLES (0 to 6" depth)								Discrete Soil Samples (0 to 6", 2' to 2.5' depths)							
Chlorinated Pesticides (EPA 8081A)	**PQL (ug/kg)**	**DTSC SLs or EPA RSLs Cancer Endpoint (ug/kg)**	**DTSC SLs or EPA RSLs, Non-Cancer Endpoint (ug/kg)**	**C1-3" (A,B,C,D)**	**C2-3" (A,B,C,D)**	**C3-3" (A,B,C,D)**	**C4-3" (A,B,C,D)**	**C5-3" (A,B,C,D)**	**C6-3" (A,B,C,D)**	**C7-3" (A,B,C,D)**	**C8-3" (A,B,C,D)**	**C1B-3"**	**C1B-2'**	**C2B-3"**	**C2B-2'**	**C3B-3"**	**C3E-3" (Dup of C3B-3")**	**C3B-2'**	**C4B-3"**
Aldrin	4	39	2300**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Alpha-BHC	4	86	510000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Beta-BHC	4	300		<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Delta-BHC	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Gamma-BHC, Lindane	4	570	21000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Technical Chlordane	20	1700	35000	<20	<20	<20	<20	<20	<20	<20	<20	NA	NA	NA	NA	<20	<20	<20	NA
4,4'-DDD	4	2300	1900	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
4,4'-DDE	8	2000	23000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA
4,4'-DDT	8	1900	37000	<8	<8	<8	11.7	17.5	<8	<8	72.9	NA	NA	NA	NA	<8	<8	13.7	NA
Dieldrin	4	34	3200**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Endosulfan I	8		450000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA
Endosulfan II	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Endosulfan Sulfate	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Endrin	4		19000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Endrin Aldehyde	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Endrin Ketone	10			<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA
Heptachlor	4	130	38000**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Heptachlor epoxide	4	70	990**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA
Methoxychlor	10		320000**	<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA
Toxaphene	60	450**	5700	<60	<60	<60	<60	<60	<60	<60	<60	NA	NA	NA	NA	<60	<60	<60	NA
Metals (EPA 6010)	**mg/kg**	**mg/kg**	**mg/kg**																
Antimony	2		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	2	0.11 *	0.41**	NA	NA	NA	NA	NA	NA	NA	NA	**13.8**	7.19	**17.5**	**12.2**	**15.3**	**17.8**	10	10
Barium	1		15000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	1	1600	15**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1	2100	7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	1			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	1	420	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1		3100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1		80**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1	15000	820**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	2		0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5		23000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA 7471 -Mercury	0.1		1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (EPA 8015B)	**mg/kg**	**mg/kg**	**mg/kg**																
C5-C12	0.5		82-520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C13-C22	2.5		96-110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C23-C40	100		2500-11000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOCs) by EPA 8260B	**mg/kg**	**mg/kg**	**mg/kg**																
Benzene	0.002	0.330*	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.002		1100*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.002	5.8		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	0.002		580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other VOCs	varies	Chem Specific	Chem Specific	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (EPA 9045C)	0-14			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

CONSTITUENTS	Discrete Soil Samples (0 to 6", 2' to 2.5' depths) (continued)																				
Chlorinated Pesticides (EPA 8081A)	**C5A-3"**	**C5A-2'**	**C5B-3"**	**C5C-3"**	**C5C-2'**	**C6B-3"**	**C6B-2'**	**C6C-3"**	**C6C-2'**	**C7B-3"**	**C7B-2'**	**C7D-3"**	**C7D-2**	**C8A-3"**	**C8A-2'**	**C8B-3"**	**C8B-2'**	**C8C-3"**	**C8C-2'**	**C8D-3"**	**C8D-2'**
Aldrin	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Alpha-BHC	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-BHC	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Delta-BHC	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Gamma-BHC, Lindane	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Technical Chlordane	<20	NA	NA	<20	<20	NA	NA	<20	NA	NA	NA	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
4,4'-DDD	<4	NA	NA	6.08	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	19.2	<4	<4	<4
4,4'-DDE	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	16.1	<8	<8	<8	<8	<8	23.6	<8	<8	<8
4,4'-DDT	<8	NA	NA	44.4	41.1	NA	NA	<8	NA	NA	NA	48.5	<8	<8	8.89	27.3	<8	125	<8	12.1	20.3
Dieldrin	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	8.18	<4	<4	<4
Endosulfan I	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
Endosulfan II	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endosulfan Sulfate	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Aldehyde	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Ketone	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Heptachlor	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Heptachlor epoxide	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methoxychlor	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxaphene	<60	NA	NA	<60	<60	NA	NA	<60	NA	NA	NA	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60
Metals (EPA 6010)																					
Antimony	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	2.29	NA
Arsenic	**15.7**	6.91	8.95	11.6	NA	**12.6**	11.4	**15.7**	6.48	**13.1**	10.4	**13.1**	5.03	NA	NA	11.3	NA	NA	NA	11.5	NA
Barium	182	NA	NA	221	NA	NA	NA	302	NA	NA	NA	211	NA	NA	NA	208	NA	NA	NA	393	NA
Beryllium	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA
Cadmium	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA
Chromium	22.5	NA	NA	26.6	NA	NA	NA	15.4	NA	NA	NA	22.6	NA	NA	NA	21.3	NA	NA	NA	16.6	NA
Cobalt	8.39	NA	NA	9.28	NA	NA	NA	7.62	NA	NA	NA	8.23	NA	NA	NA	8.77	NA	NA	NA	6.8	NA
Copper	16.2	NA	NA	22.3	NA	NA	NA	10.2	NA	NA	NA	18.6	NA	NA	NA	15.9	NA	NA	NA	11.2	NA
Lead	3.73	NA	NA	23.7	NA	NA	NA	2.23	NA	NA	NA	10.1	NA	NA	NA	4.59	NA	NA	NA	1.97	NA
Molybdenum	<1	NA	NA	<1	NA	NA	NA	1.39	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA
Nickel	15.1	NA	NA	17.4	NA	NA	NA	12.1	NA	NA	NA	14.9	NA	NA	NA	20	NA	NA	NA	12	NA
Selenium	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA
Silver	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA
Thallium	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA
Vanadium	77.5	NA	NA	50.6	NA	NA	NA	37.5	NA	NA	NA	43.1	NA	NA	NA	49.8	NA	NA	NA	37.5	NA
Zinc	51.5	NA	NA	95.2	NA	NA	NA	29.8	NA	NA	NA	68.2	NA	NA	NA	55.4	NA	NA	NA	34	NA
EPA 7471 -Mercury	<0.1	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA
TPH (EPA 8015B)																					
C5-C12	<0.5	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA
C13-C22	<2.5	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA
C23-C40	<100	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA
Volatile Organic Compounds (VOCs) by EPA 8260B																					
Benzene	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA
Toluene	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA
Ethylbenzene	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA
Xylenes	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA
Other VOCs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (EPA 9045C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

CONSTITUENTS	East Dirt Berm Samples			SSI Soil Samples (Background)													Initial Background Samples	
Chlorinated Pesticides (EPA 8081A)	**BM-1**	**BM-2**	**BM-3**	**SG1-5'**	**SG1-10'**	**SG1-15'**	**SG2-5'**	**SG2-10'**	**SG2-10'-2 (dup. of SG2-10')**	**SG2-15'**	**SG3-5'**	**SG3-10'**	**SG3-15'**	**SG4-5'**	**SG4-10'**	**SG4-15'**	**B1-6'**	**B2-6'**
Aldrin	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha-BHC	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta-BHC	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma-BHC, Lindane	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	<20	<20	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	<4	5.85	5.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	<8	10.9	15.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	17.8	50.2	22.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	<8	<8	<8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	<4	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	<60	<60	<60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA 6010)																		
Antimony	<2	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	**15.5**	**14.1**	10.5	**12.7**	9.01	5.98	11.1	11.7	**14.7**	12.3	11.9	**30.7 rerun = 21.8**	4.04	9.17	**14.4**	7.25	11.5	9.2
Barium	245	278	185	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	21.9	24.8	18.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	7.77	9.94	7.59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	14.4	17.3	14.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	5.96	5.75	7.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	<1	2.31	1.56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	13.8	15	11.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	<2	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	<2	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	47.6	49.8	36.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	53.3	60.5	50.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA 7471 -Mercury	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH (EPA 8015B)																		
C5-C12	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C13-C22	<2.5	<2.5	<2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C23-C40	<100	<100	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOCs) by EPA 8260B																		
Benzene	2	2	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2	2	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	2	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	2	2	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other VOCs	All ND	All ND	All ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (EPA 9045C)	8	8.6	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note : Results in ppb unless otherwise noted, ppb = parts per billion (ug/kg), ppm= parts per million (mg/kg), ND = None Detected, NA = Not Analyzed, PQL = Practical Quantitation Limit For Reporting Purposes. Bold = concentration > RSLs, RSLs = EPA Regional Screening Levels November 2022, * = compare arsenic concentrations to ambient background. ** = HHRA Note #3 may 2022 with DTSC Screening Levels (SLs). TPH = Total Petroleum Hydrocarbons, BTEX = Benzene, Toluene, Ethylbenzene & Xylenes, VOCs - Volatile Organic Compounds

TABLE 2
SSI Soil Gas Survey Analytical Results for Methane, H2S and VOCs
FSD Site #5 - SW of S. Oswell Street & Zephyr Lane, Bakersfield, CA

Soil Gas Samples

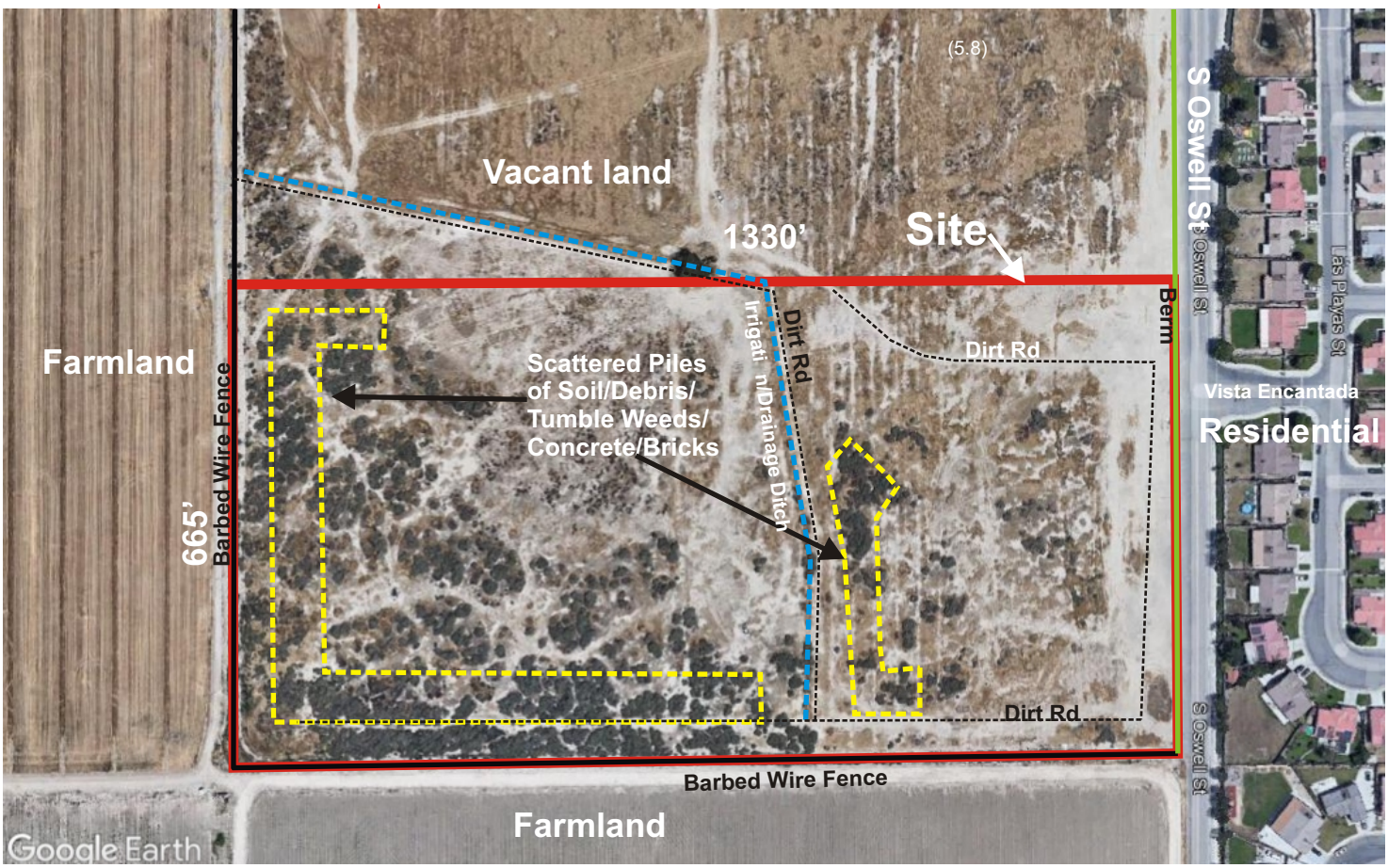
CONSTITUENTS (EPA Method)	EPA RSLs for Residential Ambient Air (ug/m3)	**DTSC SLs or RWQCB ESLs**** for Residential Air - Cancer End Point (ug/m3)	**DTSC SLs or RWQCB ESLs**** for Residential Air - Non-Cancer End Point (ug/m3)	Screening Levels with EPA Attenuation Factor (0.03) for Soil Gas	Screening Levels with DTSC Residential Attenuation Factor (0.001) for Soil Gas***	RL	SG1-5' (3 PV)	SG1-13' (3 PV)	SG1-39' (3 PV)	SG2-5' (3 PV)	SG2-5' (dup) (3 PV)	SG2-14' (3 PV)	SG2-40' (3 PV)	SG3-5' (3 PV)	SG3-15' (3 PV)	SG3-26' (3 PV)	SG4-5' S(3 PV)	SG4-18' (3 PV)	SG4-37' (3 PV)
Methane (8015) / RKI Eagle			*1000 ppmV in soil gas	**Using RSL, SL or ESL**	**Using RSL, SL or ESL**	10 ppmV	510/15	110/0	48/0	<10/65	<10/65	<10/0	<10/0	<10/0	<10/100	<10/0	<10/110	<10/0	<10/0
Hydrogen Sulfide (H2S) HACH Model HS-C/ RKI Eagle						0.5 ppmV	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0	<0.5/0
Volatile Organic Compounds (VOCs) by TO-15 (SUMMA or Tedlar Bag for low volume samples)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	RL (ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Benzene	0.36	0.097	3.1	3.23	97	0.2	**4.2**	3	**4.3**	2	1.9	<0.2	<0.2	**6.4**	<2.5	<12.5	3.1	<25	<2.5
Toluene	5200		310	10333	310000	0.2	35	15	4.2	14	12	2.9	5.1	46	<2.5	<12.5	23	<25	<2.5
Ethylbenzene	1.1		1000	37	1100	0.2	12	4.3	1.6	4.9	4.2	<0.2	<0.2	19	<2.5	<12.5	9.4	<25	<2.5
Xylenes (total)	100		100	3333	100000	0.2	61	23.8	8.3	28.7	24.7	<0.2	<0.2	106	<2.5	<12.5	57	<25	<2.5
Isopropyl Alcohol (LCC)	NA	NA	NA	NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1,1,2-Tetrachloroethane	0.38	0.38	130	12.67	380	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1,1-Trichloroethane	5200		1000	33333	1000000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1,2-Trichloroethane	0.18			6.00	180	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1,2-Trichloro-trifluoroethane	5200			173333	5200000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1-Dichloroethane	1.8	1.8	830	60.00	1800	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,1-Dichloroethene	210		73	2433	73000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2,4-Trichlorobenzene	2.1	0.38	2.1	12.67	380	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2,4-Trimethylbenzene	63			2100	63000	0.2	20	9.9	9.6	12	11	<0.2	<0.2	45	<2.5	<12.5	24	<25	<2.5
1,2-Dibromo-3-Chloropropane	1.70E-04			0.01	0.17	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2-Dibromoethane (EDB)	0.0047			0.16	4.7	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2-Dichlorobenzene	210			7000	210000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2-Dichloroethane	0.11			3.67	110	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,2-Dichloropropane	0.76			25.33	760	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Dichlorotetrafluoroethane				NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,3,5-Trimethylbenzene	63		63	2100.00	63000	0.2	<0.2	<0.2	<0.2	3.7	3.1	<0.2	<0.2	14	<2.5	<12.5	9.1	<25	<2.5
1,3-Dichlorobenzene	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,3-Dichloropropane	NA		83	2767	83000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
1,4-Dichlorobenzene	0.26			8.67	260	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
2,2-Dichloropropane	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
2-Butanone (MEK)	5200		5200	173333.33	5200000	2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<25	<125	<2.3	<250	<25
2-Hexanone	31		31	1033	31000	2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<25	<125	<2.3	<250	<25
4-Ethyltoluene	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
4-Methyl-2-pentanone	3100			103333.33	3100000	2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<25	<125	<2.3	<250	<25
Acetone			1,100,000	36666667	1100000000	2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<25	<125	<2.3	<250	<25
Benzl Chloride	0.057			1.90	57	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Bromodichloromethane	0.076			2.53	76	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Bromoform	2.6	2.6	83	86.7	2600	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Bromomethane	5.2			173.3	5200	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Carbon Disulfide	730			24333	730000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Carbon Tetrachloride	0.47	0.47	42	15.7	470	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Chlorobenzene	52			1733	52000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Chloroethane	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Chloroform	0.12			4.00	120	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Chloromethane	94			3133	94000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
cis-1,2-Dichloroethene	NA		8.3	276.7	8300	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
cis-1,3- Dichloropropene	0.7			23.3	700	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Cyclohexane	6300			210000	6300000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Dibromochloromethane	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Dichlorodifluoromethane	100			3333	100000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Ethyl Acetate	73			2433	73000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Heptane	420			14000	420000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Hexane	730			24333	730000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Hexachlorobutadiene	0.13	0.13	4.2	4.33	130	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Methylene Chloride	100	1	420	33.33	1000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
MTBE	11			367	11000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Naphthalene	0.083			2.77	83	0.2	**3.4**	**2.9**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	2.3	<25	<2.5
Propylene	3100			103333	3100000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Styrene	1000		940	31333	940000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Tetrachloroethene (PCE)	11	0.46	42	15.3	460	0.2	6.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Tetrahydrofuran				NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
trans-1,2-Dichloroethane	NA		83	2766.7	83000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Trans-1,3-Dichloropropane	NA			NA	NA	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Trichloroethene	0.48			16.0	480	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Trichlorofluoromethane	NA		1300	43333.3	1300000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Vinyl Acetate	210			7000	210000	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5
Vinyl Chloride	0.17	0.0095	100	0.32	9.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.5	<12.5	<0.2	<25	<2.5

ND= None Detected, NA = Not Analyzed, ppmV = parts per million per volume, H2S = Hydrogen Sulfide, PV = Purge Volume, RL = Reporting Limit. LCC = Leak Check Compound, **Bold** = Concentration of Potential Concern, RSLs = EPA Regional Screening levels (November 2022), *DTSC Advisory on Methane Assessment and Common Remedies at School Sites June 16, 2005, ** = DTSC Recommended Screening Level HHRA Note 3 May 2022, *** = DTSC's 2011 Vapor Intrusion Guidance, **** = ESLs (Environmental Screening Levels) San Francisco Bay Regional Water Quality Board - 2019 (Rev.2).

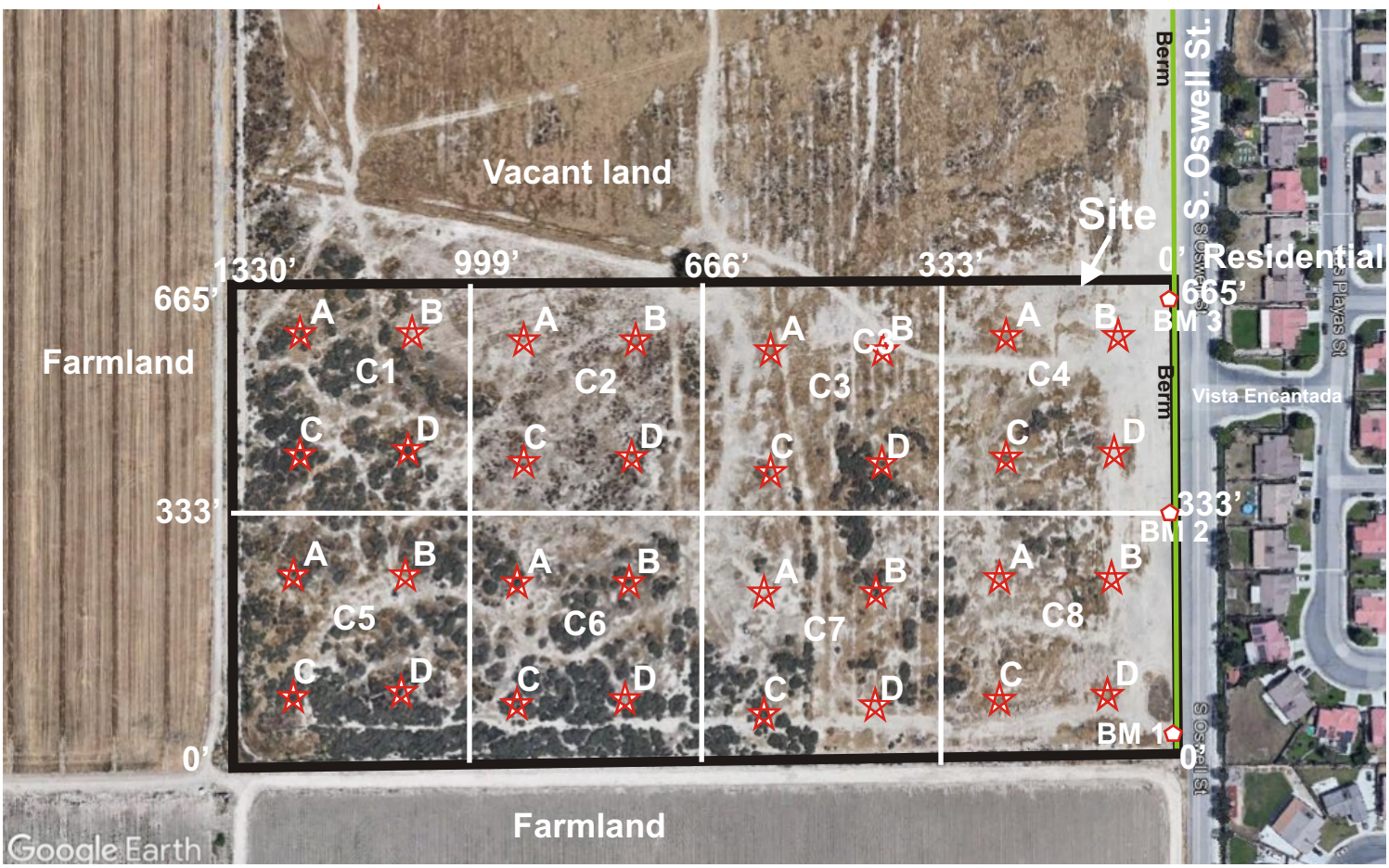
TABLE 3
COMPARISON OF ARSENIC CONCENTRATIONS
AT SCHOOL SITES IN EASTERN BAKERSFIELD, ARVIN & LAMONT
UNDERGOING OR HAVE COMPLETED PEA's

SITE NAME (Location is East Bakersfield Area unless otherwise noted)	ON-Site Total Arsenic Range (mg/kg)	On-Site Mean Concentration (mg/kg)	Background Range (mg/kg) Most at 5' Depth
KHSD - Mira Monte HS - Fairfax & Redbank	6.03 to **24.6**	10.74	8.6 to 15.7
KHSD - Mira Monte Expansion - S. Fairfax & E. Wilson	11.7 to 27.6	13.98	13.4 to 22.3
Arvin SD - Myers & El Camino Elementary-Arvin	9.9 to 19.8	12.82	12 to18
KHSD - Cont. HS, E. Belle Terrace & Mt. Vernon	8.93 to 12.6	11.44	8.62 to 15.7
GUSD - Mid #4 & Elem, Cottonwood & Panama Ln	2.7 to 8.75	5.95	3.5 to 5.6
Fairfax & Zephyr Elementary School	3.06 to 16.3	5.52	8.6 to 15.7
Lamont SD - Proposed School Site Habecker Rd.	9.21 to **30.2**	**20.4**	9.1 to 14 (6')
Edison SD - Orangewood Elem Site	9.37 to 14	11.14	NA
Previous FSD Site #5 - E. Wilson & S. Fairfax	4.71 to 34	11.77	4.5 to 15 (7' or 10')
Current FSD Site #5 - S. Oswell & Zephyr	5.03 to 17.8	11.9	4.04 to **30.7**/21.8 (10')
Overall PEA Site Averages & Ranges	1 to **30.2**	11.57	3.5 to 30.7/21.8
Bold = Elevated Concentration Requiring Remedial Action or Above Normal Background			

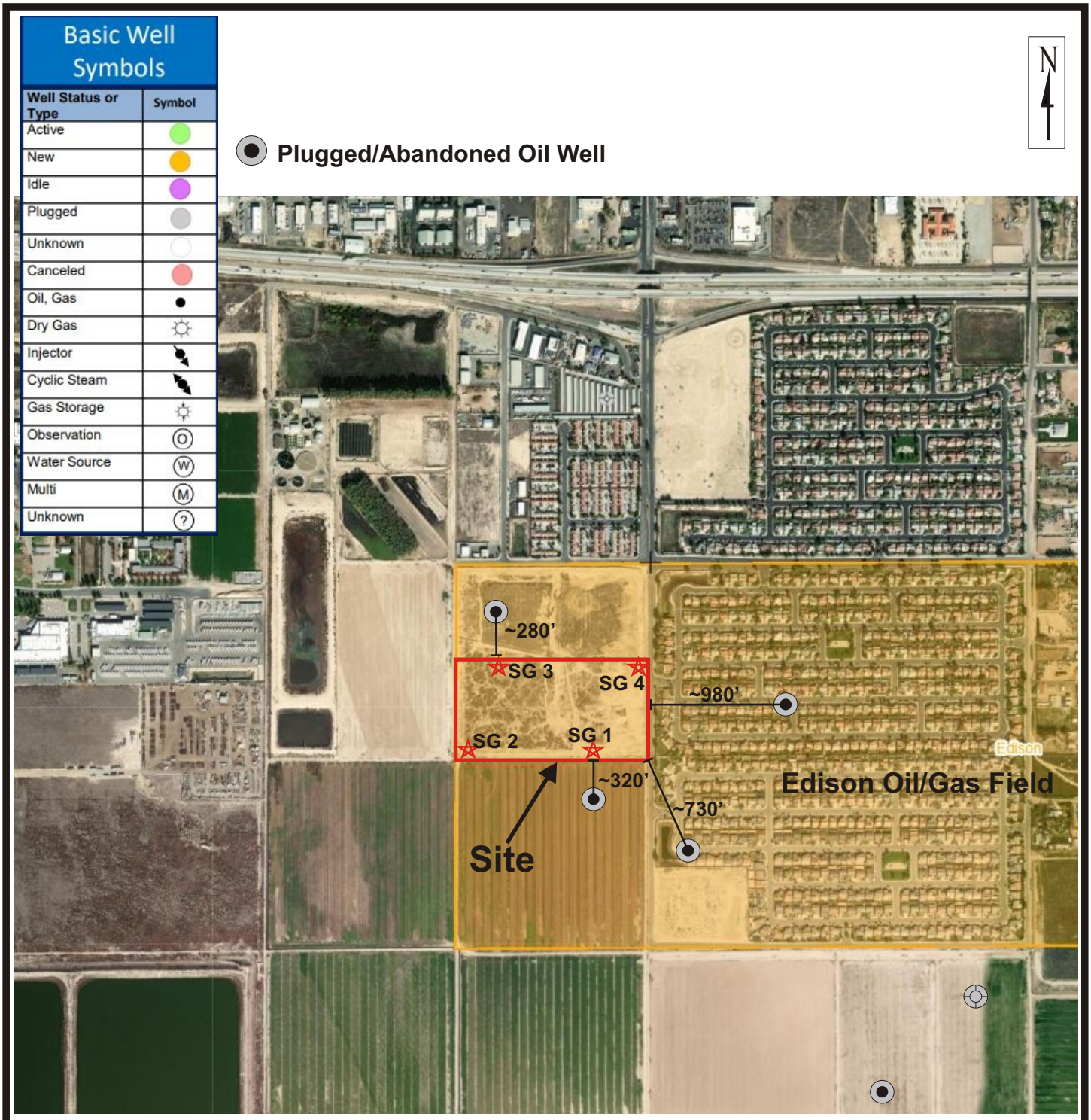
SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **LOCATION MAP**	**PLATE** **1**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PLOT PLAN**	**PLATE** **2**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**PEA SOIL SAMPLE LOCATION MAP** FSD Proposed School Site #5 SW of S. Oswell St. & Zephyr Lane Bakersfield, CA	Plate 2A



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 2/23
PROJECT: #18503

FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

SSI Sample Map

PLATE
3

APPENDIX A

Analytical Reports, Chain of Custody Documents & QA/QC Data

POSITIVE
LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

January 31, 2023

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2301423
Project Name: 18503 FSD # 5 / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on January 27, 2023.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 01/31/23
Submitted: 01/27/23
PLS Report No.: 2301423

Project: 18503 FSD # 5 / P.O. # 18503-POS

Sample ID: SG1-5' Soil (2301423-01) Sampled: 01/26/23 08:35 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**12.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG1-10' Soil (2301423-02) Sampled: 01/26/23 08:40 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**9.01**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG1-15' Soil (2301423-03) Sampled: 01/26/23 08:45 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**5.98**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG2-5' Soil (2301423-04) Sampled: 01/26/23 10:20 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**11.1**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG2-10' Soil (2301423-05) Sampled: 01/26/23 10:25 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**11.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG2-10-2' Soil (2301423-06) Sampled: 01/26/23 10:25 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**14.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG2-15' Soil (2301423-07) Sampled: 01/26/23 10:30 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**12.3**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG3-5' Soil (2301423-08) Sampled: 01/26/23 12:05 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**11.9**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG3-10' Soil (2301423-09) Sampled: 01/26/23 12:10 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**30.7**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG3-15' Soil (2301423-10) Sampled: 01/26/23 12:15 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**4.04**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG4-5' Soil (2301423-11) Sampled: 01/26/23 13:40 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**9.17**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG4-10' Soil (2301423-12) Sampled: 01/26/23 13:45 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**14.4**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

Sample ID: SG4-15' Soil (2301423-13) Sampled: 01/26/23 13:50 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**7.25**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	01/27/23	01/27/23	RP/JK	BA33032

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

File #:73443
Report Date: 01/31/23
Submitted: 01/27/23
PLS Report No.: 2301423

Project: 18503 FSD # 5 / P.O. # 18503-POS

Quality Control Data

Analyte		Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BA33032 - EPA 3050B											
Blank		**Prepared & Analyzed: 01/27/23**									
Arsenic		ND	2.00	mg/kg							
LCS		**Prepared & Analyzed: 01/27/23**									
Arsenic		10.1	2.00	mg/kg	10.03		101	80-120			
Matrix Spike	**Source: 2301420-01**	**Prepared & Analyzed: 01/27/23**									
Arsenic		10.0	2.00	mg/kg	10.03	0.798	91.7	75-125			
Matrix Spike Dup	**Source: 2301420-01**	**Prepared & Analyzed: 01/27/23**									
Arsenic		9.47	2.00	mg/kg	10.03	0.798	86.5	75-125	5.84	30	

Notes and Definitions

NA	Not Applicable
ND	Analyte NOT DETECTED at or above the reported limit(s)
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)

108727

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 1/26/23 PAGE 1 OF 2

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 230123

CLIENT NAME: SBI

Project Name/No. FSD#5/18503

P.O. NO. 18503-POS

AIRBILL NO:

OBSERV. TEMP: 2.4 °C
CORREC. TEMP: 2.8 °C
THERMO ID: ii BY: LG

ADDRESS: 4400 Yeager Wy, Bakersfield, CA 93313

PROJECT MANAGER: R. Beck PHONE NO: 661-831-5700 FAX NO: 661-831-2111

SAMPLER NAME: R. Beck (Printed) (Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y (N) - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ANALYSES REQUESTED: Arsenic

PRESERVATIVE:

REMARKS: 3 DAY TAT

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	Arsenic	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		1/26/23	8:35	SG1-5'		X			3DAY	1	B	X	
2			8:40	SG1-10'								X	
3			8:45	SG1-15'								X	
4			10:20	SG2-5'								X	
5			10:25	SG2-10'									
6			10:~~25~~	SG2-10-2									
7			10:30	SG2-15'									
8			12:05	SG3-5'									
9			12:10	SG3-10'									
10			12:15	SG3-15'									

Relinquished By: (Signature and Printed Name) Robt Beck — Received By: (Signature and Printed Name) — Date: 1/27/23 — Time: 8:00

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS: UPS: 455954306640

SAMPLE DISPOSITION:
1. Samples returned to client? YES (NO)
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 days
By _____ Date 1/26/22

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

108728

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 1/26/23 PAGE 2 OF 2

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 1301423

CLIENT NAME: SEI Project Name/No. FSD#5/18503 P.O. NO. 18503-POS

AIRBILL NO: _____

ADDRESS: 4400 Yeager Wy, Bakersfield, CA 93313

OBSERV. TEMP: 2.6 °C
CORREC. TEMP: 2.8 °C
THERMO ID: 66 BY: IS

PROJECT MANAGER: R. Beck PHONE NO: 661-834-5100 FAX NO: 831-2111

SAMPLER NAME: R. Beck (Printed) (Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y (N) - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ANALYSES REQUESTED: Arsenic

PRESERVATIVE:

REMARKS: 3 DAY TAT

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: NO.	TYPE	Arsenic	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		1/26/23	1:40	SG4-5'		X			B	1	B	X	
2		↓	1:45	SG4-10'		↓			↓	↓	↓	↓	
3		↓	1:50	SG4-15'		↓			↓	↓	↓	↓	
4													
5													
6													
7													
8													
9													
10													

Relinquished By: (Signature and Printed Name) Robt Beck — Received By: (Signature and Printed Name) — Date: 1/27/23 — Time: 800

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS: UPS: 4559543064O

SAMPLE DISPOSITION:
1. Samples returned to client? (YES) NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 From ____ days

By _____ Date 1/26/23

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

POSITIVE
LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

February 02, 2023

Mr. Robert Becker
Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

Report No.: 2301423
Project Name: 18503 FSD # 5 / P.O. # 18503-POS

Dear Mr. Robert Becker,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on January 27, 2023.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

Project Manager

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Soils Engineering Inc.
4400 Yeager Way
Bakersfield, CA 93313

File #:73443
Report Date: 02/02/23
Submitted: 01/27/23
PLS Report No.: 2301423

Attn: Mr. Robert Becker Phone: (661) 831-5100 FAX:(661) 831-2111

Project: 18503 FSD # 5 / P.O. # 18503-POS

Sample ID: SG3-10' (Re-run) Soil (2301423-14) Sampled: 01/26/23 12:10 Received: 01/27/23

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Arsenic	**21.8**		1	mg/kg	2.00	EPA 3050B	EPA 6010B	02/01/23	02/01/23	jks	BB30213

Quality Control Data

Analyte		Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BB30213 - EPA 3050B											
Blank		**Prepared & Analyzed: 02/01/23**									
Arsenic		ND	2.00	mg/kg							
LCS		**Prepared & Analyzed: 02/01/23**									
Arsenic		9.27	2.00	mg/kg	10.03		92.4	80-120			
Matrix Spike	**Source: 2301465-05**	**Prepared & Analyzed: 02/01/23**									
Arsenic		10.2	2.00	mg/kg	10.03	1.19	89.6	75-125			
Matrix Spike Dup	**Source: 2301465-05**	**Prepared & Analyzed: 02/01/23**									
Arsenic		9.89	2.00	mg/kg	10.03	1.19	86.8	75-125	3.22	30	

Notes and Definitions

NA	Not Applicable
ND	Analyte NOT DETECTED at or above the reported limit(s)
NR	Not Reported
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Rick Owen Parker

Authorized Signature(s)

108727

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 1/26/23 PAGE 1 OF 2

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 230123

CLIENT NAME: SEI Project Name/No. FS0#5/18503 P.O. NO. 18503-POS

ADDRESS: 4400 Yeager Wy, Bakersfield, CA 93313

PROJECT MANAGER: R. Becker PHONE NO: 661-831-5100 FAX NO: 661-831-2111

SAMPLER NAME: R. Becker (Printed) _____ (Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y (N) - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ANALYSES REQUESTED:

AIRBILL NO:

OBSERV. TEMP: 2.4 °C
CORREC. TEMP: 2.8 °C
THERMO ID: 4 BY: 4

PRESERVATIVE:

REMARKS:

3 DAY TAT

(X) 2 day TAT per B. Becker

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: #	TYPE	Arsenic	As Re-run 2/01/23	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		1/26/23	8:35	SG1-5'		X			3	1	B	X		
2			8:40	SG1-10'								X		
3			8:45	SG1-15'								X		
4			10:20	SG2-5'								X		
5			10:25	SG2-10'										
6			10:35	SG2-10-2										
7			10:30	SG2-15'										
8			12:05	SG3-5'										
9			12:10	SG3-10'									(X)	
10			12:15	SG3-15'										

Relinquished By: (Signature and Printed Name) _____ Robt Bec Received By: (Signature and Printed Name) _____ Date: 1/27/23 Time: 8:00

Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Date: Time:

Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Date: Time:

SPECIAL INSTRUCTIONS: UPS: 4559543064O

SAMPLE DISPOSITION:
1. Samples returned to client? YES (NO)
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: _____ 60 days
By _____ Date 1/26/23

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

108728

POSITIVE LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 1/26/23 PAGE 2 OF 2

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 7301423

CLIENT NAME: SEI Project Name/No. FSD#5/18503 P.O. NO. 18503-POS

AIRBILL NO: _____

ADDRESS: 4400 Yeager Wy, Bakersfield, CA 93313

OBSERV. TEMP: 2.6 °C
CORREC. TEMP: 2.8 °C
THERMO ID: 66 BY: IG

PROJECT MANAGER: R. Beck PHONE NO: 661-834-5100 FAX NO: 831-2111

SAMPLER NAME: R. Beck (Printed) (Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project: Y (N) - Global ID# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

ANALYSES REQUESTED: Arsenic

PRESERVATIVE:

REMARKS: 3 DAY TAT

	SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	TAT	CONTAINER: NO.	TYPE	Arsenic	SAMPLE CONDITION/ CONTAINER /COMMENTS:
1		1/26/23	1:40	SG4-5'		X			B	1	B	X	
2		↓	1:45	SG4-10'		↓			↓	↓	↓	↓	
3		↓	1:50	SG4-15'		↓			↓	↓	↓	↓	
4													
5													
6													
7													
8													
9													
10													

Relinquished By: (Signature and Printed Name) Robt Beck — Received By: (Signature and Printed Name) — Date: 1/27/23 — Time: 860

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

Relinquished By: (Signature and Printed Name) — Received By: (Signature and Printed Name) — Date: — Time:

SPECIAL INSTRUCTIONS: UPS: 4559543064O

SAMPLE DISPOSITION:
1. Samples returned to client? (YES) NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: 60 From ___ days

By _____ Date 1/26/23

PRESERVATIVE: 1-HNO_3, 2-H_2SO_4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH_4 Buffer, 7-Other

LAB COPY

A & R Laboratories, Inc.

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 02/03/2023 11:15:36
Laboratory Job No. (Certificate of Analysis No.)	2301-00214
Project Name / No.	SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307
Dates Sampled (from/to)	01/26/23 To 01/26/23
Dates Received (from/to)	01/26/23 To 01/26/23
Dates Reported (from/to)	02/03/23 To 2/3/2023
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

A & R Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 001 **SG1-5** Date & Time Sampled: 01/26/23 @ 12:30
Sample Matrix: **Air**
Purge Volume Sampled: **3**

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Methane	**510**	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.020**	0.000225	0.0004	µg/L	**20**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0042**	0.000225	0.0004	µg/L	**4.2**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 001 **SG1-5** Date & Time Sampled: 01/26/23 @ 12:30
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.012**	0.000225	0.0004	µg/L	**12**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.049**	0.000225	0.0004	µg/L	**49**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.016**	0.000225	0.0004	µg/L	**16**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.035**	0.000225	0.0004	µg/L	**35**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 001 **SG1-5**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Date & Time Sampled: 01/26/23 @ 12:30													
.....continued													
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	103		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	91		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	115		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	***0.0034***	0.000225	0.0004	µg/L	***3.4***	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 002 **SG1-13**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Date & Time Sampled: 01/26/23 @ 12:50													
Methane	**110**	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.0099**	0.000225	0.0004	µg/L	**9.9**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 002 **SG1-13** Date & Time Sampled: 01/26/23 @ 12:50
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0030**	0.000225	0.0004	µg/L	**3**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.0043**	0.000225	0.0004	µg/L	**4.3**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.018**	0.000225	0.0004	µg/L	**18**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 002 **SG1-13**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.0058**	0.000225	0.0004	µg/L	**5.8**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.015**	0.000225	0.0004	µg/L	**15**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	104		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	92		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	113		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	***0.0029***	0.000225	0.0004	µg/L	***2.9***	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 003 **SG1-39**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	**48**	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 003 **SG1-39** Date & Time Sampled: 01/26/23 @ 13:13
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.0096**	0.000225	0.0004	µg/L	**9.6**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 003 **SG1-39** Date & Time Sampled: 01/26/23 @ 13:13
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.0016**	0.000225	0.0004	µg/L	**1.6**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.0061**	0.000225	0.0004	µg/L	**6.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.0021**	0.000225	0.0004	µg/L	**2.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.0042**	0.000225	0.0004	µg/L	**4.2**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	104		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	92		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	116		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported	02/03/23
Date Received	01/26/23
Invoice No.	97215
Cust #	1567
Permit Number	
Customer P.O.	

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 004 **SG2-5** Date & Time Sampled: 01/26/23 @ 13:31
Sample Matrix: **Air**
Purge Volume Sampled: **3**

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.012**	0.000225	0.0004	µg/L	**12**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	**0.0037**	0.000225	0.0004	µg/L	**3.7**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0020**	0.000225	0.0004	µg/L	**2**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 004 **SG2-5** Date & Time Sampled: 01/26/23 @ 13:31
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.0049**	0.000225	0.0004	µg/L	**4.9**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.022**	0.000225	0.0004	µg/L	**22**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.0067**	0.000225	0.0004	µg/L	**6.7**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.014**	0.000225	0.0004	µg/L	**14**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 004 **SG2-5** Sample Matrix: **Air** Purge Volume Sampled: **3** Date & Time Sampled: 01/26/23 @ 13:31													
.....continued													
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	103		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	91		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	114		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 005 **SG2-5 DUP** Sample Matrix: **Air** Purge Volume Sampled: **3** Date & Time Sampled: 01/26/23 @ 13:31													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.011**	0.000225	0.0004	µg/L	**11**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	**0.0031**	0.000225	0.0004	µg/L	**3.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 005 **SG2-5 DUP** Date & Time Sampled: 01/26/23 @ 13:31
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0019**	0.000225	0.0004	µg/L	**1.9**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.0042**	0.000225	0.0004	µg/L	**4.2**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.019**	0.000225	0.0004	µg/L	**19**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 005 **SG2-5 DUP**											Date & Time Sampled:	01/26/23 @	13:31
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.0057**	0.000225	0.0004	µg/L	**5.7**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.012**	0.000225	0.0004	µg/L	**12**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	103		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	92		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	116		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 006 **SG2-14**											Date & Time Sampled:	01/26/23 @	13:52
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 006 **SG2-14** Date & Time Sampled: 01/26/23 @ 13:52
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 006 **SG2-14** Date & Time Sampled: 01/26/23 @ 13:52
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.0029**	0.000225	0.0004	µg/L	**2.9**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	102		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	92		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	112		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 007 **SG2-40** Date & Time Sampled: 01/26/23 @ 14:20
Sample Matrix: **Air**
Purge Volume Sampled: **3**

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 007 **SG2-40** Date & Time Sampled: 01/26/23 @ 14:20
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.0051**	0.000225	0.0004	µg/L	**5.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 007 **SG2-40**											Date & Time Sampled:	01/26/23 @ 14:20	
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	103		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	92		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	106		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 008 **SG3-5**											Date & Time Sampled:	01/26/23 @ 15:31	
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.045**	0.000225	0.0004	µg/L	**45**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	**0.014**	0.000225	0.0004	µg/L	**14**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 008 **SG3-5** Date & Time Sampled: 01/26/23 @ 15:31
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0064**	0.000225	0.0004	µg/L	**6.4**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.019**	0.000225	0.0004	µg/L	**19**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.080**	0.000225	0.0004	µg/L	**80**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 008 **SG3-5**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.026**	0.000225	0.0004	µg/L	**26**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.046**	0.000225	0.0004	µg/L	**46**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	100		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	90		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	113		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 009 **SG3-15**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1,2,2-Tetrachloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Trichlorotrifluoroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1,2-Trichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1-Dichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

Date & Time Sampled: 01/26/23 @ 15:31

Date & Time Sampled: 01/26/23 @ 16:05

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 009 **SG3-15** Date & Time Sampled: 01/26/23 @ 16:05
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,1-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2,4-Trichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2,4-Trimethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dibromoethane (EDB)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichloropropane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dichlorotetrafluoroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3,5-Trimethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3-Butadiene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,4-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,4-Dioxane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
2-Butanone (MEK)	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
2-Hexanone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Isopropanol (IPA)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
4-Ethyltoluene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
4-Methyl-2-Pentanone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Acetone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Benzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Benzyl chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromodichloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromoform	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromomethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Carbon Disulfide	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Carbon Tetrachloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloroform	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 009 **SG3-15** Date & Time Sampled: 01/26/23 @ 16:05
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
cis-1,2-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
cis-1,3-Dichloropropene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Cyclohexane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dibromochloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dichlorodifluoromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Ethyl acetate	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Ethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Heptane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Hexachlorobutadiene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Hexane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
m,p-Xylenes	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Methylene Chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
o-Xylene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Propylene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Styrene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Tetrachloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Tetrahydrofuran	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Toluene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
trans-1,2-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
trans-1,3-Dichloropropene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Trichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Trichlorofluoromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Vinyl acetate	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Vinyl Chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromofluorobenzene	93		70-130	%REC							EPA TO-15	01/26/23	KZ
Toluene-D8	90		70-130	%REC							EPA TO-15	01/26/23	KZ
Dibromofluoromethane	110		70-130	%REC							EPA TO-15	01/26/23	KZ
Naphthalene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 010 **SG3-26** Date & Time Sampled: 01/26/23 @ 16:35
Sample Matrix: **Air**
Purge Volume Sampled: **3**

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,1,2,2-Tetrachloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Trichlorotrifluoroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,1,2-Trichloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,1-Dichloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,1-Dichloroethene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2,4-Trichlorobenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2,4-Trimethylbenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2-Dibromoethane (EDB)	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2-Dichlorobenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2-Dichloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,2-Dichloropropane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Dichlorotetrafluoroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,3,5-Trimethylbenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,3-Butadiene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,3-Dichlorobenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,4-Dichlorobenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
1,4-Dioxane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
2-Butanone (MEK)	<0.1250	0.125	0.25	µg/L	<125.0	125.0	250	µg/m3		5.0	EPA TO-15	01/26/23	KZ
2-Hexanone	<0.1250	0.125	0.25	µg/L	<125.0	125.0	250	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Isopropanol (IPA)	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
4-Ethyltoluene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
4-Methyl-2-Pentanone	<0.1250	0.125	0.25	µg/L	<125.0	125.0	250	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Acetone	<0.1250	0.125	0.25	µg/L	<125.0	125.0	250	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Benzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Benzyl chloride	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Bromodichloromethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 010 **SG3-26** Date & Time Sampled: 01/26/23 @ 16:35
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Bromoform	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Bromomethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Carbon Disulfide	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Carbon Tetrachloride	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Chlorobenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Chloroethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Chloroform	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Chloromethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
cis-1,2-Dichloroethene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
cis-1,3-Dichloropropene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Cyclohexane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Dibromochloromethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Dichlorodifluoromethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Ethyl acetate	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Ethylbenzene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Heptane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Hexachlorobutadiene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Hexane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
m,p-Xylenes	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Methylene Chloride	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
o-Xylene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Propylene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Styrene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Tetrachloroethene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Tetrahydrofuran	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Toluene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
trans-1,2-Dichloroethene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
trans-1,3-Dichloropropene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Trichloroethene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 010 **SG3-26**											Date & Time Sampled:	01/26/23 @ 16:35	
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Trichlorofluoromethane	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Vinyl acetate	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Vinyl Chloride	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Bromofluorobenzene	96		70-130	%REC							EPA TO-15	01/26/23	KZ
Toluene-D8	90		70-130	%REC							EPA TO-15	01/26/23	KZ
Dibromofluoromethane	114		70-130	%REC							EPA TO-15	01/26/23	KZ
Naphthalene	<0.0125	0.0125	0.025	µg/L	<12.5	12.5	25	µg/m3		5.0	EPA TO-15	01/26/23	KZ
Sample: 011 **SG4-5**											Date & Time Sampled:	01/26/23 @ 16:50	
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2,2-Tetrachloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorotrifluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1,2-Trichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,1-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2,4-Trimethylbenzene	**0.024**	0.000225	0.0004	µg/L	**24**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dibromoethane (EDB)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,2-Dichloropropane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorotetrafluoroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3,5-Trimethylbenzene	**0.0091**	0.000225	0.0004	µg/L	**9.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Butadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,3-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 011 **SG4-5** Date & Time Sampled: 01/26/23 @ 16:50
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,4-Dichlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
1,4-Dioxane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Butanone (MEK)	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
2-Hexanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Isopropanol (IPA)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Ethyltoluene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
4-Methyl-2-Pentanone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Acetone	<0.0023	0.00225	0.0045	µg/L	<2.3	2.3	5	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzene	**0.0031**	0.000225	0.0004	µg/L	**3.1**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Benzyl chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromodichloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromoform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromomethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Disulfide	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Carbon Tetrachloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chlorobenzene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloroform	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Chloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
cis-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Cyclohexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dibromochloromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Dichlorodifluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Ethylbenzene	**0.0094**	0.000225	0.0004	µg/L	**9.4**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Heptane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexachlorobutadiene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Hexane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
m,p-Xylenes	**0.044**	0.000225	0.0004	µg/L	**44**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Sample: 011 **SG4-5**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
.....continued													
Methyl-t-butyl Ether (MtBE)	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Methylene Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
o-Xylene	**0.013**	0.000225	0.0004	µg/L	**13**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Propylene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Styrene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrachloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Tetrahydrofuran	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Toluene	**0.023**	0.000225	0.0004	µg/L	**23**	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,2-Dichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
trans-1,3-Dichloropropene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichloroethene	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Trichlorofluoromethane	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl acetate	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Vinyl Chloride	<0.0002	0.000225	0.0004	µg/L	<0.2	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Bromofluorobenzene	101		70-130	%REC							EPA TO-15	01/30/23	KZ
Toluene-D8	90		70-130	%REC							EPA TO-15	01/30/23	KZ
Dibromofluoromethane	114		70-130	%REC							EPA TO-15	01/30/23	KZ
Naphthalene	***0.0023***	0.000225	0.0004	µg/L	***2.3***	0.2	0	µg/m3		0.090	EPA TO-15	01/30/23	KZ
Sample: 012 **SG4-18**													
Sample Matrix: **Air**													
Purge Volume Sampled: **3**													
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,1,2,2-Tetrachloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Trichlorotrifluoroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,1,2-Trichloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,1-Dichloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 012 **SG4-18** Date & Time Sampled: 01/26/23 @ 17:15
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
1,1-Dichloroethene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2,4-Trichlorobenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2,4-Trimethylbenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2-Dibromoethane (EDB)	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2-Dichlorobenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2-Dichloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,2-Dichloropropane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Dichlorotetrafluoroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,3,5-Trimethylbenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,3-Butadiene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,3-Dichlorobenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,4-Dichlorobenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
1,4-Dioxane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
2-Butanone (MEK)	<0.2500	0.25	0.50	µg/L	<250.0	250.0	500	µg/m3		10	EPA TO-15	01/26/23	KZ
2-Hexanone	<0.2500	0.25	0.50	µg/L	<250.0	250.0	500	µg/m3		10	EPA TO-15	01/26/23	KZ
Isopropanol (IPA)	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
4-Ethyltoluene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
4-Methyl-2-Pentanone	<0.2500	0.25	0.50	µg/L	<250.0	250.0	500	µg/m3		10	EPA TO-15	01/26/23	KZ
Acetone	<0.2500	0.25	0.50	µg/L	<250.0	250.0	500	µg/m3		10	EPA TO-15	01/26/23	KZ
Benzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Benzyl chloride	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Bromodichloromethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Bromoform	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Bromomethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Carbon Disulfide	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Carbon Tetrachloride	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Chlorobenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Chloroethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Chloroform	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Chloromethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 012 **SG4-18** Date & Time Sampled: 01/26/23 @ 17:15
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
cis-1,2-Dichloroethene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
cis-1,3-Dichloropropene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Cyclohexane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Dibromochloromethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Dichlorodifluoromethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Ethyl acetate	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Ethylbenzene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Heptane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Hexachlorobutadiene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Hexane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
m,p-Xylenes	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Methylene Chloride	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
o-Xylene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Propylene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Styrene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Tetrachloroethene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Tetrahydrofuran	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Toluene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
trans-1,2-Dichloroethene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
trans-1,3-Dichloropropene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Trichloroethene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Trichlorofluoromethane	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Vinyl acetate	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Vinyl Chloride	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ
Bromofluorobenzene	94		70-130	%REC							EPA TO-15	01/26/23	KZ
Toluene-D8	90		70-130	%REC							EPA TO-15	01/26/23	KZ
Dibromofluoromethane	111		70-130	%REC							EPA TO-15	01/26/23	KZ
Naphthalene	<0.0250	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		10	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 013 **SG4-37** Date & Time Sampled: 01/26/23 @ 17:20
Sample Matrix: **Air**
Purge Volume Sampled: **3**

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Methane	<10	10	15	ppmv							EPA 8015M	01/26/23	JEN
Hydrogen Sulfide	<0.50	0.5	1.0	ppmv							HACH Model	01/26/23	KZ
[TOXIC ORGANICS IN AIR]													
1,1,1-Trichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1,2,2-Tetrachloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Trichlorotrifluoroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1,2-Trichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1-Dichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,1-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2,4-Trichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2,4-Trimethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dibromoethane (EDB)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,2-Dichloropropane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dichlorotetrafluoroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3,5-Trimethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3-Butadiene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,3-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,4-Dichlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
1,4-Dioxane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
2-Butanone (MEK)	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
2-Hexanone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Isopropanol (IPA)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
4-Ethyltoluene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
4-Methyl-2-Pentanone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Acetone	<0.025	0.025	0.050	µg/L	<25.0	25.0	50	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Benzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Benzyl chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromodichloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 013 **SG4-37** Date & Time Sampled: 01/26/23 @ 17:20
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Bromoform	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromomethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Carbon Disulfide	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Carbon Tetrachloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chlorobenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloroethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloroform	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Chloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
cis-1,2-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
cis-1,3-Dichloropropene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Cyclohexane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dibromochloromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Dichlorodifluoromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Ethyl acetate	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Ethylbenzene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Heptane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Hexachlorobutadiene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Hexane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
m,p-Xylenes	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Methyl-t-butyl Ether (MtBE)	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Methylene Chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
o-Xylene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Propylene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Styrene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Tetrachloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Tetrahydrofuran	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Toluene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
trans-1,2-Dichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
trans-1,3-Dichloropropene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Trichloroethene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

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CERTIFICATE OF ANALYSIS

2301-00214

INTERPHASE
ROSE WILLIAMS
6200 PEACHTREE STREET
LOS ANGELES, CA 90040

Date Reported 02/03/23
Date Received 01/26/23
Invoice No. 97215
Cust # 1567
Permit Number
Customer P.O.

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Sample: 013 **SG4-37** Date & Time Sampled: 01/26/23 @ 17:20
Sample Matrix: **Air**
Purge Volume Sampled: **3**
.....continued

Analysis	Result	MDL	RL	Units	Result	MDL	RL	Units	Qual	DF	Method	Date	Tech
Trichlorofluoromethane	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Vinyl acetate	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Vinyl Chloride	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ
Bromofluorobenzene	93		70-130	%REC							EPA TO-15	01/26/23	KZ
Toluene-D8	91		70-130	%REC							EPA TO-15	01/26/23	KZ
Dibromofluoromethane	110		70-130	%REC							EPA TO-15	01/26/23	KZ
Naphthalene	<0.0025	0.0025	0.0050	µg/L	<2.5	2.5	5	µg/m3		1.0	EPA TO-15	01/26/23	KZ

Respectfully Submitted:

Ken Zheng - President

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL
B1= BOD blank is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution
E = Estimated value
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference
J = Analyte concentration detected between RL and MDL

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit
MDL = Method Detection Limit
Qual = Qualifier
Tech = Technician

A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C
ONTAIRO, CA 91761
909-781-6335
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CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

QUALITY CONTROL DATA REPORT

INTERPHASE
LOS ANGELES, CA 90040

2301-00214

Date Reported	**02/03/2023**
Date Received	**01/26/2023**
Date Sampled	**01/26/2023**
Invoice No.	**97215**
Customer #	**1567**
Customer P.O.	

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Method # EPA 8015M
QC Reference # 107560 **Date Analyzed:** 1/26/2023 **Technician:** JEN
Samples 001 002 003 004 005 006 007 008 009 010 011 012 013

Results

	LCS %REC	LCS %DUP	LCS %RPD
Methane	90	85	5

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

Method # EPA TO-15
QC Reference # 107579 **Date Analyzed:** 1/26/2023 **Technician:** KZ
Samples 009 010 012 013

Results

	LCS %REC	LCS %DUP	LCS %RPD
1,1-Dichloroethene	103	91	12.5
Benzene	119	111	7.7
Chlorobenzene	127	113	11.7
Toluene	118	105	12.3
Trichloroethene	129	124	4.3

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25

QC Reference # 107580 **Date Analyzed:** 1/26/2023 **Technician:** KZ
Samples 009 010 012 013

No QC recoveries reported.

QC Reference # 107581 **Date Analyzed:** 1/30/2023 **Technician:** KZ
Samples 001 002 003 004 005 006 007 008 011

No QC recoveries reported.

QC Reference # 107582 **Date Analyzed:** 1/30/2023 **Technician:** KZ
Samples 001 002 003 004 005 006 007 008 011

Results

	LCS %REC	LCS %DUP	LCS %RPD
1,1-Dichloroethene	103	91	12.5
Benzene	119	111	7.7
Chlorobenzene	127	113	11.7
Toluene	118	105	12.3
Trichloroethene	129	124	4.3

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25
70 - 130	0 - 25

Method # HACH Model HS-C
QC Reference # 107561 **Date Analyzed:** 1/26/2023 **Technician:** KZ
Samples 001 002 003 004 005 006 007 008 009 010 011 012 013

Results

	LCS %REC	LCS %DUP	LCS %RPD
Hydrogen Sulfide	92	85	7

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

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QUALITY CONTROL DATA REPORT

2301-00214

INTERPHASE

Date Reported 02/03/2023
Date Received 01/26/2023
Date Sampled 01/26/2023

Project: SW of S. Oswell St. & Zephyr Ln., Bakersfield, CA 93307

Method blank results

Ref	Test Name	Result	Qualif	Units	MDL	Ref	Test Name	Result	Qualif	Units	MDL
107560	Methane	<10		ppmv	10						
107579	1,1-Dichloroethene	<0.0002		µg/L	0.0002						
	Benzene	<0.0002		µg/L	0.0002						
	Chlorobenzene	<0.0002		µg/L	0.0002						
	Toluene	<0.0002		µg/L	0.0002						
	Trichloroethene	<0.0002		µg/L	0.0002						
	Bromofluorobenzene	96		%REC							
107580	Naphthalene	<0.0002		µg/L	0.0002						
107581	Naphthalene	<0.0002		µg/L	0.0002						
107582	1,1-Dichloroethene	<0.0002		µg/L	0.0002						
	Benzene	<0.0002		µg/L	0.0002						
	Chlorobenzene	<0.0002		µg/L	0.0002						
	Toluene	<0.0002		µg/L	0.0002						
	Trichloroethene	<0.0002		µg/L	0.0002						
	Bromofluorobenzene	96		%REC							

Respectfully Submitted: Ken Zheng

Ken Zheng - President

ARL

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1650 S. Grove Ave., Ste C, Ontario, CA 91761
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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2301-21K

Page 1 of 1

Client Name: Interphase
E-mail: office@interphaseenvironmental.com
Address: 6200 Peachtree St, Los Angeles, CA, 90040
Report Attention: Rose. Phone #: 323 278-7700 Fax: #
Sampled By: KZ Bakersfield
Project No./ Name:
Project Site: SW of S. Oswell st & Zephyr ln

☐ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal Mobile

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	Analyses Requested	Remarks
-1	SG1-5	1/26/23	12:30	Air	NA	Canister	TO15, CH4, H2S	
-2	-13		12:50					Lo
-3	-39		12:13					low flow & Water
-4	SG2-5		13:31					low flow
-5	-5 DUP		13:31					Low flow
-6	-14		13:52					Low flow
-7	-40		14:20					
-8	SG3-5		15:31			Canister		
-9	-15		16:05			Tedlar Bag		
-10	-26		16:35					low flow
-11	SG4-5		16:50			Canister		
-12	-18		17:15			Tedlar Bag		Low flow
-13	-37		17:20					

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	SEI	1/26/23	17:21	[signature]	A&R	1/26/23	17:21
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

APPENDIX B

Soil Gas Borings & SSI Activity Pictures

Boring Completion	ANALYSES Lab: Vapor Samples (Vocs in ug/m3) Methane & H2S in ppmV	ANALYSES Field: PID (ppm)	BLOWCOUNT	DEPTH (feet)	SAMPLE INTERVAL	SAMPLE NUMBER	Lithology symbol	U. S. C. S. desig.	SOIL DESCRIPTION
Pump; Vapor Sampling (Summa); 1/4" Poly line; Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter; Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter; Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter; 2.75" Diam Hole				0					Dirt Surface
	SG1-5' B= 4.2 T= 35 E= 12 X= 61 N = 3.4 Methane= 510 H2S= <0.5	0 (PID)		5	SG1-5'			SM	Continuous Core 0 to 40' Silty Sand - medium yellow brown, vfine gr, moist, no odor nor staining
		0 (PID)		10	SG1-10'			CL/ ML	Clayey Silt - medium yellow brown, vmoist, low plasticity, nor odor nor staining
	SG1-13' B= 3 T= 15 E= 4.3 X= 61 N = 2.9 Methane= 110 H2S= <0.5	0 (PID)		15	SG1-15'			ML	Silt - medium yellow brown, vmoist, soft to firm, nor odor nor staining
				20				SM	Silty Sand - vmoist
								CL/ ML	Clayey Silt - medium yellow brown, vmoist, low plasticity, soft to firm nor odor nor staining
				25				SM	Silty Sand - medium yellow brown, vfine gr, moist, no odor nor staining
								CL/ ML	Clayey Silt - medium yellow brown, vmoist, low plasticity, nor odor nor staining
		Water ?		30				SM/ SP	Silty Sand/Pg Sand - medium yellow brown, vmoist-wet, vfine to medium gr, no odor nor staining
								CL/ ML	Clayey Silt - medium yellow brown, vmoist, low plasticity, nor odor nor staining
				35				SM/SP	Silty Sand/Pg Sand - medium yellow brown, moist, vfine to fine gr, nor odor nor staining
								CL/ML	Clayey Silt - medium yellow brown, vmoist,low plasticity, nor odor nor staining
								SM/ML	Silty Sand/Silt - medium yellow brown, moist, no odor nor staining
	SG1-39' B= 4.3 T= 4.2 E=1.6 X= 8.3 N= <0.2 Methane= 48 H2S= <0.5			40				CL/ML	Clayey Silt - medium yellow brown, vmoist,low plasticity, nor odor nor staining
	Water in Sample			45					
				50					

Legend

B = Benzene
T = Toulene
E = Ethylbenzene
X = Xylene
N = Naphthalene
M = Methane
H2S = Hydrogen

Drilled: 1/26/23
Total Depth: 40'

Drill Rig: Geoprobe
Depth to Water: ~30

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313

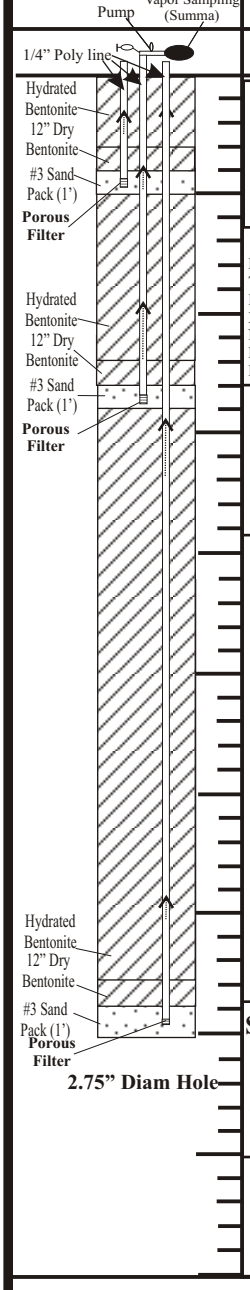
Project Number: 18503
DATE: 1/23

PROJECT NAME: Supplemental Site Investigation - Soil Gas Survey
SITE NAME: Proposed School #5
SW of S. Oswell & Zephyr Lane
Bakersfield, California

BORING LOCATION: SE Area: GPS (35.34333, -118.951011)

SG-1 BORING LOG

PLATE



Boring Completion	ANALYSES Lab: Vapor Samples (Vocs in ug/m3) Methane & H2S in ppmV	ANALYSES Field: PID (ppm)	BLOWCOUNT	DEPTH (feet)	SAMPLE INTERVAL	SAMPLE NUMBER	Lithology symbol	U. S. C. S. desig.	SOIL DESCRIPTION
				0					**Dirt Surface**
	SG2-5' B= 2 T= 14 E= 4.9 X= 28.7 N= <0.2 Methane= <10 H2S= <0.5	0 (PID)		5		SG2-5'		SM/ ML	**Continuous Core 0 to 18'** Silty Sand/Sandy Silt - medium yellow brown, dry, vfine gr, no odor nor staining
	SG2-5'(dup) B= 1.9 T= 12 E= 4.2 X= 24.7 N= <0.2 Methane= <10 H2S= <0.5	0 (PID)		10		SG2-10'		CL/ ML	Clayey Silt - medium yellow brown, moist, low plasticity, soft to firm, no odor nor staining
	SG2-14' B= <0.2 T= 2.9 E= <0.2 X= <0.2 N= <0.2 Methane=<10 H2S= <0.5	0 (PID)		15		SG2-15'		ML CL/ ML ML	Silt - medium yellow brown, dry to damp, soft to firm, no odor nor staining, tr of clay Clayey Silt - medium yellow brown, moist, soft to firm, low plasticity nor odor nor staining Silt - medium yellow brown, dry to damp, soft to firm, no odor nor staining, tr of clay
		Water		20 25 30 35				SW	WG Sand - medium gray, fine to vcoarse gr, vmoist to wet, no odor nor staining
	SG2-40' B= <0.2 T= 51 E= <0.2 X= <0.2 N= <0.2 Methane=<10 H2S= <0.5			40 45 50		SG2-40'		CL/ ML	Clayey Silt - dark yellow brown, moist, soft to firm, nor odor nor staining

Legend

B = Benzene
T = Toulene
E = Ethylbenzene
X = Xylene
N = Naphthalene
M = Methane
H2S = Hydrogen

Drilled: 1/26/23
Total Depth: 40'

Drill Rig: Geoprobe
Depth to Water: ~35'

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313

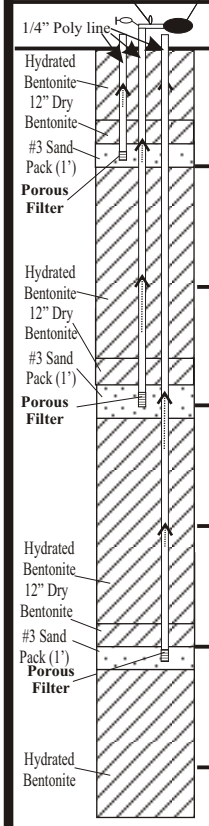
Project Number: 18503
DATE: 1/23

PROJECT NAME: Supplemental Site Investigation - Soil Gas Survey
SITE NAME: Proposed School #5
SW of S. Oswell & Zephyr Lane
Bakersfield, California

BORING LOCATION: SW Area: GPS (35.34335, -118.95426)

SG-2 BORING LOG

PLATE

Boring Completion	ANALYSES Lab: Vapor Samples (Vocs in ug/m3) Methane & H2S in ppmV	ANALYSES Field: PID (ppm)	BLOWCOUNT	DEPTH (feet)	SAMPLE INTERVAL	SAMPLE NUMBER	Lithology symbol	U. S. C. S. desig.	SOIL DESCRIPTION
									**Dirt Surface**
	SG3-5' B= 6.4 T= 46 E=19 X= 106 N= <0.2 Methane= 0 H2S= 0	**0 (PID)**		0 5		**SG3-5'**		**ML/ SM**	**Continuous Core 0 to 32'** Sandy Silt/ Silty Sand - medium yellow brown, dry, low plasticity, vfine gr, no odor nor staining
		0 (PID)		10		**SG3-10'**		**CL/ ML**	Clayey Silt - medium yellow brown, moist, soft to firm, moist, low plasticity, no odor nor staining
	SG3-15' B= <2.5 T= <2.5 E= <2.5 X= <2.5 N= <2.5 Methane=<10 H2S= <05	**0 (PID)**		15		**SG3-15'**			Less clayey at 15'
				20				**CL/ ML**	Silty Clay/ Clayey Silt - medium yellow brown, firm, low plasticity, no odor nor staining
	SG3-26' B= <12.5 T= <12.5 E= <12.5 X= <12.5 N= <12.5 Methane=<10 H2S= <0.5 **Low Flow**	**Water**		25 30				**SW** **CL/ ML**	Wg Sand - light yellow brown, vfine to coarse gr, dry to damp, no odor nor staining vmoist to saturated @ 30' Clayey Silt - medium yellow brown, moist, soft to firm, moist, low plasticity, no odor nor staining
				35 40 45 50					**Notes: Sampler jammed in water and heaving sands @ 32'**

Legend

B = Benzene
T = Toulene
E = Ethylbenzene
X = Xylene
N = Naphthalene
M = Methane
H2S = Hydrogen

Drilled: 1/26/23
Total Depth: 32'

Drill Rig: Geoprobe
Depth to Water: ~30'

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313

Project Number: 18503
DATE: 1/23

PROJECT NAME: Supplemental Site Investigation - Soil Gas Survey
SITE NAME: Proposed School #5
SW of S. Oswell & Zephyr Lane
Bakersfield, California

BORING LOCATION: NW Area: GPS (35.34501, -118.95335)

SG-3 BORING LOG

PLATE

Boring Completion	ANALYSES Lab: Vapor Samples (Vocs in ug/m3) Methane & H2S in ppmV	ANALYSES Field: PID (ppm)	BLOWCOUNT	DEPTH (feet)	SAMPLE INTERVAL	SAMPLE NUMBER	Lithology symbol	U. S. C. S. desig.	SOIL DESCRIPTION
Pump; Vapor Sampling (Summa); 1/4" Poly line; Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter				0					**Dirt Surface**
	SG4-5' B= 3.1 T= 23 E= 9.4 X= 57 N= <0.2 Methane= <10 H2S= <0.5	0 (PID)		5	SG4-5'			ML/ SM	**Continuous Core 0 to 40'** Sandy Silt/ Silty Sand - medium yellow brown, dry, low plasticity, vfine gr, no odor nor staining
		0 (PID)		10	SG4-10'			ML/ CL	Clayey Silt/Silty Clay -medium dark yellow brown, soft to firm, moist, no odor nor staining
Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter		0 (PID)		15	SG4-15'				
	SG4-18' B= <25 T= <25 E= <25 X= <25 N= <25 Methane= <10 H2S= <0.5 **Low Flow**			20					Less clay @ 18'
								ML/ CL	Clayey Silt/Silty Clay -medium dark yellow brown, soft to firm, moist, no odor nor staining
				25					
				30				SM/ SP	Silty Sand/Pg Sand - medium yellow brown, vmoist, vfine to medium gr, no odor nor staining
Hydrated Bentonite 12" Dry Bentonite; #3 Sand Pack (1'); Porous Filter									Some silt zones
	SG4-37' B= <2.5 T= <2.5 E= <2.5 X= <2.5 N= <2.5 Methane=<10 H2S=<0.5 **Low Flow**			35					
2.75" Diam Hole								CL/ ML	Clayey Silt/ Clayey Silt- medium yellow brown vmoist,
				40					
				45					
				50					

Legend

B = Benzene
T = Toulene
E = Ethylbenzene
X = Xylene
N = Naphthalene
M = Methane
H2S = Hydrogen

Drilled: 1/26/23
Total Depth: 40'

Drill Rig: Geoprobe
Depth to Water: NA

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313

Project Number: 18503
DATE: 1/23

PROJECT NAME: Supplemental Site Investigation - Soil Gas Survey
SITE NAME: Proposed School #5
SW of S. Oswell & Zephyr Lane
Bakersfield, California

BORING LOCATION: NE Area: GPS (35.34495, -118.95002)

SG-4 BORING LOG

PLATE

GeoProbe Rig Drilling at SG-1

Setting Vapor Probe at SG-1

3 Finished Vapor Probes at SG-1

Setting Vapor Probe at SG-2

Vapor Sampling at SG-1

Vapor Sampling at SG-4

APPENDIX C

Arsenic Concentration Data & ProUCL Graphs

	A	B	C
1	**DATA SETS**		
2	**PEA Arsenic 0-6" & 2' -2.5' (mg/kg)**	**PEA & SSI Arsenic Results Background 5', 6', 10', 15' (mg/kg)**	
3	13.8	11.5	
4	7.19	9.2	
5	17.5	12.7	
6	12.2	9.01	
7	15.3	5.98	
8	17.8	11.1	
9	10	11.7	
10	10	14.7	
11	15.7	12.3	
12	6.91	11.9	
13	8.95	30.7	21.8 re-run
14	11.6	4.04	
15	12.6	9.17	
16	11.4	14.4	
17	15.7	7.25	
18	6.48		
19	13.1		
20	10.4		
21	13.1		
22	5.03		
23	11.3		
24	11.5		
25	15.5		
26	14.1		
27	10.5		

	General Statistics on Uncensored Full Data
Date/Time of Computation	ProUCL 5.2 2/6/2023 1:20:27 PM
User Selected Options	
From File	18503 Arsenic All 2 Columns.xls
Full Precision	OFF

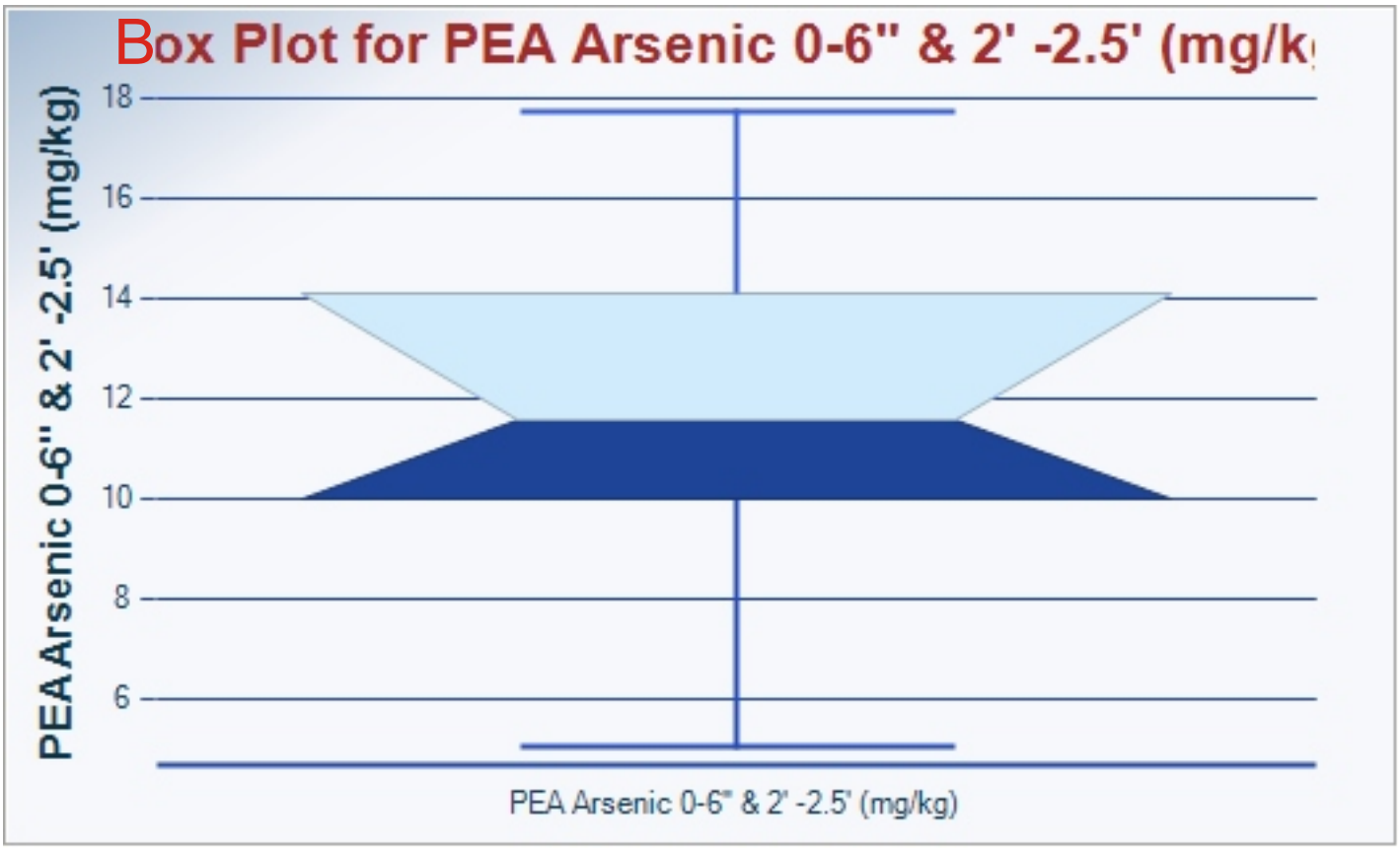
From File: 18503 Arsenic All 2 Columns.xls

General Statistics for Uncensored Dataset

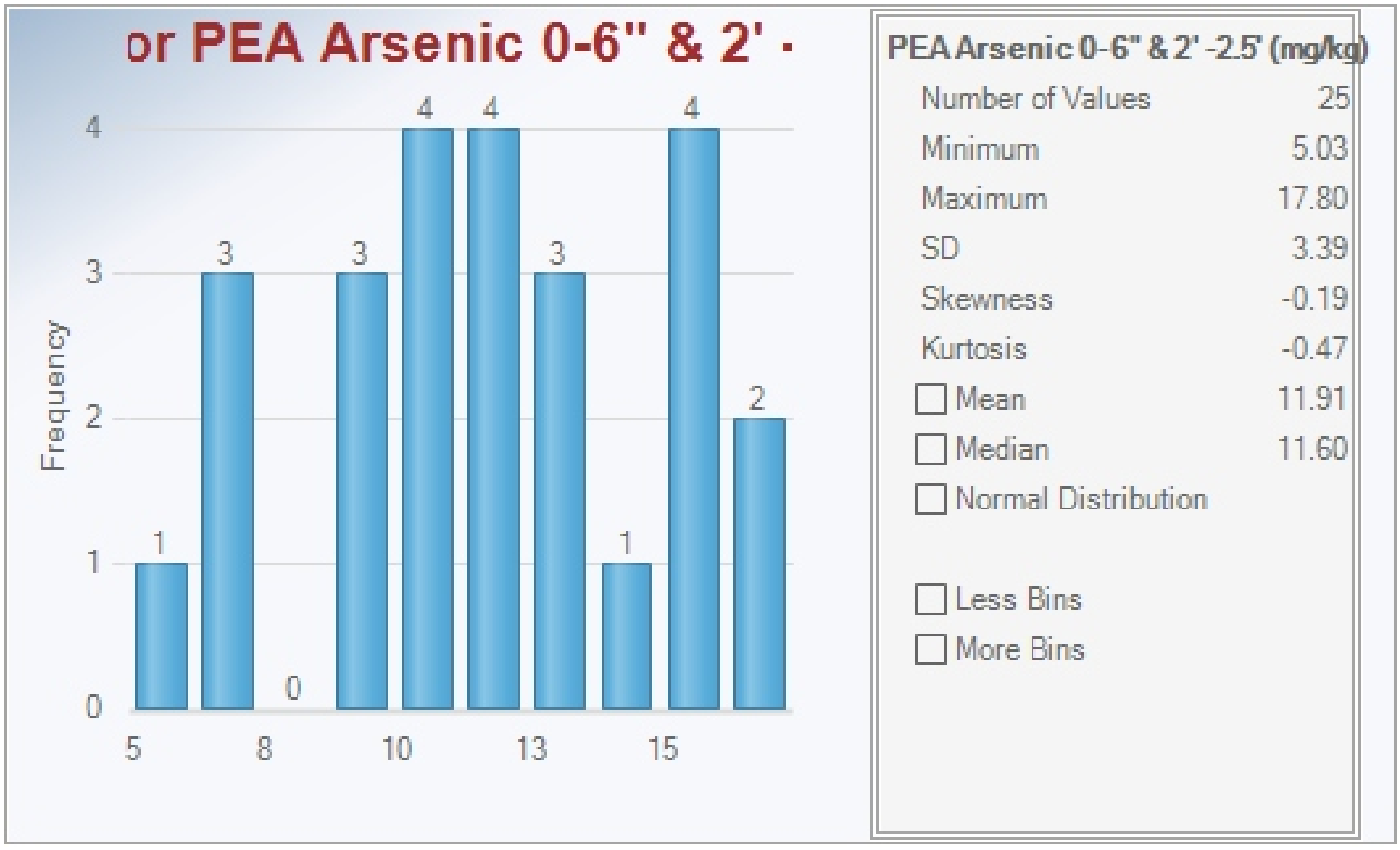
Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
c 0-6" & 2' -2.5' (mg/kg)	25	1	5.03	17.8	11.91	11.38	3.392	0.678	3.262	-0.192	0.285

Percentiles for Uncensored Dataset

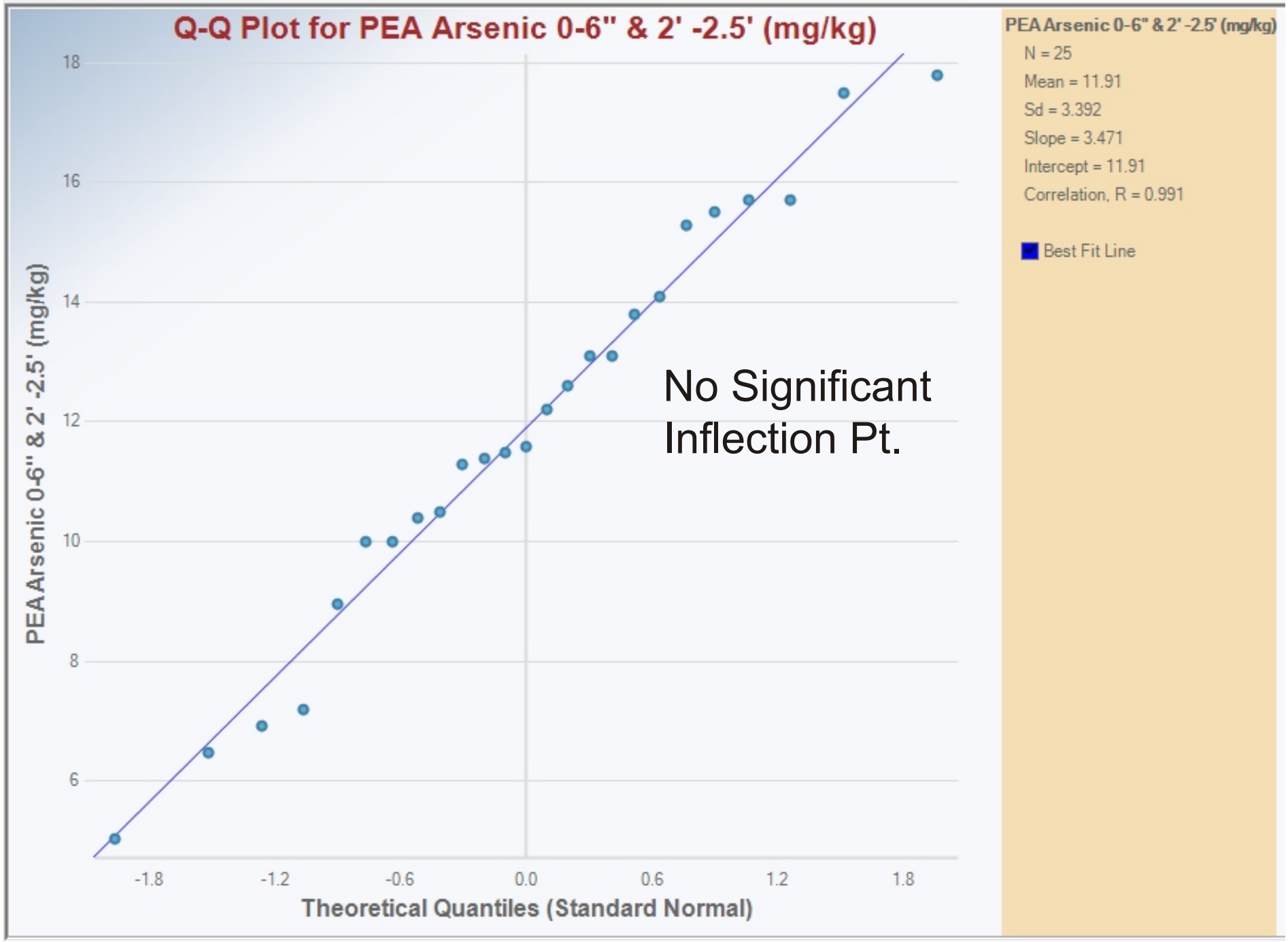
Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
c 0-6" & 2' -2.5' (mg/kg)	25	1	7.022	9.79	10	11.6	14.1	15.34	15.7	17.14	17.73



Box Plot of Raw Arsenic Data



Histogram of Raw Arsenic Data



Q-Q Plot of Near Surface Arsenic

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 2/6/2023 1:23:14 PM
From File	18503 Arsenic All 2 Columns.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PEA Arsenic 0-6" & 2' -2.5' (mg/kg)

General Statistics

Total Number of Observations	25	Number of Distinct Observations	22
		Number of Missing Observations	1
Minimum	5.03	Mean	11.91
Maximum	17.8	Median	11.6
SD	3.392	Std. Error of Mean	0.678
Coefficient of Variation	0.285	Skewness	-0.192

Normal GOF Test

Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.886	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.087	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.201	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	13.07	95% Adjusted-CLT UCL (Chen-1995)	12.99
		95% Modified-t UCL (Johnson-1978)	13.06

Gamma GOF Test

A-D Test Statistic	0.396	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.12	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.174	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.26	k star (bias corrected MLE)	9.934
Theta hat (MLE)	1.058	Theta star (bias corrected MLE)	1.199
nu hat (MLE)	562.9	nu star (bias corrected)	496.7
MLE Mean (bias corrected)	11.91	MLE Sd (bias corrected)	3.778
		Approximate Chi Square Value (0.05)	446
Adjusted Level of Significance	0.0395	Adjusted Chi Square Value	442.8

Assuming Gamma Distribution

95% Approximate Gamma UCL	13.26	95% Adjusted Gamma UCL	13.36

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk Lognormal GOF Test**

10% Shapiro Wilk Critical Value	0.931	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.143	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.159	Data appear Lognormal at 10% Significance Level	
Data appear Lognormal at 10% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.615	Mean of logged Data	2.432
Maximum of Logged Data	2.879	SD of logged Data	0.32
Assuming Lognormal Distribution			
95% H-UCL	13.5	90% Chebyshev (MVUE) UCL	14.29
95% Chebyshev (MVUE) UCL	15.35	97.5% Chebyshev (MVUE) UCL	16.82
99% Chebyshev (MVUE) UCL	19.71		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution			
Nonparametric Distribution Free UCLs			
95% CLT UCL	13.02	95% BCA Bootstrap UCL	12.86
95% Standard Bootstrap UCL	12.98	95% Bootstrap-t UCL	13.07
95% Hall's Bootstrap UCL	13.04	95% Percentile Bootstrap UCL	12.91
90% Chebyshev(Mean, Sd) UCL	13.94	95% Chebyshev(Mean, Sd) UCL	14.86
97.5% Chebyshev(Mean, Sd) UCL	16.14	99% Chebyshev(Mean, Sd) UCL	18.66
Suggested UCL to Use			
95% Student's-t UCL	13.07		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be			
reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.			

SUPPLEMENTAL SITE INVESTIGATION (SSI) WORKPLAN

PROPOSED NEW SCHOOL SITE #5
SOUTHWEST OF S. OSWELL ST. & ZEPHYR LANE
BAKERSFIELD, CALIFORNIA

Prepared For:

Fairfax School District
1500 S. Fairfax Road
Bakersfield, CA. 93307
Attn: David Mack

File No. 22-18503

Prepared By:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA. 93313

December 2022

Soils Engineering Inc.

December 22, 2022 File No. 22-18503

Mr. Safouh Sayed, Project Manager
Site Mitigation and Restoration Program
Department of Toxic Substances Control (DTSC)
5796 Corporate Avenue
Cypress, CA. 90630

Subject: Supplemental Site Investigation Work Plan
Fairfax School District
Proposed New School #5
Southwest of S. Oswell Street and Zephyr Lane
Bakersfield, CA.
Site Code 104860

Dear Mr. Sayed:

Introduction

On the behalf of the Fairfax School District (FSD), Soils Engineering, Inc. (SEI) has prepared this Supplemental Site Investigation (SSI) Work Plan to conduct a Supplemental Site Investigation (SSI) on the proposed new school #5 located southwest of S. Oswell Street and Zephyr Lane in Bakersfield, CA (site). This SSI will include soil gas sampling to evaluate subsurface gases related to nearby oil field activities. In addition, soil sampling will be conducted at the soil gas locations to further evaluate arsenic concentrations in the subsurface soil per the DTSC's "Arsenic Strategies (January 16, 2009)". The SSI requirements for this site were discussed with the DTSC in a video conference call on December 19, 2022.

Site Description & Site History

The site is approximately 20.25 acres and consists of the southern half of one (1) parcel (APN: 173-191-01) located southwest of S. Oswell St. and Zephyr Lane. in Bakersfield, CA as shown on the attached Location Map (Plate 1) and Plot Plan (Plate 2). The site is a vacant field that has a moderate amount of vegetation. There are traces of an irrigation/drainage ditch adjacent to the center of the site to the east trending north south. Just east of the irrigation/drainage ditch, there are multiple scattered piles that appear to contain some combination of soil/debris/vegetation/concrete/bricks/asphaltic material. These piles are also scattered along the western half of the southern border and along the western border of the site. There are also dirt roads along the eastern, southern, and the northeastern border. There is also a dirt berm along the eastern border to limited on-site access and barbed wire fencing along the western and southern borders. Farmlands borders the site to the south and west of the property. To the north there is vacant land and there is S. Oswell Street and residential properties to the east.

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Available records kept by the County of Kern, City of Bakersfield, aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to the 1970s. From 2017 to 2020, there were soil piles on the southeastern portion of the site. Currently the site is vacant land.

Summary of PEA Soil Sampling and Results

A Preliminary Environmental Assessment (PEA) Equivalent Report dated September 1, 2022, was prepared by SEI for the FSD for the Site #5 area. The following is a summary of that investigation along with conclusions and recommendations for the site.

To assess near surface soil conditions within the site area, SEI collected a total of 64 on-site soil samples in general accordance with the Department of Toxic Substances Controls (DTSC's) PEA Guidance Manual and the DTSC's Interim Guidance for Sampling Agricultural Properties (3rd Revision). The soil samples were collected at depth intervals of 0" to 6" and 2' to 2.5' below ground surface (bgs) at the on-site sampling locations as shown on Plate 2A. The area was divided into eight (8) grid sections (C1 to C8) with four (4) sample locations (A, B, C & D) per grid section. Soil samples collected within areas of current or former fill material piles were also analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), and Total Petroleum Hydrocarbons (TPH C5 to C36). This included samples C5A-3" C5C-3", C6C-3", C7D-3", C8B-3", and C8D-3". A duplicate soil sample (C3E-3") was collected at sample location C3B-3" and analyzed for OCPs and arsenic for Quality Control/Quality Assurance. The deeper -2' soil samples were analyzed if the corresponding -3" soil sample had one of the highest concentrations reported of OCPs or arsenic. This included soil samples C3B-2', C5C-2', C8A-3", C8C-3", C8A-2', C8B-2', C8C-2', C8D-2' and C7D-2' for OCPs and samples C1B-2', C2B-2', C3B-2', C5A-2', C6B-2', C6C-2', C7B-2' and C7D-2' for arsenic. In addition, two (2) background soil samples (B1@6' and B2@6') collected at a depth of 6' in the two (2) geotechnical soil borings were also analyzed for arsenic for background comparison purposes.

Discrete soil samples were also collected at 3 locations (BM1 to BM3) within the eastern edge berm piles and were analyzed for OCPs, CAM 17 Metals, Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPH C5 to C36) and pH. EPA Method 5035 was utilized to preserve the soil sample portion for the VOC analysis.

The soil samples were shipped to Positive Lab Services in Los Angeles, CA in a cooler with blue ice along with completed chain of custody documents.

The analytical results of the 0" to 6" composite samples (C1A,B,C,D-3" to C8A,B,C,D-3") and the 0 to 6" (-3") and 2' to 2.5' (-2') discrete soil samples analyzed for organo-chlorine pesticides (OCPs) within the site area during this investigation, indicate that only minor concentration 4,4'-DDD (up to 0.0192 mg/kg), 4,4'-DDE (up to 0.0236 mg/kg), 4,4'-DDT (up to 0.125 mg/kg) and

dieldrin (up to 0.00818mg/kg) were reported. All of these results are well below the EPA Regional Screening Levels (RSLs) and the DTSC Screening Levels (SLs) for these constituents.

The analytical results of on-site arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg with an average of 11.9 mg/kg in the soil samples analyzed. Two (2) background soil samples collected at a depth of 6' had arsenic concentrations reported at 11.5 mg/kg and 9.2 mg/kg. A duplicate sample C3E-3" (same as C3B-3") was also analyzed for arsenic with a similar result. Lead concentrations from the soil samples collected in the former fill areas and in the soil berms ranged from 1.97 to 23.7 mg/kg indicating no concentrations exceeding the DTSC SL of 80 mg/kg in these areas.

The 3 soil berm pile samples had no elevated concentrations of OCPs, TPH, VOCs, CAM 17 Metals or pH reported.

See Table 1 for the soil sample analytical results. See Plate 2A for the soil sample locations.

The highest concentrations of chemicals of potential concern (COPC) reported in the soil samples were included in a human health screening evaluation. This included the following COPCs: 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg, The highest arsenic concentration (17.8 mg/kg) is within the East Bakersfield area background arsenic concentrations as shown on Table 2 and was eliminated from the risk and hazard evaluation.

Based on a comparison of the highest concentrations of COPC's reported with the DTSC SLs and the EPA RSLs the total cumulative risk is 3.265 x 10-7 and the total cumulative hazard is 0.017066 for all pathways.

These results indicate:

1. The risk and hazard levels appear to be acceptable for the proposed school area.
2. The historical agricultural use and occasional dumping of fill materials do not appear to have caused an elevated risk or hazard level to future occupants at the proposed school site.

The PEA equivalent investigation indicates:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

DTSC Comments on the PEA Equivalent Report
The DTSC comments during a Project Scoping Meeting via a video conference call on December 19, 2022 on the PEA Equivalent Report included the following:

A supplemental site investigation (SSI) is necessary to address the possibility of subsurface gases (methane, volatile organic compounds (VOCs) and hydrogen sulfide (H2S)) being present from nearby oil field activities that might be a threat for vapor intrusion into future buildings on-site. The site is located within the boundaries of the Edison Oil & Gas Field with the nearest oil wells drilled ~280' to the north and ~320' to the south which were both dry holes (no oil production).

The on-site arsenic concentrations in the subsurface soil was also discussed with the highest on-site arsenic concentration reported being 17.8 mg/kg. The DTSC requested the on-site arsenic concentrations by evaluated per the DTSC's "Arsenic Strategies – Determination of Arsenic Remediation Development of Arsenic Cleanup Goals (January 16, 2009)".

This SSI Workplan includes the requirements that the DTSC has stated in their comments to address the potential environmental issues at this site.

PROPOSED SSI SAMPLING & ANALYSIS

Soil Vapor Survey
Soils Engineering, Inc. (SEI) proposes to evaluate the soil vapor in the subsurface at four (4) on-site locations. These will be located closest to the 2 nearest oil wells or at the corners of the site to evaluate subsurface gases (methane, H2S & VOCs) for impact from nearby oil field activities since the site is within the Edison Oilfield. The following scope of work is proposed.

A soil vapor survey will be conducted at the four (4) locations stated above to evaluate methane, H2S and VOCs in the subsurface soil gas. Soil vapor samples will be collected at depths of 5', 15' and 40' at the locations shown on Plate 3. Soil gas samples will be collected by advancing a sealed steel probe with a Geoprobe unit (or equivalent) to the proposed sampling depths (5', 15' and 40' bgs.), then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. At least one-foot of dry granular bentonite will be placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole will be grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole will be marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling. The amount of vapor volume to be purged during each sampling event will be 3 purge volumes. A leak test will be conducted during each sampling interval utilizing n-propanol (or equivalent) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a clean syringe, glass bulb or summa canister will be utilized to collect the vapor sample at each sampling interval to be analyzed for VOCs by EPA Method 8260B at an on-site mobile analytical laboratory or a stationary lab. A duplicate vapor sample will be collected at one of the sampling locations for quality control evaluation. EPA Method TO-15 may also be utilized for VOC analysis at a stationary lab, if necessary, to achieve reporting limits less than the RSLs or SLs for some of the VOCs. Methane and H2S will also be tested for at each probe location by attaching a hand-held methane and H2S meter to the soil gas tubing and reporting the highest reading. Based on the analytical results of the initial soil vapor samples additional soil vapor borings may be conducted to define the extent of elevated vapor of concern in the subsurface. See Plate 4 for a typical Soil Vapor Boring schematic. Table 3 shows the proposed sampling methods and Table 4 shows the proposed analytical detection limits for the soil gas samples.

This scope of work will be conducted in accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

Soil Sampling During Soil Gas Survey

The 4 soil vapor borings will be continuously sampled to a depth of 15' and then sampled at a depth of 40' to evaluate soil type and potential staining and odor. Vapor probe installation depths may be adjusted due to the presence of non-permeable intervals (clay) at the proposed installation depths of 5', 15' and 40'. Any sample interval with stained soil or high PID readings will be sealed with Teflon-lined caps, labeled and placed in a cooler with blue ice. EPA Method 5035 will be utilized to preserve the soil sample portion for VOC analysis, if warranted. At a minimum a soil sample will be collected at a depth of 5' and 10' for arsenic analysis at each boring location. The soil encountered will be screened for hydrocarbon content with a PID meter and the lithology described on a boring log.

The sampling equipment will be decontaminated between each sampling event to prevent cross-contamination.

Analytical Testing of Soil Samples
The 5' and 10' soil samples from the soil gas borings will be analyzed for arsenic by EPA Method 6010 at a stationary certified analytical laboratory. Soil samples collected because of the presence of petroleum staining and or high PID readings will be analyzed for TPH by EPA Method 8015, for PAHs by EPA Method 8270SIM or 8310 and for VOCs by 8260B at a stationary certified laboratory. Table 3 shows the proposed sampling methods and Table 4 shows the proposed analytical detection limits for the soil samples. The soil samples will be transported to a State certified analytical laboratory under chain of custody documents.

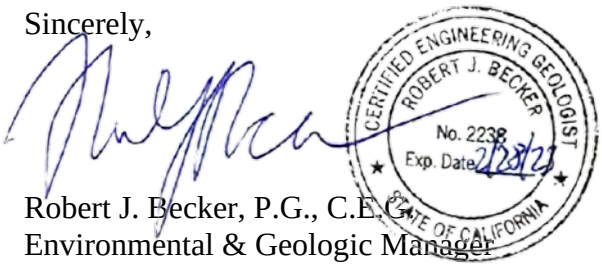
SSI Reporting
The analytical results of the soil gas and soil samples analyzed will be included in an SSI Completion Report which will describe the field work and analytical testing conducted and evaluate the reported concentrations of chemicals of concern at the site. This will include an evaluation of the on-site arsenic concentrations per the DTSC's Arsenic Strategies (January 16, 2009). These analytical results will be incorporated into the risk and hazard evaluation of the site, if warranted.

Health & Safety & QA/QC
The proposed work will follow the attached Site-Specific Health & Safety Plan (HASP) in Appendix A and the Quality Assurance/Quality Control Plan in Appendix B. The HASP includes the COVID-19 Protocol that will be implemented during the field work.

Closing
We will conduct the proposed sampling following the approval of this SSI Work Plan and the DTSC will be notified once the schedule is confirmed. We anticipate 1 to 2 days of fieldwork and testing for this project.

If you have any questions concerning this proposed scope of work please contact SEI at (661) 831-5100.

Sincerely,



Robert J. Becker, P.G., C.E.G.
Environmental & Geologic Manager

Enclosures: Table 1, PEA Soil Sample Analytical Results
Table 2, Comparison of Arsenic Concentrations at School Sites in Eastern Bakersfield, Arvin & Lamont Undergoing or Have Completes PEA's
Table 3, Summary of Analyses – Soil & Soil Gas Sampling
Table 4, List of Method Compounds & Reporting Limits

Location Map, Plate 1
Plot Plan Map, Plate 2
PEA Soil Sample Location Map, Plate 2A
Proposed SSI Sample Map, Plate 3
Soil Vapor Boring Schematic, Plate 4
Appendix A: Site-Specific Health & Safety Plan
Appendix B: QA/QC Plan

TABLE 1
Composite & Discrete Soil Sample Analytical Results
Results for Potential School Site #5
SW of Oswell St. & Zephyr Lane in Bakersfield, CA

CONSTITUENTS				COMPOSITE ON-SITE SOIL SAMPLES (0 to 6" depth)								Discrete Soil Samples (0 to 6", 2' to 2.5' depths)																										East Dirt Berm Samples		
Chlorinated Pesticides (EPA 8081A)	**PQL (ug/kg)**	**DTSC SLs or EPA RSLs Cancer Endpoint (ug/kg)**	**DTSC SLs or EPA RSLs, Non-Cancer Endpoint (ug/kg)**	**C1-3" (A,B,C, D)**	**C2-3" (A,B,C, D)**	**C3-3" (A,B,C, D)**	**C4-3" (A,B,C, D)**	**C5-3" (A,B,C, D)**	**C6-3" (A,B,C,D)**	**C7-3" (A,B,C, D)**	**C8-3" (A,B,C, D)**	**C1B-3"**	**C1B-2'**	**C2B-3"**	**C2B-2'**	**C3B-3"**	**C3E-3" (Dup of C3B-3")**	**C3B-2'**	**C4B-3"**	**C5A-3"**	**C5A-2'**	**C5B-3"**	**C5C-3"**	**C5C-2'**	**C6B-3"**	**C6B-2'**	**C6C-3"**	**C6C-2'**	**C7B-3"**	**C7B-2'**	**C7D-3"**	**C7D-2**	**C8A-3"**	**C8A-2'**	**C8B-3"**	**C8B-2'**	**C8C-3"**	**C8C-2'**	**C8D-3"**	**C8D-2'**	**BM-1**	**BM-2**	**BM-3**
Aldrin	4	39	2300**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Alpha-BHC	4	86	510000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Beta-BHC	4	300		<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Delta-BHC	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Gamma-BHC, Lindane	4	570	21000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Technical Chlordane	20	1700	35000	<20	<20	<20	<20	<20	<20	<20	<20	NA	NA	NA	NA	<20	<20	<20	NA	<20	NA	NA	<20	<20	NA	NA	<20	NA	NA	NA	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
4,4'-DDD	4	2300	1900	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	6.08	<4	NA	NA	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	19.2	<4	<4	5.85	5.37
4,4'-DDE	8	2000	23000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	16.1	<8	<8	<8	<8	<8	23.6	<8	<8	10.9	15.4
4,4'-DDT	8	1900	37000	<8	<8	<8	11.7	17.5	<8	<8	72.9	NA	NA	NA	NA	<8	<8	13.7	NA	<8	NA	NA	44.4	41.1	NA	NA	<8	NA	NA	NA	48.5	<8	<8	8.89	27.3	<8	125	<8	12.1	20.3	17.8	50.2	22.2
Dieldrin	4	34	3200**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	8.18	<4	<4	<4	<4
Endosulfan I	8		450000**	<8	<8	<8	<8	<8	<8	<8	<8	NA	NA	NA	NA	<8	<8	<8	NA	<8	NA	NA	<8	<8	NA	NA	<8	NA	NA	NA	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
Endosulfan II	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endosulfan Sulfate	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin	4		19000	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Aldehyde	4			<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Endrin Ketone	10			<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Heptachlor	4	130	38000**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Heptachlor epoxide	4	70	990**	<4	<4	<4	<4	<4	<4	<4	<4	NA	NA	NA	NA	<4	<4	<4	NA	<4	NA	NA	<4	<4	NA	NA	<4	NA	NA	NA	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Methoxychlor	10		320000**	<10	<10	<10	<10	<10	<10	<10	<10	NA	NA	NA	NA	<10	<10	<10	NA	<10	NA	NA	<10	<10	NA	NA	<10	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxaphene	60	450**	5700	<60	<60	<60	<60	<60	<60	<60	<60	NA	NA	NA	NA	<60	<60	<60	NA	<60	NA	NA	<60	<60	NA	NA	<60	NA	NA	NA	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60
Metals (EPA 6010)	**mg/kg**	**mg/kg**	**mg/kg**																																						
Antimony	2		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	2.29	NA	<2	<2	<2
Arsenic	2	0.11 *	0.41**	NA	NA	NA	NA	NA	NA	NA	NA	**13.8**	7.19	**17.5**	**12.2**	**15.3**	**17.8**	10	10	**15.7**	6.91	8.95	11.6	NA	**12.6**	11.4	**15.7**	6.48	**13.1**	10.4	**13.1**	5.03	NA	NA	11.3	NA	NA	NA	11.5	NA	**15.5**	**14.1**	10.5
Barium	1		15000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	182	NA	NA	221	NA	NA	NA	302	NA	NA	NA	211	NA	NA	NA	208	NA	NA	NA	393	NA	245	278	185
Beryllium	1	1600	15**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Cadmium	1	2100	7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Chromium	1			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.5	NA	NA	26.6	NA	NA	NA	15.4	NA	NA	NA	22.6	NA	NA	NA	21.3	NA	NA	NA	16.6	NA	21.9	24.8	18.7
Cobalt	1	420	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.39	NA	NA	9.28	NA	NA	NA	7.62	NA	NA	NA	8.23	NA	NA	NA	8.77	NA	NA	NA	6.8	NA	7.77	9.94	7.59
Copper	1		3100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.2	NA	NA	22.3	NA	NA	NA	10.2	NA	NA	NA	18.6	NA	NA	NA	15.9	NA	NA	NA	11.2	NA	14.4	17.3	14.1
Lead	1		80**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.7	NA	NA	23.7	NA	NA	NA	2.23	NA	NA	NA	10.1	NA	NA	NA	4.59	NA	NA	NA	1.97	NA	5.96	5.75	7.86
Molybdenum	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	1.39	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	2.31	1.56
Nickel	1	15000	820**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.1	NA	NA	17.4	NA	NA	NA	12.1	NA	NA	NA	14.9	NA	NA	NA	20	NA	NA	NA	12	NA	13.8	15	11.3
Selenium	2		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	<2	<2	<2
Silver	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	NA	NA	<1	NA	<1	<1	<1
Thallium	2		0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	NA	NA	<2	NA	<2	<2	<2
Vanadium	1		390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.5	NA	NA	50.6	NA	NA	NA	37.5	NA	NA	NA	43.1	NA	NA	NA	49.8	NA	NA	NA	37.5	NA	47.6	49.8	36.9
Zinc	5		23000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.5	NA	NA	95.2	NA	NA	NA	29.8	NA	NA	NA	68.2	NA	NA	NA	55.4	NA	NA	NA	34	NA	53.3	60.5	50.8
EPA 7471 -Mercury	0.1		1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA	<0.1	<0.1	<0.1
TPH (EPA 8015B)	**mg/kg**	**mg/kg**	**mg/kg**																																						
C5-C12	0.5		82-520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	NA	NA	<0.5	NA	<0.5	<0.5	<0.5
C13-C22	2.5		96-110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.5	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	NA	NA	<2.5	NA	<2.5	<2.5	<2.5
C23-C40	100		2500-11000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	NA	NA	<100	NA	<100	<100	<100
Volatile Organic Compounds (VOCs) by EPA 8260B	**mg/kg**	**mg/kg**	**mg/kg**																																						
Benzene	0.002	0.330*	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Toluene	0.002		1100*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Ethylbenzene	0.002	5.8		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Xylenes	0.002		580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	NA	NA	<0.002	NA	<0.002	<0.002	<0.002
Other VOCs	varies	Chem Specific	Chem Specific	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	All ND	All ND	All ND
pH (EPA 9045C)	0-14			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	8.6	8.2

Note : Results in ppb unless otherwise noted, ppb = parts per billion (ug/kg), ppm= parts per million (mg/kg), ND = None Detected, NA = Not Analyzed, PQL = Practical Quantitation Limit For Reporting Purposes. Bold = concentration > RSLs, RSLs = EPA Regional Screening Levels May 2022, * = compare arsenic concentrations to ambient background. ** = HHRA Note #3 June DTSC Screening Levels (SLs). TPH = Total Petroleum Hydrocarbons, BTEX = Benzene, Toluene, Ethylbenzene & Xylenes, VOCs - Volatile Organic Compounds

TABLE 2
COMPARISON OF ARSENIC CONCENTRATIONS
AT SCHOOL SITES IN EASTERN BAKERSFIELD, ARVIN & LAMONT
UNDERGOING OR HAVE COMPLETED PEA's

SITE NAME (Location is East Bakersfield Area unless otherwise noted)	ON-Site Total Arsenic Range (mg/kg)	On-Site Mean Concentration (mg/kg)	Background Range (mg/kg) Most at 5' Depth
KHSD - Mira Monte HS - Fairfax & Redbank	6.03 to **24.6**	10.74	8.6 to 15.7
KHSD - Mira Monte Expansion - S. Fairfax & E. Wilson	11.7 to 27.6	13.98	13.4 to 22.3
Arvin SD - Myers & El Camino Elementary-Arvin	9.9 to 19.8	12.82	12 to18
KHSD - Cont. HS, E. Belle Terrace & Mt. Vernon	8.93 to 12.6	11.44	8.62 to 15.7
GUSD - Mid #4 & Elem, Cottonwood & Panama Ln	2.7 to 8.75	5.95	3.5 to 5.6
Fairfax & Zephyr Elementary School	3.06 to 16.3	5.52	8.6 to 15.7
Lamont SD - Proposed School Site Habecker Rd.	9.21 to **30.2**	**20.4**	9.1 to 14 (6')
Edison SD - Orangewood Elem Site	9.37 to 14	11.14	NA
Previous FSD Site #5 - E. Wilson & S. Fairfax	4.71 to 34	11.77	4.5 to 15 (7' or 10')
Current FSD Site #5 - S. Oswell & Zephyr	5.03 to 17.8	11.9	9.2 to 11.5 (6')
Overall PEA Site Averages & Ranges	1 to **30.2**	11.57	3.5 to 22.3
Bold = Elevated Concentration Requiring Remedial Action or Above Normal Background			

TABLE 3
SUMMARY OF ANALYSES – SOIL & SOIL GAS SAMPLING
Proposed FSD School Site #5
Bakersfield, CA

SOIL ANALYSES				
Analyte	**Method**	**Container**	**Preservative**	**Holding Time**
Total Petroleum Hydrocarbons (TPH)	EPA 8015	4 oz glass or sleeve	4 ºC	14 days
Metals & Arsenic	EPA 6010B & 7471A	4 oz glass or sleeve	4 ºC	180 days
Volatile Organic Compounds (VOCs)	EPA 8260	Terra Core or Equivalent EPA 5035	4 ºC	14 days
PAHs	8270SIM	4 oz glass or sleeve	4 ºC	14 days
SOIL GAS ANALYSES				
Methane	EPA 8015 or Hand-Held Meter	Syringe or Summa or Direct Readout	NA	30 minutes for syringe, 30 days for summa or direct readout on hand-held monitor within 30 minutes
Hydrogen Sulfide (H2S)	EPA 15/16 or D-3246 or Hand-Held Meter	Syringe or Summa or Direct Readout	NA	30 minutes for syringe, 30 days for summa or direct readout on hand-held monitor within 30 minutes
Volatile Organic Compounds (VOCs)	EPA 8260 or TO-15	Syringe or Summa	NA	30 minutes for syringe, 30 days for summa

PROPOSED SAMPLE ID & ANALYSIS

Sample Type	**Sample Quantity**	**Location**	**TPH, VOCs & PAHs**	**Metals**	**Methane, H2S & VOCs**
On-site Discrete Soil From soil gas borings 5’ & 10’ Sample Loc #-depth	4 borings, 8 samples estimated + 1 duplicate = 9 samples	Closest to Oil Wells or at Site Corners		8X for arsenic + 1 Dup	
On-site Discrete Soil From soil gas borings 5’ & 10’ Sample Loc #-depth	To Be Determined (TBD) Stained Samples or higher PID reading samples	Closest to Oil Wells or at Site Corners	TBD	TBD	
Discrete Soil Gas Sample SG#@ 5’, 15’ & 40’	4 borings, 12 samples + 1 duplicate = 13	Closest to Oil Wells or at Site Corners			9X (8 + 1 dup)

Note: X = Sample analysis will be done

TABLE 4
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

Total Petroleum Hydrocarbons (TPH)		
Compound	**Soil Detection Limit (mg/kg)**	**Soil RSL, All Non-Cancer (mg/kg)**
Total Petroleum Hydrocarbons Carbon Chain Ranges		
C5-C8	0.5	82 Low Aromatic 520 Low Aliphatic
C9-C16 C9-C18	10 10	97 Medium Aromatic 96 Medium Aliphatic
C17-C32 C19-C36	100 100	2400 High Aromatic 230,000 High Aliphatic

Volatile Organic Compounds (VOCs)			
Method	**Compound**	**Soil Detection Limit (ug/kg)**	**Soil Residential USEPA RSLs or DTSC SLs, Cancer/ Non-Cancer (mg/kg)**
EPA 8260	Benzene	<0.33	0.33/11
	Toluene	1	NA/1100
	Ethylbenzene	1	5.8/NA
	Xylenes	2	NA/580

RSL = EPA Residential Screening levels (November 2022),
***SLs = DTSC Screening Levels (June 2020), NA = Not Applicable**

TABLE 4
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

Title 22 Metals			
Method	**Compound**	**Soil Detection Limit (mg/kg)**	**Soil EPA RSL or DTSC-SLs, Cancer/ Non-Cancer (mg/kg)**
EPA 7471A	Mercury[3]	0.2	NA/1
EPA 6010B	Antimony[3]	10	NA/31
	Arsenic	0.5	0.68/0.41
	Barium[3]	0.5	NA/15000
	Beryllium[3]	0.5	1600/15
	Cadmium[3]	0.5	2100/7.1
	Chromium	0.5	36000
	Cobalt	2.5	420/23
	Copper[3]	0.5	NA/3100
	Lead[3]	2.5	NA/80
	Nickel[4]	2.5	15000/820
	Molybdenum	2.5	NA/390
	Selenium	0.5	NA/390
	Silver[3]	1	NA/390
	Thallium[5]	≤0.78	NA/0.78
	Vanadium	0.5	NA/390
	Zinc	2.5	NA/23,000

RSL = EPA Residential Screening levels (Nov 2022), SLs = DTSC Screening Levels (June 2020), NA = Not Applicable

Method – 8270SIM **Compound**	**Soil Detection Limit (mg/kg)**	**Soil EPA RSL or DTSC-SLs, Cancer/Non-Cancer (mg/kg)**
Naphthalene	0.015	2/130
2-Methylnaphthalene	0.015	NA/190
1-Methylnaphthalene	0.015	9.9/3400
Acenaphthylene	0.015	
Acenaphthene	0.015	NA/3300
Fluorene	0.015	NA/2300
Phenanthrene	0.015	
Anthracene	0.015	NA/17000
Fluoranthene	0.015	NA/2400
Pyrene	0.015	NA/1800
Benzo(a)anthracene	0.015	1.1/NA
Chrysene	0.015	110/NA
Benzo(b)fluoranthene	0.015	1.1/NA
Benzo(k)fluoranthene	0.015	11/NA
Benzo(a)pyrene	0.015	0.11/18
Indeno(1,2,3-cd)pyrene	0.015	1.1/NA
Dibenzo(a,h)anthracene	0.015	0.028/NA
Benzo(g,h,i)perylene	0.015	

TABLE 4
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES

METHANE			
Method	**Compound**	**Air Detection Limit (ppm/Vol)**	**Air Ambient DTSC Action Level**
8015	Methane	10 ppmV (Lab) 25 ppmV (Handheld)	500 ppmV (16,667 ppmV subslab)

HYDROGEN SULFIDE (H_2S)			
Method	**Compound**	**Air Detection Limit (ppm/Vol)**	**Air Ambient RSL (ug/m3)**
EPA 15/16, D-3246 or hand-held direct readout	H_2S	2 ppmV	2.1

RSL = EPA Residential Screening levels (Nov 2022), SLs = DTSC Screening Levels (June 2020), NA = Not Applicable

TABLE 4
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES - Volatile Organic Compounds (VOCs)

Volatile Organic Compounds (VOCs) by TO-15 (SUMMA)	Air Detection Limit (ug/m3)	Screening Levels with EPA Attenuation Factor (0.03) for Soil Gas (ug/m3)	Screening Levels with DTSC Residential Attenuation Factor (0.001) for Soil Gas using EPA RSL or DTSC SL (ug/m3)
Benzene	0.2	3.23	97
Toluene	0.2	10333	310000
Ethylbenzene	0.2	37	1100
Xylenes (total)	0.2	3333	100000
Isopropyl Alcohol (LCC)	0.2	NA	NA
1,1,1,2-Tetrachloroethane	0.2	12.67	380
1,1,1-Trichloroethane	0.2	33333	1000000
1,1,2-Trichloroethane	0.2	6.00	180
1,1,2-Trichloro-trifluoroethane	0.2	173333	5200000
1,1-Dichloroethane	0.2	60.00	1800
1,1-Dichloroethene	0.2	2433	73000
1,2,3-Trichlorobenzene	0.2	110	3300
1,2,3-Trichloropropane	0.2	0.0047	0.14
1,2,4-Trichlorobenzene	0.2	12.67	380
1,2,4-Trimethylbenzene	0.2	2100	63000
1,2-Dibromo-3-Chloropropane	0.2	0.01	0.17
1,2-Dibromoethane (EDB)	0.2	0.16	4.7
1,2-Dichlorobenzene	0.2	7000	210000
1,2-Dichloroethane	0.2	3.67	110
1,2-Dichloropropane	0.2	25.33	760
1,2,4-Trimethylbenzene	0.2	2100.00	63000
1,2,4-Trichlorobenzene	0.2	70.00	2100
Dichlorotetrafluoroethane	0.2	NA	NA
1,3,5-Trimethylbenzene	0.2	2100.00	63000
1,3-Dichlorobenzene	0.2	NA	NA
1,3-Dichloropropane	0.2	2767	83000
1,4-Dichlorobenzene	0.2	8.67	260
2,2-Dichloropropane	0.2	NA	NA
2-Butanone (MEK)	2.3	173333.33	5200000
2-Hexanone	2.3	1033	31000
4-Chlorotoluene	0.2	2767	83000
4-Ethyltoluene	0.2	NA	NA
4-Methyl-2-pentanone	2.3	103333.33	3100000
Acetone	2.3	36666667	1100000000
Benzl Chloride	0.2	1.90	57
Bromobenzene	0.2	2100.00	63000
Bromochloromethane	0.2	1400.00	42000
Bromodichloromethane	0.2	2.53	76
Bromoform	0.2	86.7	2600
Bromomethane	0.2	173.3	5200
Carbon Disulfide	0.2	24333	730000
Carbon Tetrachloride	0.2	15.7	470

TABLE 4
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES – VOCs - Continued

Volatile Organic Compounds (VOCs) by TO-15 (SUMMA)	Air Detection Limit (ug/m3)	Screening Levels with EPA Attenuation Factor (0.03) for Soil Gas (ug/m3)	Screening Levels with DTSC Residential Attenuation Factor (0.001) for Soil Gas using EPA RSL or DTSC SL (ug/m3)
Chlorobenzene	0.2	1733	52000
Chloroethane	0.2	NA	NA
Chloroform	0.2	4.00	120
Chloromethane	0.2	3133	94000
cis-1,2-Dichloroethene	0.2	276.7	8300
cis-1,3- Dichloropropene	0.2	23.3	700
Cyclohexane	0.2	210000	6300000
Dibromochloromethane	0.2	NA	NA
Dibromomethane	0.2	140.0	4200
Dichlorodifluoromethane	0.2	3333	100000
Ethyl Acetate	0.2	2433	73000
Heptane	0.2	14000	420000
Hexane	0.2	24333	730000
Hexachlorobutadiene	0.2	4.33	130
Isopropylbenzene	0.2	NA	NA
Methylene Chloride	0.2	33.33	1000
MTBE	0.2	367	11000
Naphthalene	0.2	2.77	83
n-Butylbenzene	0.2	0.00	0
n-Propylbenzene	0.2	33333.33	1000000
p-Isopropyltoluene	0.2	0.00	0
sec-Butylbenzene	0.2	0.00	0
Propylene	0.2	103333	3100000
Styrene	0.2	31333	940000
tert-Butylbenzene	0.2	14000.0	420000
Tetrachloroethene (PCE)	0.2	15.3	460
Tetrahydrofuran	0.2	NA	NA
trans-1,2-Dichloroethane	0.2	2766.7	83000
Trans-1,3-Dichloropropane	0.2	NA	NA
Trichloroethene	0.2	16.0	480
Trichlorofluoromethane	0.2	43333.3	1300000
Vinyl Acetate	0.2	7000	210000
Vinyl Chloride	0.2	0.32	9.5

RSL = EPA Residential Screening levels (Nov 2022),
SLs = DTSC Screening Levels (June 2020)

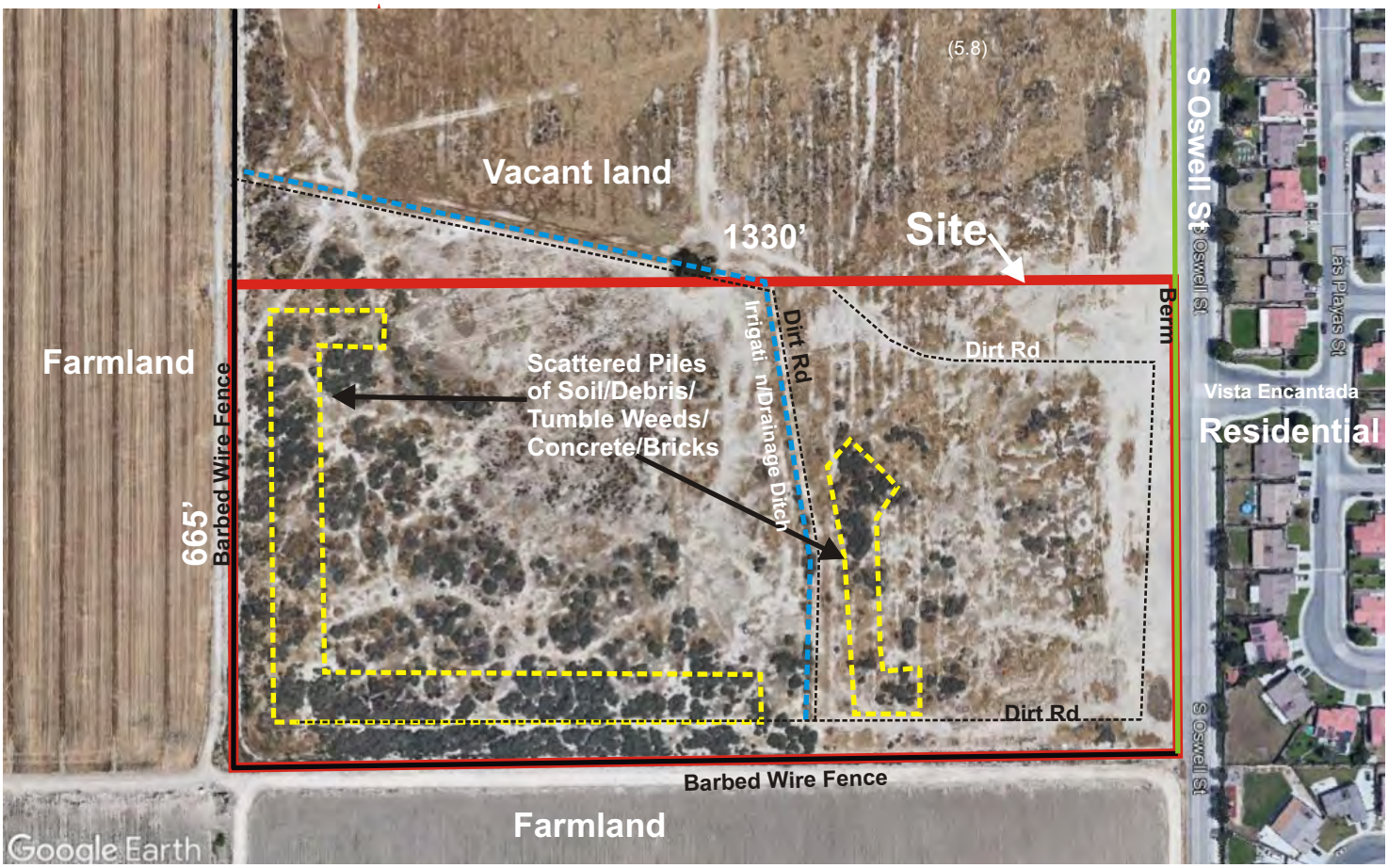
SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

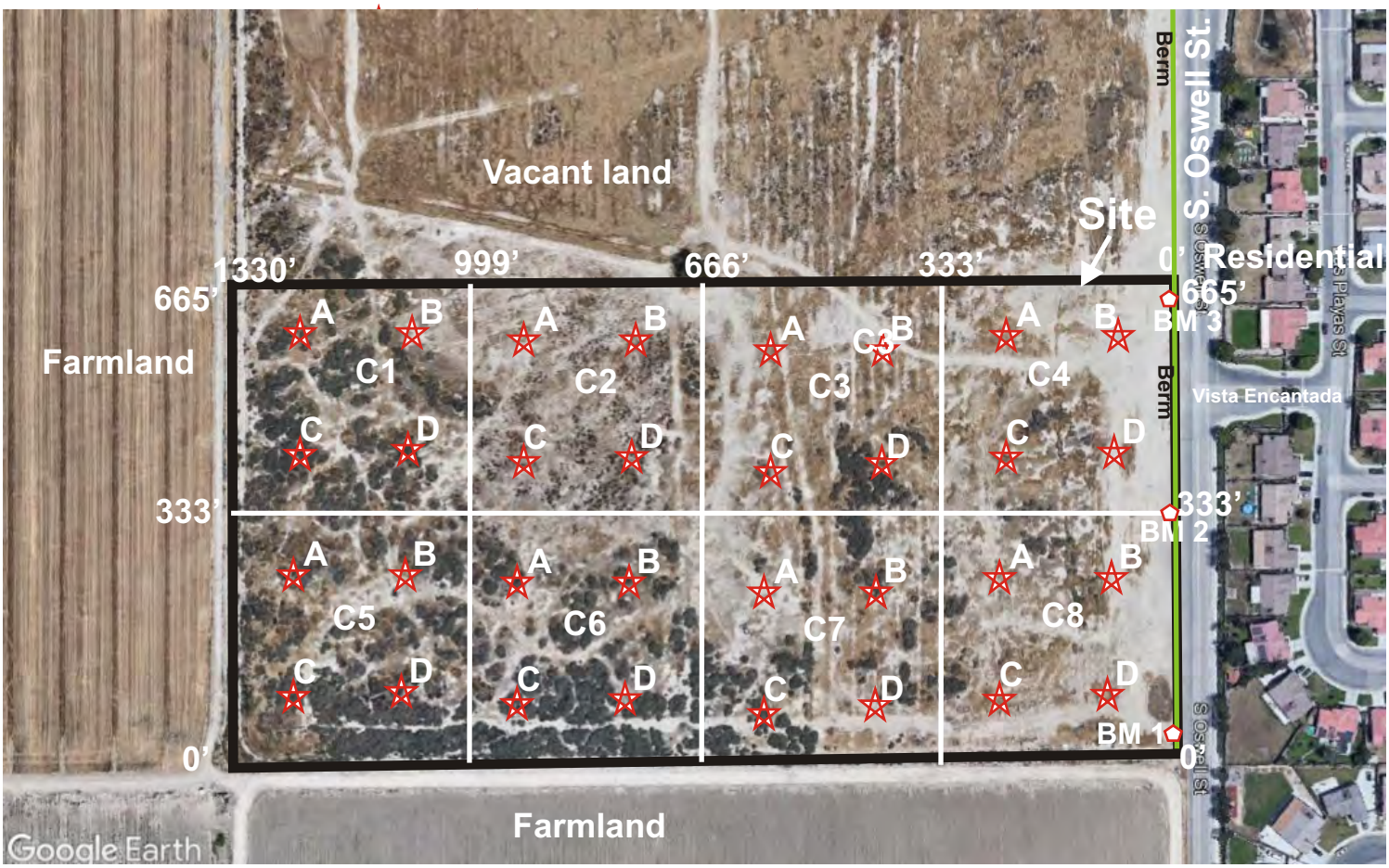
FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

LOCATION MAP

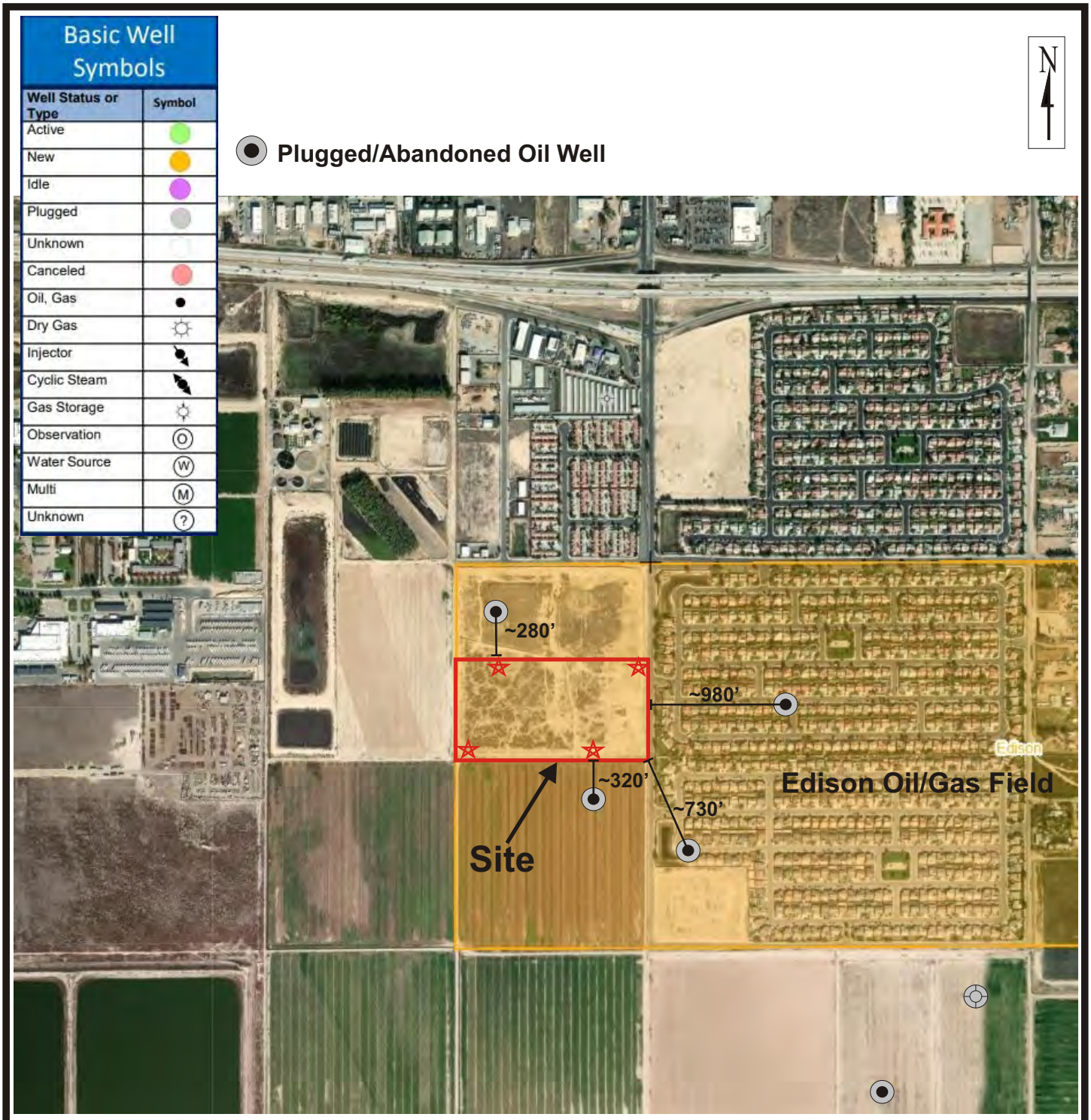
PLATE
1



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PLOT PLAN**	**PLATE** **2**

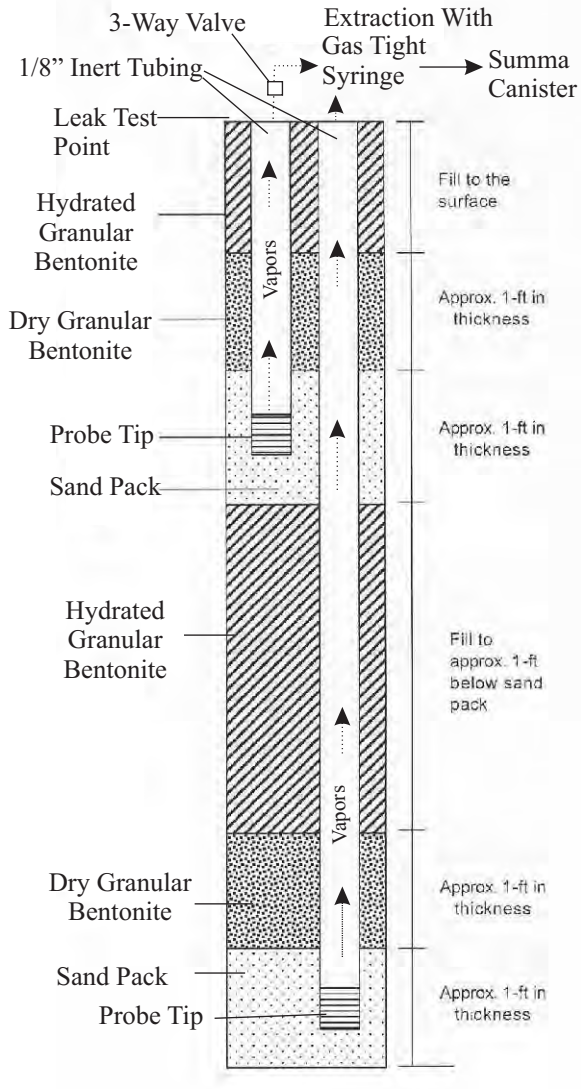


SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	SOIL SAMPLE LOCATION MAP FSD Proposed School Site #5 SW of S. Oswell St. & Zephyr Lane Bakersfield, CA	Plate 2A



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Proposed SSI Sample Map**	**PLATE** **3**

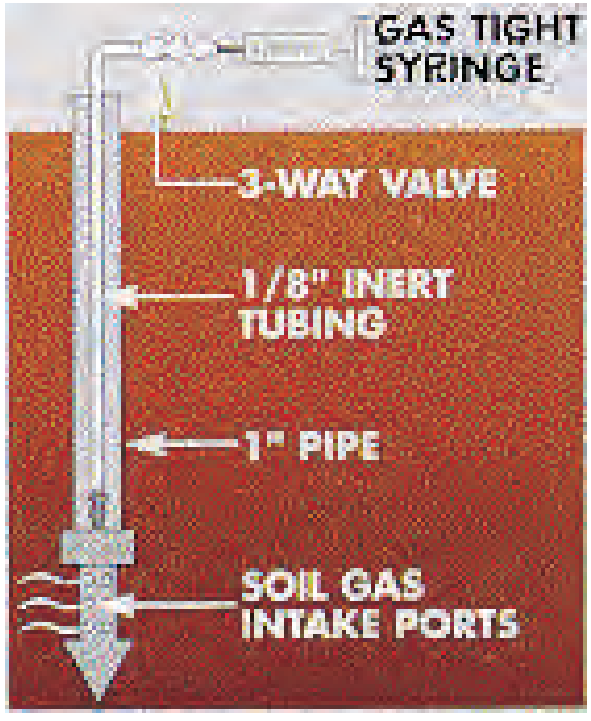
Temporary Multi-Depth Gas Probe Construction Diagram (From DTSC Advisory)



NOTE : Probe Tip Placed In Permeable Layer

NOTE : Probe Tip Placed In Permeable Layer

Vapor Sample Collection Diagram
From H & P Labs



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 12/2022
PROJECT:18503

Soil Vapor Boring

PLATE

4

APPENDIX A

Site-Specific Health & Safety Plan

Soils Engineering Inc.

HEALTH & SAFETY PLAN

Fairfax School District
Proposed School Site #5
Southwest of S. Oswell St. & Zephyr Lane
Bakersfield, CA.

SECTION 1

FACILITY BACKGROUND

1.1 SITE DESCRIPTION

The Fairfax School District (FSD) proposed new School Site #5 is located southwest of S. Oswell St. & Zephyr Lane in Bakersfield, California (Location Map Plate 1). This property covers approximately 20.25 acres of vacant land as shown on the attached Location Map (Plate 1) and Plot Plan (Plate 2). Adjacent off-site properties are agricultural land to the west and south, vacant land to the north and S. Oswell St. to the east.

1.2 SITE HISTORY

Available records kept by the County of Kern, City of Bakersfield, aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to the 1970s. From 2017 to 2020, there were soil piles on the southeastern portion of the site. Currently the site is vacant land.

A Preliminary Environmental Assessment (PEA) Equivalent Report dated September 1, 2022, was prepared by SEI for the FSD for the Site #5 area. The following is a summary of that investigation along with conclusions and recommendations for the site.

The PEA equivalent investigation indicates:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

An SSI Workplan has been prepared and includes the requirements that the DTSC has stated in their comments on December 19, 2022 in a Scoping Meeting to address the potential environmental issues at this site. This HASP is part of the SSI Workplan.

PROJECT SCHEDULE AND WORK PLAN

2.1 PROJECT SCHEDULE

One (1) to two (2) field days are estimated for the sampling, another 10 days for the soil and soil gas analysis and a week for the report.

2.2 WORK PLAN

PROPOSED SSI SAMPLING & ANALYSIS

Soil Vapor Survey

Soils Engineering, Inc. (SEI) proposes to evaluate the soil vapor in the subsurface at four (4) on-site locations. These will be located closest to the 2 nearest oil wells or at the corners of the site to evaluate subsurface gases (methane, H2S & VOCs) for impact from nearby oil field activities since the site is within the Edison Oilfield. The following scope of work is proposed.

A soil vapor survey will be conducted at the four (4) locations stated above to evaluate methane, H2S and VOCs in the subsurface soil gas. Soil vapor samples will be collected at depths of 5', 15' and 40' at the locations shown on Plate 3. Soil gas samples will be collected by advancing a sealed steel probe with a Geoprobe unit (or equivalent) to the proposed sampling depths (5', 15' and 40' bgs.), then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. At least one-foot of dry granular bentonite will be placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole will be grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole will be marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling. The amount of vapor volume to be purged during each sampling event will be 3 purge volumes. A leak test will be conducted during each sampling interval utilizing n-propanol (or equivalent) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a clean syringe, glass bulb or summa canister will be utilized to collect the vapor sample at each sampling interval to be analyzed for VOCs by EPA Method 8260B at an on-site mobile analytical laboratory or a stationary lab. A duplicate vapor sample will be collected at one of the sampling locations for quality control evaluation. EPA Method TO-15 may also be utilized for VOC analysis at a stationary lab, if necessary, to achieve reporting limits less than the RSLs or SLs for some of the VOCs. Methane and H2S will also be tested for at each probe location by attaching a hand-held methane and H2S meter to the soil gas tubing and reporting the highest reading. Based on the analytical results of the initial soil vapor samples additional soil vapor borings may be conducted to define the extent of elevated vapor of concern in the subsurface. See Plate 4 for a typical Soil Vapor Boring schematic. Table 3 shows the proposed sampling methods and Table 4 shows the proposed analytical detection limits for the soil gas samples.

This scope of work will be conducted in accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

Soil Sampling During Soil Gas Survey

The 4 soil vapor borings will be continuously sampled to a depth of 15' and then sampled at a depth of 40' to evaluate soil type and potential staining and odor. Vapor probe installation depths may be adjusted due to the presence of non-permeable intervals (clay) at the proposed installation depths of 5', 15' and 40'. Any sample interval with stained soil or high PID readings will be sealed with Teflon-lined caps, labeled and placed in a cooler with blue ice. EPA Method 5035 will be utilized to preserve the soil sample portion for VOC analysis, if warranted. At a minimum a soil sample will be collected at a depth of 5' and 10' for arsenic analysis at each boring location. The soil encountered will be screened for hydrocarbon content with a PID meter and the lithology described on a boring log.

The sampling equipment will be decontaminated between each sampling event to prevent cross-contamination.

Analytical Testing of Soil Samples
The 5' and 10' soil samples from the soil gas borings will be analyzed for arsenic by EPA Method 6010 at a stationary certified analytical laboratory. Soil samples collected because of the presence of petroleum staining and or high PID readings will be analyzed for TPH by EPA Method 8015, for PAHs by EPA Method 8270SIM or 8310 and for VOCs by 8260B at a stationary certified laboratory. Table 3 shows the proposed sampling methods and Table 4 shows the proposed analytical detection limits for the soil samples. The soil samples will be transported to a State certified analytical laboratory under chain of custody documents.

SSI Reporting
The analytical results of the soil gas and soil samples analyzed will be included in an SSI Completion Report which will describe the field work and analytical testing conducted and evaluate the reported concentrations of chemicals of concern at the site. This will include an evaluation of the on-site arsenic concentrations per the DTSC's Arsenic Strategies (January 16, 2009). These analytical results will be incorporated into the risk and hazard evaluation of the site, if warranted.

SECTION 3

KEY PERSONNEL AND RESPONSIBILITIES

3.1 PERSONNEL

Key personnel in charge of site activities:

Project Manager	Robert Becker
Project Safety Officer	Robert Becker

Site Safety Officer	Carlos Villegas
Field Personnel	To Be Determined

3.2 RESPONSIBILITIES

Soils Engineering, Inc. has been given the responsibility for the preparation of this Health and Safety Plan and is to monitor compliance of its personnel and those of its subcontractors. Soils Engineering, Inc. personnel responsible for the distribution and monitoring of this site health and safety plan will be the Project Safety Officer, and the Project Manager.

The Project Safety Officer is responsible for delivering the plan and any addenda to the Project Manager, and for advising the Project Manager and Site Safety Officer on health and safety issues. He has the authority to monitor compliance with the provisions of this plan, suspend work or modify work practices for safety reasons, and to dismiss individuals whose conduct on the site endangers the health and safety of others.

The Project Manager is responsible for distributing the plan to Soils Engineering, Inc. field personnel, and its subcontractors and each firm with personnel working on site. The Project Manager is also responsible for review of Soils Engineering, Inc. field personnel's compliance with its medical examination requirements, providing the appropriate safety equipment for personnel protection, and verify that all required health and safety documentation is submitted to the Project Safety Officer. The authority of the Project Manager is the same as the Project Safety Officer.

The Site Safety Officer is responsible for assisting the Project Manager with on-site implementation of the Site Health and Safety Plan. His responsibilities are as follows:

1) Maintain safety equipment supplies.

2) Perform air quality measurements as required or needed.

3) Direct decontamination operations and emergency response operations in accordance with the information provided in this document.

4) Establish the work zone markers and signs.

5) Report all accidents, incidents and infractions of safety rules and requirements to the Project Manager.

The Site Safety Officer has the authority to suspend work anytime he determines that the provisions of the Site Health and Safety Plan are inadequate to provide a safe working

environment. He is to notify the Project Manager of individuals whose on-site presence jeopardizes their health and safety, and the health and safety of others.

SECTION 4

JOB HAZARD ANALYSIS

4.1 CHEMICAL COMPOUNDS

The chemical hazards at this site are minimal but may include the presence of a variety of petroleum hydrocarbons, volatile organic compounds (VOCs) and metals in the subsurface soil and soil vapor.

4.2 INHALATION HAZARD

The vapor and dust concentrations that might be encountered during sampling and mitigation procedures are not likely to exceed currently recommended exposure limits, but in the event they do respiratory protection will be used in the work area. Engineering and administrative controls will be employed if required to abate windborne dust. These will include items such as water spray from a 500 gallon tank and/or administrative controls such as reducing site activities that produce windborne dust.

4.3 DERMAL EXPOSURE HAZARD

Contact of sufficient duration to cause significant absorption of toxic components is highly unlikely. Repeated daily or prolonged contact over a period of time may however, lead to absorption through the skin, irritation and dermatitis. For this reason direct skin contact shall be avoided by wearing protective gloves and clothing. However, if contact does occur, the exposed areas shall be washed with soap and water and rinsed thoroughly.

4.3.1 Eye Contact

If eye contact is made with any chemical materials at the site, the eye shall be flooded with water for at least 15 minutes. Medical attention shall be obtained as soon as possible.

4.3.2 Skin Contact

Skin exposure shall be treated by washing with soap and water. Any contaminated clothing shall be removed and affected areas washed with soap and water.

4.4 OTHER HAZARDS

Attention must be paid to other possible hazards on the site including, but not limited to:

- improper use of hand tools
- rotating machinery such as pumps
- dehydration of the personnel
- tripping on objects or open ditches
- falling objects from the overhead work
- lack of oxygen through blockage of the mask
- overhead power lines. Work around over-head and underground power lines will be conducted in compliance with all applicable federal, state and local regulations including Title 8 CCR 2946. This will include a minimum clearance of 10’ from any overhead powerlines. Proper lockout/blockout procedures for machinery and equipment will also be utilized on-site.

4.5 HEAT STRESS PREVENTION

High temperatures and humidity stress the body's ability to cool its self, and heat illness becomes a special concern during hot weather. There are three major forms of heat related illnesses: heat cramps, heat exhaustion, and heat stroke, with heat stroke being a life threatening condition.

Heat Cramps

Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. Frequently they don't occur until sometime later after work, at night, or when relaxing. Heat cramps are caused by heavy sweating, especially when water is replaced by drinking, but not salt or potassium. Although heat cramps can be quite painful, they usually don't result in permanent damage. To prevent them, drink electrolyte solutions such as Gatorade during the day and try eating more fruits like bananas.

Heat Exhaustion

Heat exhaustion is more serious than heat cramps. It occurs when the body's internal air-conditioning system is overworked, but hasn't completely shut down. In heat exhaustion, the surface blood vessels and capillaries which originally enlarged to cool the blood collapse from loss of body fluids and necessary minerals. This happens when you don't drink enough fluids to replace what you're sweating away.

The symptoms of heat exhaustion include: headache, heavy sweating, intense thirst, dizziness, fatigue, loss of coordination, nausea, impaired judgment, loss of appetite, hyperventilation, tingling in hands or feet, anxiety, cool moist skin, weak and rapid pulse (120-200), and low to normal blood pressure.

Somebody suffering these symptoms should be moved to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their

clothing, apply cool, wet cloths or fan them. Have them drink water or electrolyte drinks. Try to cool them down, and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day, and they should continue to drink water to replace lost body fluids.

Heat Stroke

Heat stroke is a life threatening illness with a high death rate. It occurs when the body has depleted its supply of water and salt, and the victim's body temperature rises to deadly levels. A heat stroke victim may first suffer heat cramps and/or the heat exhaustion before progressing into the heat stroke stage, but this is not always the case. It should be noted that, on the job, heat stroke is sometimes mistaken for heart attack. It is therefore very important to be able to recognize the signs and symptoms of heat stroke - and to check for them anytime an employee collapses while working in a hot environment.

The early symptoms of heat stroke include a high body temperature (103 degrees F); a distinct absence of sweating (usually); hot red or flushed dry skin; rapid pulse; difficulty breathing; constricted pupils; any/all the signs or symptoms of heat exhaustion such as dizziness, headache, nausea, vomiting, or confusion, but more severe; bizarre behavior; and high blood pressure. Advance symptoms may be seizure or convulsions, collapse, loss of consciousness, and a body temperature of over 108° F.

It is vital to lower a heat stroke victim's body temperature. Seconds count. Pour water on them, fan them, or apply cold packs. Call 911 and get an ambulance on the way as soon as possible.

Precautions To Prevent Heat Stress Illnesses

To prevent Heat Cramps, Heat Exhaustion & Heat Stroke the following is recommended

- Drink lots of liquids. Don't wait until you're thirsty, by then, there's a good chance you're already on your way to being dehydrated. Electrolyte drinks are good for replacing both water and minerals lost through sweating. Never drink alcohol, and avoid caffeinated beverages like coffee and pop.
- Take a break if you notice you're getting a headache or you start feeling overheated. Cool off for a few minutes before going back to work.
- Wear light weight, light colored clothing when working out in the sun.
- Take advantage of fans and air-conditioners.
- Get enough sleep at night.

Average Temperature, Humidity & Other Weather Data

The average monthly temperatures, relative humidity and other weather data for the Bakersfield area are listed below as a guide to what weather conditions might be expected on-site:

	Temp. (ºF)	Relative Humidity (Percentage)		Extreme Temp. (Days Per Month)		Rain (Inches)	Cloudiness (Days Per Month)		
	Average	A.M.	P.M.	Below 32º	Above 90º	Average	Clear	Partly Cloudy	Cloudy
January	47.8	84%	63%	5	0	0.9	7	8	17
February	53.3	80%	53%	1	0	1.1	7	8	13
March	57.4	74%	44%	N/A	N/A	1.0	10	9	12
April	63.0	67%	33%	0	2	0.6	12	9	9
May	71.0	58%	27%	0	10	0.2	18	9	5
June	78.2	52%	24%	0	19	0.1	23	5	2
July	84.1	49%	23%	0	28	0.0	26	3	1
August	82.6	53%	25%	0	26	0.1	26	4	1
September	76.8	58%	29%	0	17	0.2	24	4	2
October	67.8	62%	33%	N/A	5	0.3	19	7	5
November	55.8	77%	50%	1	N/A	0.7	12	8	10
December	47.5	83%	61%	5	0	0.6	7	8	16
Annual	**65.4**	**66%**	**39%**	**12**	**108**	**5.7**	**191**	**81**	**93**

Monitoring of Heat Stress Potential

The SSO shall monitor ambient temperature and humidity on a regular basis (every 1 hour minimum during sunny days) and use the following work/rest regimes as a guide.

For ambient temperature below 80°F, standard rest breaks (e.g. 15 minutes every 4 hours) should be used. For temperature above 80°F, the following regime should be followed.

Temperature	*Work*	*Rest*	*Comments (a)*
80 to 85°F	2 hr.	5 min.	Review heat stress in a safety meeting. Schedule a beverage break every 2 hrs., at a minimum.
80 to 90°F	2 hr.	15 min.	Seated rest. Drink at least 8 ounces at each break.
Above 90°F	1.5 hr	15 min.	As stated above. Rest area to be shaded.

These work/rest periods are based on recommendations from the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) published by the American Conference of Governmental Industrial Hygienists (ACGIH). The heat stress prevention program will be in compliance with Title 8, California Code of Regulations (CCR) §3395.

4.6 HEARING CONSERVATION

Personnel will be required to wear hearing protection when conducting work that may exposed them to an 8-hour TWA noise exposure of 85 dB or greater. This may include: jack hammering, drilling, and operation of heavy equipment (backhoes, excavators, loaders). Hearing protection (foam ear plugs, ear muffs, etc.) will be available on-site for use. Personnel not required to be near the work zone, will be encouraged to stand far away from the work zone while a loud activity takes place, or wear protective hearing. Employee exposure to noise will comply with Title 8 CCR, Article 105.

4.7 COVID-19 PLAN

Due to the current COVID-19 Pandemic, SEI will be implementing the following steps to limit the spread of the virus COVID-19 during the field work activities. These are based on the latest Cal/OSHA COVID-19 recommendations.

Determining Risk for Construction Workers

Currently, construction is classified as a lower risk occupation according to the OSHA's Occupational Risk Pyramid for COVID-19. Current information suggests COVID-19 is spread through:

- Close personal contact, such as touching or shaking hands, followed by touching the mouth, nose or eyes
- Airborne respiratory droplets expelled during regular talking and breathing as well as coughing and sneezing
- Touching a contaminated surface or object, then touching the mouth, nose or eyes

Because of these transmission methods, being in close proximity (within but not limited to six feet) to an infected person can result in transmission. Enclosed spaces (e.g. trailers, toilets), confined spaces and any space with recycled air presents additional exposure risk and should be avoided as much as possible.

General Precautions for Construction Workers

- Avoid close contact with people who are sick. If you are sick or have close contact with someone who has COVID-19, stay home and call your healthcare provider.

- Wash your hands frequently with soap and water for at least 20 seconds. Use hand sanitizer with at least 60 percent alcohol when soap and water aren't available. Always follow good handwashing practices:

    - Upon arriving at the jobsite and before going home at the end of the day.
    - Before and after eating
    - After using the toilet
    - After touching garbage or other waste materials

- Cover your mouth and nose when you cough and sneeze into a tissue if possible or your upper sleeve or elbow, not your hands, when tissues aren't available. Dispose of tissues in the trash after use.

- Avoid touching your eyes, nose or mouth as much as possible.

- Practice social distancing by limiting person-to-person contact within six feet, especially in large groups or in enclosed spaces.

- Don't shake hands when greeting others.

- Wear a facemask or face-covering when social distancing is not possible during close work practices.

What Steps Will SEI Take to Limit the Spread of the Virus

1. Ensure workers are able to follow good handwashing practices.

   - Provide clean water and soap for workers to use several times a day. On construction jobsites, this may take the form of temporary water stations, such as setting up water jugs and hand soap throughout the jobsite.

   - If clean water and soap are not available, provide hand sanitizer. Ensure that stations in toilets stay stocked at all times and provide additional hand sanitizer when needed.

   - Provide single use paper towels and trash cans for disposal.

   - Allow workers to go on break to wash their hands, especially after using the bathroom and before or after eating.

2. Utilize work practices when feasible to limit the number of potentially exposed workers on the jobsite at one time. This may include scheduling (e.g., staggering shift start/end times) or rotating crew access to a designated area during a shift. Stage the jobsite to stagger work and limit overlap of work crews.

3. Restrict access to enclosed and confined spaces. Confined and enclosed spaces (e.g., trailers) should be identified and access should be restricted to essential personnel only. Enclosed spaces (e.g., toilets, break areas) must be viewed as potential transmission areas and treated accordingly. Time spent in these areas should be reduced as much as possible.

4. Limit the number of workers gathering together at one time. Modify jobsite communications and planning to reduce or eliminate group gatherings. This includes communal break areas and any other activity that would bring a group of workers together on a jobsite. Create policies around the delivery of materials and visits by third parties to the jobsite.

5. When possible, practice social distancing. Instruct workers to maintain a distance of at least six feet apart as much as possible on the jobsite, whether indoors or outdoors, unless the task warrants otherwise (e.g., when performing a team lift).

6. When social distancing is not possible, require the use of N95 respirators or cloth facemasks or face-coverings.

Face-Coverings

SEI provides clean, undamaged face coverings and ensure they are properly worn by employees that are not fully vaccinated when they are indoors or in vehicles, and where required by orders from the California Department of Public Health (CDPH).

Employees required to wear face coverings in our workplace may remove them under the following conditions:

- When an employee is alone in a room or a vehicle.
- While eating or drinking at the workplace, provided employees are at least six feet apart and outside air supply to the area, if indoors, has been maximized to the extent feasible.
- When employees are required to wear respirators in accordance with our respirator program.
- Employees who cannot wear face coverings due to a medical or mental health condition or disability, or who are hearing-impaired or communicating with a hearing-impaired person. Such employees will wear an effective, non-restrictive alternative, such as a face shield with a drape on the bottom, if their condition permits it. If their condition does not permit it, then the employee will be at least six feet apart from all other persons and either fully vaccinated or tested at least weekly for COVID-19.
- Specific tasks that cannot feasibly be performed with a face covering. This exception is limited to the time in which such tasks are being performed.

Any employee not wearing a required face covering will be at least six feet apart from all other persons unless the unmasked employee is either fully vaccinated or tested at least weekly for COVID-19.

We will not prevent any employee from wearing a face covering when it is not required unless it would create a safety hazard, such as interfering with the safe operation of equipment.

Face coverings will also be provided to any employee that requests one, regardless of their vaccination status.

Practices for Cleaning and Disinfecting High-Risk Transmission Areas

Frequently clean and sanitize surfaces in common areas (e.g., break rooms, lunch areas, changing areas) as well as toilet facilities. Wipe down high-touch surfaces (e.g., faucets, handles to toilet facilities, tools).

Place handwashing stations, hand sanitizer or other hand cleaning methods at the entry and exit to the project or jobsite.

Clean and sanitize toilet facilities using the following best practices:

- Keep toilets, clean, sanitary and operational at all times. Ensure proper disposal of waste from these facilities.
- Consider providing additional toilet facilities if several workers will need to use the restroom at the same time (e.g., during scheduled breaks).
- Set a servicing schedule for cleaning, waste removal and replenishment of supplies such as toilet paper and handwashing agents.
- Use an EPA-registered cleaning agent specifically labeled for SARS-CoV-2: www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov -2.
- If an EPA-registered cleaning agent is not available, a solution of bleach and water can be used. Starting with common household bleach (5 percent strength in the U.S.), prepare the following solution for disinfecting:

  • Two tablespoons bleach per quart of water

- Always follow manufacturer instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time).
- Workers performing this cleaning and disinfecting should:
  - Wear PPE. This may include N95 respirators, disposable gloves, protective clothing and eye protection. Gloves should be discarded after each cleaning.
  - Clean dirty surfaces using a detergent or soap and water prior to disinfection.
  - Be trained on safe donning, doffing and disposal of PPE to avoid infectious disease transmission. Clean hands immediately after PPE is removed.
  - Be medically able to wear the type of respirator needed and trained on how to use it.
  - Be aware of the differences between dust masks and N95s. Dust masks do not protect the wearer from airborne respiratory droplets. Remember: dust masks protect others from exposure to you; N95 respirators protect you from exposure to others.

Assessing Workers for Symptoms

The greatest risk for exposure to COVID-19 is from fellow workers. Symptoms of COVID-19 are similar to the seasonal flu and may include mild to moderate respiratory illness, fever, cough and shortness of breath. Workers who present symptoms, such as fever or difficulty breathing, should call their health care provider and get a COVID-19 Test.. Workers should stay home if they:

- Are experiencing symptoms of COVID-19
- Have known exposure to a person with a confirmed case of COVID-19
- Suspect they may be infected but don't yet have symptoms (these workers should self-quarantine and seek testing)

Workers who experience these symptoms at work should report it immediately to a supervisor, be isolated from fellow workers and leave the site. Workers should follow the CDC protocol for home isolation after the onset of COVID-19 symptoms to prevent transmission of the virus to others. To limit the spread of the virus and its impact on daily operations, employers should consider available telework options for office staff.

Employers may consider implementing daily wellness checks before workers access the project or jobsite. Suggested assessment methods could include a questionnaire about potential symptoms and travel and/or a temperature check performed by a designated supervisor wearing the following PPE: an N95 respirator, protective clothing, disposable gloves and eye protection. If temperature checks are conducted, workers with a temperature of 100.4^{o}F should be sent home and referred to their health care provider for further instructions. Because a person infected with coronavirus can pass the virus to others without exhibiting symptoms, temperature checks alone may not be sufficient to limit the spread of the virus.

System for Communicating
SEI shall do all of the following in a form readily understandable by employees:

(A) Ask employees to report to SEI management without fear of reprisal, COVID-19 symptoms, possible close contacts and possible COVID-19 hazards at the workplace. This will help in limiting the spread of COVID-19 in the workplace.

(B) Describe how employees with medical or other conditions that put them at increased risk of severe COVID-19 illness can request accommodations.

(C) Provide information about access to COVID-19 testing when testing is required.

(D) Communicate information about COVID-19 hazards and SEI's COVID-19 policies and procedures to employees and to other employers, persons, and entities within or in contact with SEI's workplace.

Investigation and Responding to COVID-19 Cases in the Workplace
SEI will conduct the following investigation and response to COVID-19 cases in the workplace.

(A) SEI shall have an effective procedure to investigate COVID-19 cases in the workplace. This includes procedures for seeking information from employees regarding COVID-19 cases and close contacts, COVID-19 test results, and onset of COVID-19 symptoms, and identifying and recording COVID-19 cases.

(B) SEI shall take the following actions when there has been a COVID-19 case at the place of employment:

1. Determine the day and time the COVID-19 case was last present and, to the extent possible, the date of the positive COVID-19 test(s) and/or diagnosis, and the date the COVID-19 case first had one or more COVID-19 symptoms, if any were experienced.

2. Determine who may have had a close contact. This requires an evaluation of the activities of the COVID-19 case and all locations at the workplace which may have been visited by the COVID-19 case during the high-risk exposure period.

3. Within one business day of the time SEI knew or should have known of a COVID-19 case, SEI shall give written notice, in a form readily understandable by employees, that people at the worksite may have been exposed to COVID-19. The notice shall be written in a way that does not reveal any personal identifying information of the COVID-19 case, and in the manner that SEI normally uses to communicate employment-related information. Written notice may include, but is not limited to, personal service, email, or text message if it can reasonably be anticipated to be received by the employee within one business day of sending. The notice shall include the cleaning and disinfection plan required by Labor Code section 6409.6(a)(4). The notice must be sent to the following:

    a. All employees who were on the premises at the same worksite as the COVID-19 case during the high-risk exposure period. If SEI should reasonably know that an employee has not received the notice, or has limited literacy in the language used in the notice, SEI shall provide verbal notice, as soon as practicable, in a language understandable by the employee.

    b. Independent contractors and other employers on the premises at the same worksite as the COVID-19 case during the high-risk exposure period.

4. Within one business day of the time SEI knew or should have known of the COVID-19 case, SEI shall:

    a. provide the notice required by Labor Code section 6409.6(a)(2) and (c) to the authorized representative, if any, of the COVID-19 case and of any employee who had a close contact; and

    b. provide the notice required by Labor Code section 6409.6(a)(4) to the authorized representative, if any, of any employee who was on the premises at the same worksite as the COVID-19 case during the high-risk exposure period.

5. Make COVID-19 testing available at no cost, during paid time, to all employees of SEI who had a close contact in the workplace and provide them with the information on benefits available.

6. Investigate whether workplace conditions could have contributed to the risk of COVID-19 exposure and what could be done to reduce exposure to COVID-19 hazards.

Correction of COVID-19 Hazards

1. Determine if any additional preventive measures are needed at the workplace to eliminate potential COVID-19 hazards to other employees and if so implement these preventative measures in a timely manner based on the severity of the hazards. This includes, but is not limited to, implementing controls and/or policies and procedures in response to the evaluations conducted. This could be implementing a requirement for the wearing of face coverings, additional social distancing, working from home, and installing workspace barriers.

Training and Instruction

SEI will provide effective training and instruction to employees that include the following:

(A) SEI's COVID-19 policies and procedures to protect employees from COVID-19 hazards, and how to participate in the identification and evaluation of COVID-19 hazards.

(B) Information regarding COVID-19-related benefits to which the employee may be entitled under applicable federal, state, or local laws. This includes any benefits available under legally mandated sick and vaccination leave, if applicable, workers' compensation law, local governmental requirements, SEI's own leave policies, leave guaranteed by contract, and this section.

(C) The fact that COVID-19 is an infectious disease that can be spread through the air when an infectious person talks or vocalizes, sneezes, coughs, or exhales; that COVID-19 may be transmitted when a person touches a contaminated object and then touches their eyes, nose, or mouth, although that is less common; and that an infectious person may have no symptoms.

(D) The fact that particles containing the virus can travel more than six feet, especially indoors, so physical distancing, face coverings, increased ventilation indoors, and respiratory protection decrease the spread of COVID-19, but are most effective when used in combination.

(E) SEI's policies for providing respirators, and the right of employees who are not fully vaccinated to request a respirator for voluntary use as stated in this section, without fear of retaliation and at no cost to employees. Whenever respirators are provided for voluntary use employees will be trainied on:

1. How to properly wear the respirator provided;
2. How to perform a seal check according to the manufacturer's instructions each time a respirator is worn, and the fact that facial hair interferes with a seal.

(F) The importance of frequent hand washing with soap and water for at least 20 seconds and using hand sanitizer when employees do not have immediate access to a sink or hand washing facility, and that hand sanitizer does not work if the hands are soiled.

(G) Proper use of face coverings and the fact that face coverings are not respiratory protective equipment. COVID-19 is an airborne disease. N95s and more protective respirators protect the users from airborne disease while face coverings primarily protect people around the user.

(H) COVID-19 symptoms, and the importance of not coming to work and obtaining a COVID-19 test if the employee has COVID-19 symptoms.

(I) Information on SEI's COVID-19 policies; how to access COVID-19 testing and vaccination; and the fact that vaccination is effective at preventing COVID-19, protecting against both transmission and serious illness or death.

(J) The conditions under which face coverings must be worn at the workplace and that face coverings are additionally recommended outdoors for people who are not fully vaccinated if six feet of distance between people cannot be maintained. Employees can request face coverings from SEI at no cost to the employee and can wear them at work, regardless of vaccination status, without fear of retaliation.

Reporting and Record Keeping

(A) SEI shall report information about COVID-19 cases and outbreaks at the workplace to the local health department whenever required by law, and shall provide any related information requested by the local health department. SEI shall report all information to the local health department as required by Labor Code section 6409.6.

(B) SEI shall maintain records of the steps taken to implement the written COVID-19 Prevention Program.

(C) The written COVID-19 Prevention Program shall be made available at the workplace to employees, authorized employee representatives, and to representatives of the Division immediately upon request.

(D) SEI shall keep a record of and track all COVID-19 cases with the employee's name, contact information, occupation, location where the employee worked, the date of the last day at the workplace, and the date of a positive COVID-19 test.

Return to Work Criteria

(A) COVID-19 cases with COVID-19 symptoms shall not return to work until:

1. At least 24 hours have passed since a fever of 100.4 degrees Fahrenheit or higher has resolved without the use of fever-reducing medications; and
2. COVID-19 symptoms have improved; and
3. At least 10 days have passed since COVID-19 symptoms first appeared.

(B) COVID-19 cases who tested positive but never developed COVID-19 symptoms shall not return to work until a minimum of 10 days have passed since the date of specimen collection of their first positive COVID-19 test.

(C) Once a COVID-19 case has met the requirements of (A) or (B) above, as applicable, a negative COVID-19 test shall not be required for an employee to return to work.

(D) Persons who had a close contact may return to work as follows:

1. Persons who had a close contact but never developed any COVID-19 symptoms may return to work after 14 days have passed since the last known close contact unless either of the following exceptions 1.a. or b. applies:

a. Ten days have passed since the last known close contact and the person wears a face covering and maintains six feet of distance from others while at the workplace for 14 days following the last date of close contact.

b. Seven days have passed since the last known close contact; the person tested negative for COVID-19 using a COVID-19 test with the specimen taken at least five days after the last known close contact; and the person wears a face covering and maintains six feet of distance from others while at the workplace for 14 days following the last date of close contact.

2. Persons who had a close contact and developed any COVID-19 symptom cannot return to work until the requirements of subsection (A) above have been met.

(E) If an order to isolate, quarantine, or exclude an employee is issued by a local or state health official, the employee shall not return to work until the period of isolation or quarantine is completed or the order is lifted. If no period was specified, then the period shall be in accordance with the return to work periods in the above subsections (A), (B), or (D), as applicable.

(F) If no violations of local or state health officer orders for isolation, quarantine, or exclusion would result, the Division may, upon request, allow employees to return to work on the basis that the removal of an employee would create undue risk to a community's health and safety. In such cases, SEI shall develop, implement, and maintain effective control measures to prevent transmission in the workplace including providing isolation for the employee at the workplace and, if isolation is not feasible, the use of respirators in the workplace.

Summary of COVID-19 Requirements

- Perform a risk assessment of the jobsite.
- Educate/train workers about general precautions and regularly communicate plans to limit the spread of COVID-19.
- Reinforce good hygiene practices and take steps to make it easy for workers to frequently wash their hands.
- Institute policies and practices that maintain physical distance between workers.
- Identify, clean and sanitize high-risk transmission areas regularly.
- Provide appropriate personal protective equipment (PPE) including masks.
- Do not share other workers phones, PPE or other work tools and equipment.
- Require sick workers to stay home and send sick workers home.
- Follow the Return to Work Criteria stated above for those that have been exposed to or have tested positive for COVID-19.

SECTION 5

JOB HAZARD SUMMARY

Exposure to chemical hazards are highly unlikely but may occur if contaminated soils are present and brought to the surface during sampling activities. As each task begins, the potential risk of exposure increases. Consequently, level C personal protective equipment shall be available at the site. If monitoring of the breathing zone establishes another action level, the personal protection level may be upgraded. Nearby residents or workers are at a sufficient distance that they shall be at no significant risk. The SSO shall determine if any further action is required.

SECTION 6

EXPOSURE MONITORING PLAN

6.1 SAMPLING ACTIVITIES

The exposure monitoring activities shall be conducted or directed by the SSO during those activities that require such monitoring. At a minimum, the breathing zone shall be monitored for organic vapor during sampling activities. This shall be accomplished by use of a Photo-Ionization Detector (PID) or Eagle Trimeter portable analyzer.

6.2 ACTION LEVELS

Action levels for organic vapors in the breathing zone shall be based on readings obtained by the portable equipment mentioned. The PID instrument determines the total organic vapor present in the breathing zone. Readings of 0 to 100 ppm shall be considered level D without respirators. Readings of 100 ppm or greater for 5 minutes or longer shall trigger an action level to upgrade to level C or modified level D with respirators.

SECTION 7

PERSONAL PROTECTIVE EQUIPMENT

The respiratory and skin protection requirement shall be initially set at level "D" without respirators. This indicates that inhalable airborne substances are known, and concentrations of chemicals in the atmosphere are not expected and are well below TLV-STEL levels. The use of the following personal protection equipment is mandatory.

7.1 EQUIPMENT REQUIRED FOR FIELD PERSONNEL

- Boots (with steel toes)
  Nitrile, or equivalent, work gloves
- Eye protection
- Face Mask or Face-Covering

7.2 LEVEL C PERSONAL PROTECTIVE EQUIPMENT

- Half-mask air purifying respirator with organic vapor cartridge when necessary.
- Gloves (latex and/or Nitrile)

7.3 EQUIPMENT TO BE USED OR AVAILABLE ON SITE:

- First-aid kit with eyewash
- Fire extinguisher
- Construction tape and barriers to delineate work zone
- A vehicle must be kept on site when personnel are working
- A cellular or public phone to be available on site for communication purposes with off site facilities.
- Eagle Trimeter or PID
- Washing Station & Hand Sanitizers

SECTION 8

SITE CONTROL

8.1 WORK ZONE

The site area shall be controlled to reduce the possibility of exposure to chemical and/or mechanical hazards present at the site.

Work areas shall be delineated to protect the general public from exposures and hazards. If level C protection becomes necessary then zones and access points shall be clearly indicated. A restricted area for contamination reduction shall be maintained at the exit to the exclusion zone. Protective clothing and equipment as required by this health and safety plan shall be worn at all times in the exclusion zone and shall only be removed in the designated decontamination corridor at the exit. The areas outside the contamination reduction area, is considered a clean area.

SECTION 9

DECONTAMINATION PROCEDURES

Decontamination of equipment shall be conducted when necessary.

9.1 DECONTAMINATION OF EQUIPMENT

Insofar as possible, measures shall be taken to prevent contamination of equipment. Any delicate instrument, which cannot be decontaminated easily should be protected while it is being used. It should be bagged and the bag taped and secured around the instrument. Openings are made in the bag for sample intake.

SECTION 10.0

GENERAL SAFE WORK AND STANDARD OPERATING PRACTICES

Site health and safety plan implementation will be the responsibility of SEI. If Soils Engineering, Inc. health and safety personnel find that the H&S plan is not being implemented by the subcontractors, the subcontractors will be instructed to suspend further work. A meeting to evaluate the noncompliance will be scheduled with the subcontractors Project Manager. During the meeting the personnel will reach an agreement to either;

* Revise the Health and Safety Plan,
* Modify the Health and Safety Plan,
* Request review by an Industrial Hygienist,
* Leave the Plan unchanged.

The subcontractor will then implement the Plan as modified.

10.1 SITE SAFETY ORIENTATION MEETING

All field personnel from Soils Engineering, Inc. and the subcontractors must attend a safety orientation meeting before commencing the field work. The meeting will be scheduled and conducted by the Site Safety Officer and is to include an overview of the site history, the potentially hazardous compounds, their potential mode of ingress into the body, protective equipment requirements, and emergency response equipment. All individuals who do not have respirators and who may be required to wear them, will not be allowed on the site until they are provided with and fit tested for respirators by their respective employers.

10.2 ACCIDENT / PERSONNEL EXPOSURE REPORTS

The Site Safety Officer must be informed of all exposures to potentially hazardous material and all accidents whether or not any injury was caused. After investigation of the cause of the accident, he will take all immediate possible steps for the mitigation or the repeat of the accident and proceed with the preparation of an accident report. In the event of a serious or fatal injury resulting from accidents on the site, the relevant CAL/OSHA requirements for accident reporting must be met. The Project Manager will also be informed at the earliest possible time.

10.3 PROHIBITED ACTIVITIES

No eating, drinking, or smoking is allowed in the restricted zone, and only allowed off the site after personal decontamination has taken place. Removal of personal protection equipment and respirator required by articles of this plan, inside the contamination zone is prohibited. Under special circumstances, and after consultation with the Project Manager and/or the Project Safety Officer, the Site Safety Officer may lower the level of protection required and allow the disuse of specific items of personnel protection.

Movements on the site singly and out of the sight of the rest of the personnel is prohibited.

10.4 TAIL GATE MEETING

A Tail Gate Meeting will be held every morning before the start of work and is to be attended by all personnel on-site. The purpose of the meeting is to discuss the days work, potential hazards, and specific health and safety procedures to utilized during the day. The minutes of the meeting will be prepared by the Site Safety Officer. The signature page will be signed by all field personnel.

10.5 VISITOR CLEARANCE

Visitors to the site must inform the Site Safety Officer or the Project Manager upon their arrival on the site and must be informed of the contents of this report and fully equipped before entry is permitted. Visitors will be required to be escorted in the exclusion zone and must comply with escort directions at all times. Non-compliance with escort directions will not be tolerated, and violators will be required to leave the restricted access zones immediately.

SECTION 11

SANITATION

Sanitation facilities for site personnel will include the following:

1. Accessible, near-by restrooms
2. Washing facilities
3. Potable water
4. Electrolyte drink (Gator Aid)

SECTION 12

CONTINGENCY PLANS AND EMERGENCY RESPONSE PROCEDURES

Soils Engineering, Inc. requires the utmost care and safety for all of its employees. And therefore attempts to maintain all employees in a current status of emergency training.

12.1 PHYSICAL INJURY

In the event of an accident resulting in a physical injury, apply first aid and call paramedics. Severely injured personnel are to be transported only by paramedics and/or ambulance personnel. At the hospital, a physician's attention is mandatory regardless of how serious the injury appears.

The Project Safety Officer and the Project Manager are to be notified by the Site Safety Officer, as soon after the injury as practical, regarding the nature of the accident. A written report is also to be prepared and submitted by the Site Safety Officer.

12.2 FIRE, EXPLOSION, AND PROPERTY DAMAGE

In the event of a fire or explosion notify the fire department immediately by dialing: 911

The Project Safety Officer and the Project Manager are to be notified by the Site Safety Officer as soon as practical and a written report prepared.

12.3 EMERGENCY TELEPHONE NUMBERS

Fire Department	911
Police Department	911
Paramedics	911
SEI	(661) 831 - 5100

12.4 WORK SITE ADDRESS

SW of S. Oswell St. & Zephyr Lane
Bakersfield, CA

12.5 ALERT PROCEDURES

If there is a need for the immediate evacuation of the site, three (3) car horn blasts lasting 0.5 second each will be used to alert site personnel to evacuate the site area and meet in

the designated meeting area (determined during the daily safety briefing). If personnel are requested to assist in helping with an incident (accident, fire, etc.) two-way radios will be used to contact on-site personnel, if they are out of verbal communication range. The alert procedures will be discussed in the daily safety meetings.

12.6 EVACUATION ROUTES

Potential evacuation routes will be determined on-site and discussed in the daily safety meeting. The evacuation routes will depend on the area that the work is being conducted in that day, the wind direction and the nearest open area that would be appropriate for a meeting area.

12.7 SAFE DISTANCE & REFUGE

During an emergency situation requiring the evacuation of the work area, the personnel will be instructed to meet in an area that is a safe distance away from the incident area that will provide adequate refuge from any potential effects of the incident (upwind of incident). This meeting area will be determined and discussed during the daily safety meeting.

12.8 HOSPITAL ADDRESSES AND ROUTES

Plate 1 is a local map showing the route to the hospital.

Hospital Address:

Kern Medical Center
1700 Mt. Vernon Avenue
Bakersfield, CA. 93306
(661) 326-2000

Route: Travel north on S. Oswell Street for 0.6 miles and go left (west) on Hwy. 58 for 1 mile to Mt. Vernon Ave. Go right (north) on Mt. Vernon Ave. ~2-miles to Flower St., turn left (west) and travel 500 feet and the Hospital entrance is on the right. See Plate 1 for suggested route to hospital.

SECTION 13

TRAINING REQUIREMENTS

Training on the hazards at the site will be conducted at the start of the project and as conditions and personnel change. This plan will be reviewed with project personnel prior to their entry onto the site. In addition, Soils Engineering, Inc. provides and encourages training opportunities such as CPR, First Aid, and 1910.120 annual refresher and supervisory training.

The initial training will include the following subjects at a minimum:

1. Nature of the hazards, including the location of the site Material Safety Data Sheets for chemicals at the site.

2. A description of the levels of personal protection at the site, and the condition for selection of each level.

3. Emergency procedures.

4. Demonstration of respiratory protective equipment.

5. Review of safe work practices at the site, and identification of forbidden practices.

6. Review the COVID-19 Plan.

Safety Meetings will be conducted daily at the site to review work plans and safety practices associated with them. These meetings will be conducted by the SSO, attendance by all Soils Engineering, Inc. employees, subcontractors, and visitors to the site will be mandatory.

SECTION 14

MEDICAL SURVEILLANCE PROGRAM

To meet with the criteria set forth in 29 CFR 1910.120 Soils Engineering, Inc. has implemented a medical surveillance program which includes all employees that work at or visit hazardous waste sites.

SECTION 15

DOCUMENTATION

All required records of individual employees are maintained at SEI's central location in Bakersfield, California. The records include but are not limited to: medical surveillance, training, and respiratory testing.

This Site Safety Plan Is Hereby Approved and Acknowledge by SEI's Acting Health and Safety Officer.

_____

Robert J. Becker, PG, CEG

SIGNATURE PAGE

The following signature verifies that I have read the attached Site-Specific Health & Safety Plan and that I will carry out the recommended scope of work in accordance with this Health and Safety Plan.

Name	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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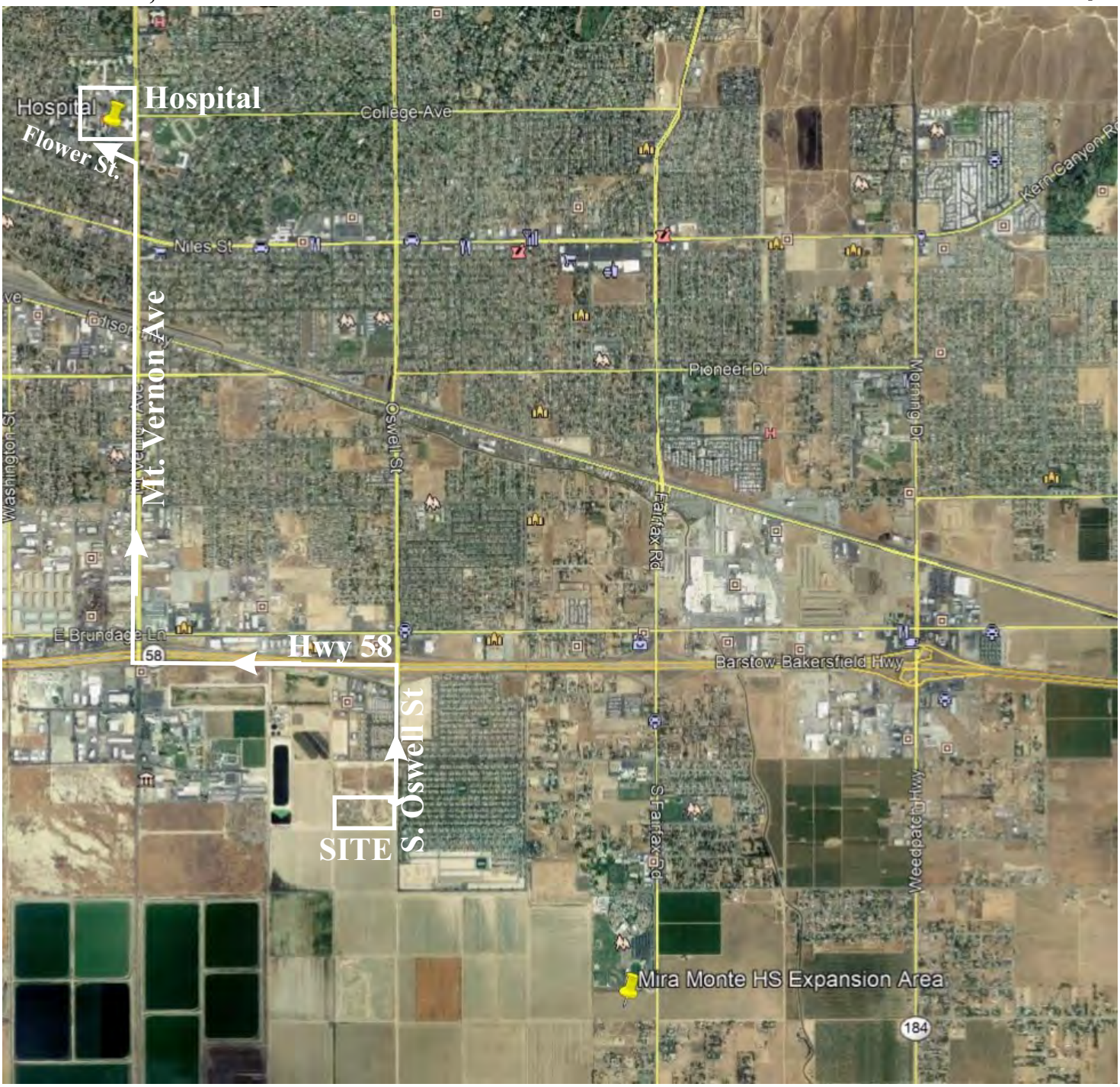
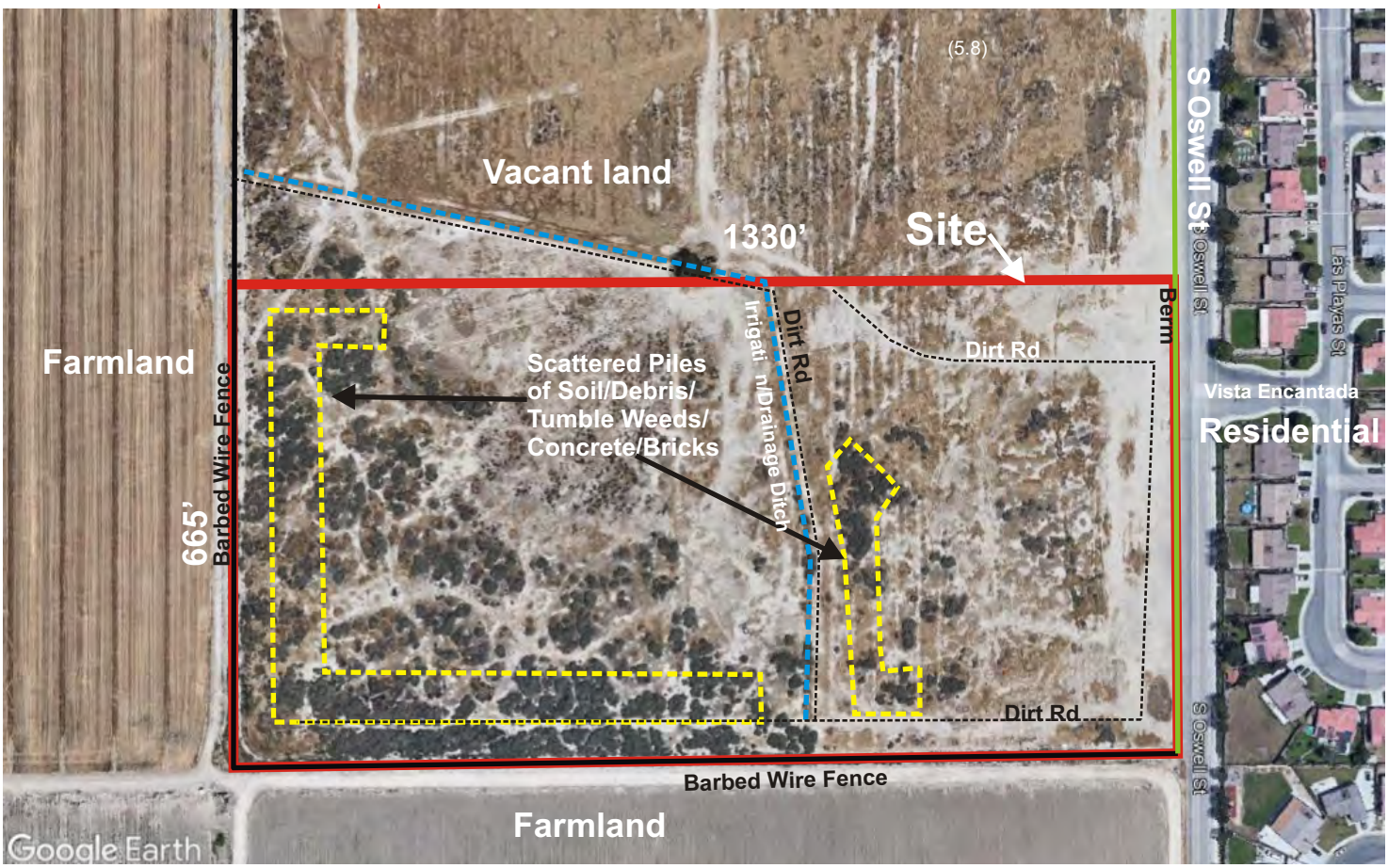
Suggested Hospital Directions: Travel North on S. Oswell St. Approx. 0.6 miles, turn left (west) onto Hwy 58 West & go 1 mile and exit north (right) onto Mt. Vernon Ave. and go 2 miles to Flower St., Turn left (west) and go approx. 500' to the Hospital on the right. Kern Medical Hospital 1700 Mt. Vernon Ave. Bakersfield, CA. 661-326-2000

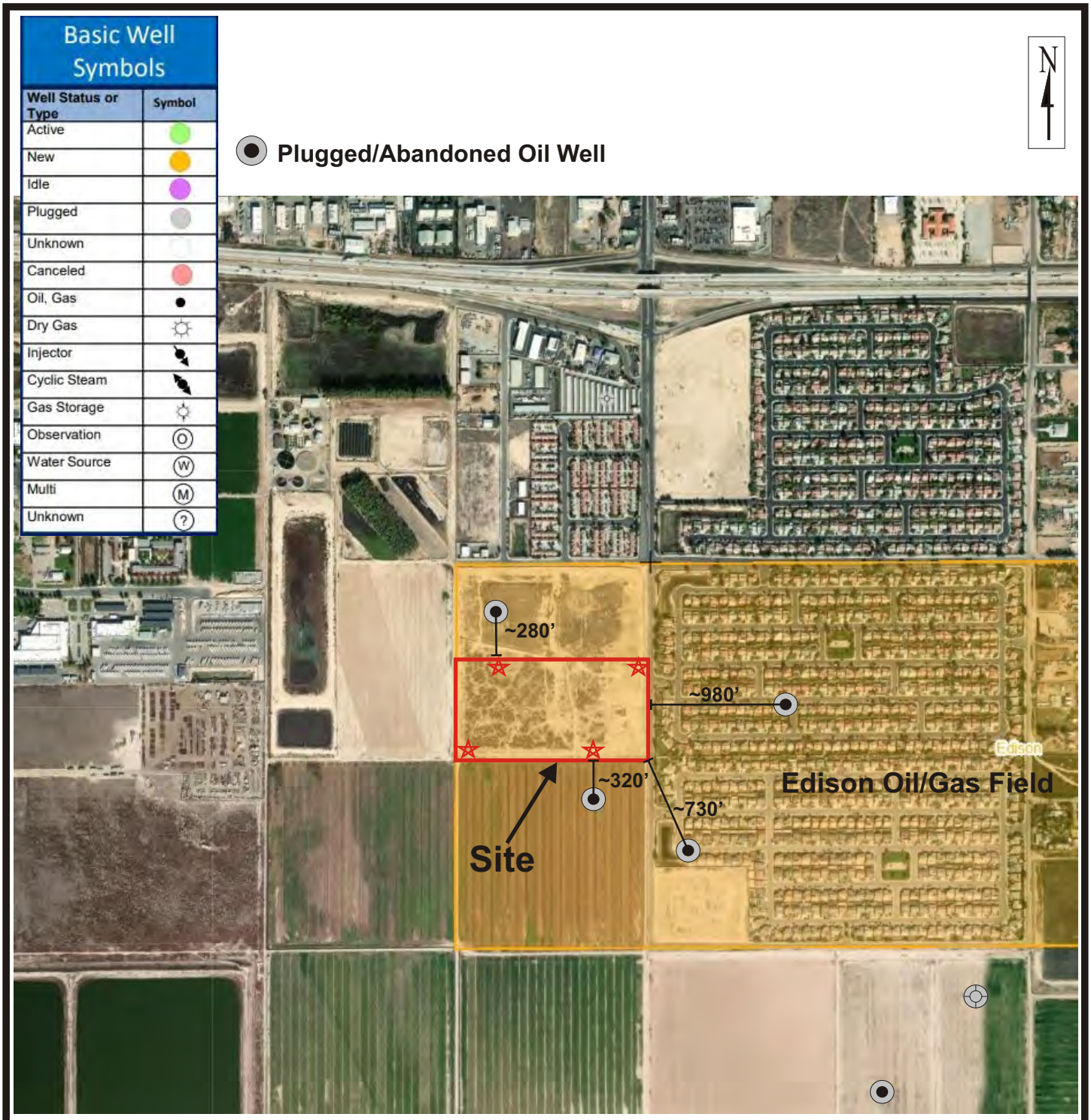
N



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 12/2022 PROJECT: 22-18503	**Proposed FSD School Site #5** **SW of S. Oswell St. & Zephyr Lane** **Bakersfield, CA** **Hospital Location Map**	**PLATE** **1**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PLOT PLAN**	**PLATE** **2**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Proposed SSI Sample Map**	**PLATE** **3**

APPENDIX B

QA/QC Plan

QUALITY ASSURANCE/QUALITY CONTROL PLAN
FOR
SUPPLEMENTAL SITE INVESTIGATION
PROPOSED FSD SCHOOL SITE #5
SOUTHWEST OF S. OSWELL STREET & ZEPHYR LANE
BAKERSFIELD, CALIFORNIA

For:

Fairfax School District
1500 S. Fairfax Road
Bakersfield, CA. 93307

Prepared By:

SOILS ENGINEERING INC.
4400 Yeager Way
Bakersfield, CA. 93313

December 2022

12/22/2022

Robert J. Becker, P.G. CEG — Date
Environmental Division Manager, Soils Engineering, Inc.

TABLE OF CONTENTS

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or Other Approved Lab

Soils Engineering Inc.

QUALITY ASSURANCE/QUALITY CONTROL PLAN
SUPPLEMENTAL SITE INVESTIGATION
PROPOSED SCHOOL SITE #5
SOUTHWEST OF S. OSWELL STREET & ZEPHYR LANE
BAKERSFIELD, CALIFORNIA

1.0 INTRODUCTION/BACKGROUND

This Quality Assurance/Quality Control Plan (QA/QC Plan) has been prepared by Soils Engineering, Inc. (SEI) on behalf of the Fairfax School District (FSD) to address quality assurance (QA) and quality control (QC) policies associated with the collection of environmental data at the Proposed New School Site #5 in Bakersfield, California. This QA/QC Plan presents the plan for sampling and analysis as part of the Supplemental Site Investigation (SSI) to be performed under the direction of the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC). U.S. Environmental Protection Agency (USEPA) policy requires a QA/QC PLAN for all environmental data collection projects mandated or supported by the USEPA through regulations or other formalized means (USEPA, March 2001). The purpose of this QA/QC PLAN is to identify the methods to be employed to establish technical accuracy, precision, and validity of data that is generated at the site.

The sampling protocol is formally described in Section 6.6.1 of this QA/QC Plan. This QA/QC PLAN contains general and specific details regarding field sampling, laboratory, and analytical procedures that apply to activities proposed in the SSI Workplan. It provides field and laboratory personnel with instructions regarding activities to be performed before, during, and after field investigations. These instructions will ensure data collected for use in project decisions will be of the type and quality needed and expected for their intended purpose.

Guidelines followed in the preparation of this QA/QC PLAN are described in EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5 (USEPA, March 2001) and EPA Quality Manual for Environmental Programs (USEPA, May 2000). Other documents that have been referenced in this plan include, Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4 (USEPA, 2006) and Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA, SW-846, Third Edition, Final Update VII, 2020).

1.1 PROJECT HISTORY AND OBJECTIVES

The site is approximately 20.25 acres and consists of the southern half of one (1) parcel (APN: 173-191-01) located southwest of S. Oswell St. and Zephyr Lane. in Bakersfield, CA as shown on the attached Location Map (Plate 1) and Plot Plan (Plate 2). The site is a vacant field that has a moderate amount of vegetation. There are traces of an irrigation/drainage ditch adjacent to the center of the site to the east trending north south. Just east of the irrigation/drainage ditch, there are multiple scattered piles that appear to contain some combination of

soil/debris/vegetation/concrete/bricks/asphaltic material. These piles are also scattered along the western half of the southern border and along the western border of the site. There are also dirt roads along the eastern, southern, and the northeastern border. There is also a dirt berm along the eastern border to limited on-site access and barbed wire fencing along the western and southern borders. Farmlands borders the site to the south and west of the property. To the north there is vacant land and there is S. Oswell Street and residential properties to the east.

Available records kept by the County of Kern, City of Bakersfield, aerial photographs, historical topographic maps and city directories of the subject site indicates that the site was vacant land from at least the 1930's to the present with a brief period where a small portion of the site appears to be used for agricultural purposes from at least 1968 to the 1970s. There was an active drainage/irrigation ditch from at least 1930s to the 1970s. From 2017 to 2020, there were soil piles on the southeastern portion of the site. Currently the site is vacant land.

A Preliminary Environmental Assessment (PEA) Equivalent Report dated September 1, 2022, was prepared by SEI for the FSD for the Site #5 area. The following is a summary of that investigation along with conclusions and recommendations for the site.

The PEA equivalent investigation indicated the following:

- The review of Kern County Environmental Health Services (KCEHSD) and the Bakersfield Fire Department records, along with the EDR database search & GeoTracker results indicates that a few off-site properties, which are within a one-mile radius of the site boundaries, have had historical environmental issues, but are currently not a threat to the subject property.

- Historical oilfield activities have been conducted within 1/3 of a mile of the site location and the site resides within the Edison Oil & Gas Field. There are 2 abandoned oil wells adjacent to the site to the north and south ~ 280' and ~320', respectively. There are two other abandoned oil wells to the east and southeast ~980' and ~730', respectively. All of these wells were dry holes with no oil production. There is a low to moderate potential that petroleum hydrocarbon vapors would be present in the subsurface soil at levels of potential concern for vapor migration. This is considered a Recognized Environmental Condition (REC).

- Historically, a portion of the site was used for agricultural activities just east from the center of the site from at least the late 1960s and the early 1970s. It is likely that normal applications of pesticides and herbicides were applied to that portion of the property during that timeframe and thus it is considered a REC.

- Soil sampling was conducted at the site per the DTSC's Agricultural Guidance (3rd Addition) to evaluate the levels of organochlorine pesticides (OCPs) and arsenic in the near surface soils. In addition, soil samples collected in historical or current fill dirt areas

were also analyzed for petroleum hydrocarbons and CAM 17 Metals. Three (3) soil samples were collected from the berm piles along the eastern portion of the site and analyzed for OCPs, petroleum hydrocarbons, CAM 17 Metals and pH. The analytical results indicate only minor concentrations of OCPs were present in the near surface soils all below the DTSC's Screening Levels (SLs) and the EPA's Residential Screening Levels (RSLs). Arsenic concentrations ranged from 5.03 mg/kg to 17.8 mg/kg in the soil samples which is above the DTSC's recommended arsenic level of concern (12 mg/kg). Based on other nearby school sites (Mira Monte High School Expansion) and two (2) deeper background soil samples collected at a depth of 6', this level of arsenic is within the expected range of arsenic concentrations in the eastern portion of Bakersfield. None of the soil samples tested for Total Petroleum Hydrocarbons (TPH), volatile organic compounds (VOCs), CAM 17 metals and pH had any concentrations reported of potential environmental concern or above the DTSC's SLs or the EPAs RSLs.

- A Preliminary Risk Assessment was conducted on the highest concentration reported on-site to determine the cancer risk and hazard quotient for future occupants. This included 4,4'-DDD at 0.0192 mg/kg, 4,4'-DDE at 0.0236 g/kg, 4.4'-DDT at 0.125 mg/kg and dieldrin at 0.00818 mg/kg. The comparison risk and hazard evaluation indicates a low cancer risk and hazard for future occupants at this site.

- No high-pressure natural gas or petroleum pipelines appear to be present within 1500' of the Site. A 16" water line is present along the eastern portion of S. Oswell Street that has the potential to flood approximately 50 feet into the site border. This potential for flooding and damage will be reduced once a curb and gutter is present along the western edge of S. Oswell St. after development. No overhead or underground power lines > 50kV appear to be present within 350 feet of the site.

- No Naturally Occurring Asbestos (NOA) bearing rock is present within 10-miles of the site location according to the USGS NOA Maps reviewed.

Recommendations

- This Enhanced Phase 1 ESA Report should be submitted to the DTSC as a Preliminary Environmental Assessment Equivalent (PEA) Report along with an Environmental Oversight Agreement (EOA) application if the Fairfax School District (FSD) wants to continue with the acquisition of this site. A 30-day public comment period and a public hearing concerning this PEA Equivalent Report will also need to be conducted.

- Since the proposed school site is adjacent to abandoned oil wells and is located within the Edison Oil and Gas Field, a soil gas survey is recommended as part of a Supplemental Site Investigation (SSI) under DTSC oversight. The soil gas survey will evaluate the potential for vapor migration of VOCs and hydrogen sulfide (H_2S) from the subsurface soil gas.

The DTSC comments during a Project Scoping Meeting via a video conference call on December 19, 2022 on the PEA Equivalent Report included the following:

A supplemental site investigation (SSI) is necessary to address the possibility of subsurface gases (methane, volatile organic compounds (VOCs) and hydrogen sulfide (H2S)) being present from nearby oil field activities that might be a threat for vapor intrusion into future buildings on-site. The site is located within the boundaries of the Edison Oil & Gas Field with the nearest oil wells drilled ~280' to the north and ~320' to the south which were both dry holes (no oil production).

The on-site arsenic concentrations in the subsurface soil was also discussed with the highest on-site arsenic concentration reported being 17.8 mg/kg. The DTSC requested the on-site arsenic concentrations by evaluated per the DTSC's "Arsenic Strategies – Determination of Arsenic Remediation Development of Arsenic Cleanup Goals (January 16, 2009)".

An SSI Workplan has been prepared that includes the requirements that the DTSC has stated in their comments to address the potential environmental issues at this site. This QA/QC Plan is part of this SSI Workplan.

The data collected as part of this SSI will be further used to assess the relative threat associated with any found releases of hazardous substances using the accepted methods for screening evaluations of human and ecological risk assessment. The field sampling program has been designed to include sufficient data through adequate numbers of samples, a comprehensive analytical program and proper quality control procedures. The procedures presented in this QA/QC PLAN will determine the quality of the data used for this purpose.

2.0 PROJECT DESCRIPTION

This section presents information concerning the proposed sampling activities, selected analytical parameters, data objectives, and the resulting project decisions. A Field Sampling Plan (FSP) included as part of the SSI Workplan provides specifications for field activities.

2.1 ANALYTICAL SCOPE

The planned sampling effort includes the sampling and analysis of soil and soil gas for an extended list of potential hazardous substances. A detailed plan of this investigation is provided in the site-specific FSP and includes specified numbers and locations of samples to be collected. The FSP also includes specific procedures for use in collecting samples from the designated locations. Samples will be collected in accordance with methods presented in the FSP.

Soil samples and soil vapor will be collected from designated locations on the site to supplement the previous analytical testing conducted. Methods for soil sampling and soil gas sampling are described in the FSP and in Sections 6.1.1 and 6.1.2 of this QA/QC Plan. Table 1 shows the proposed sampling methods and Table 2 shows the proposed analytical detection limits.

See Plate 3 for proposed sample locations.

Soil Vapor Survey
Soils Engineering, Inc. (SEI) proposes to evaluate the soil vapor in the subsurface at four (4) on-site locations. These will be located closest to the 2 nearest oil wells or at the corners of the site to evaluate subsurface gases (methane, H2S & VOCs) for impact from nearby oil field activities since the site is within the Edison Oilfield. The following scope of work is proposed.

A soil vapor survey will be conducted at the four (4) locations stated above to evaluate methane, H2S and VOCs in the subsurface soil gas. Soil vapor samples will be collected at depths of 5', 15' and 40' at the locations shown on Plate 3. Soil gas samples will be collected by advancing a sealed steel probe with a Geoprobe unit (or equivalent) to the proposed sampling depths (5', 15' and 40' bgs.), then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. At least one-foot of dry granular bentonite will be placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole will be grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole will be marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling. The amount of vapor volume to be purged during each sampling event will be 3 purge volumes. A leak test will be conducted during each sampling interval utilizing n-propanol (or equivalent) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a clean syringe, glass bulb or summa canister will be utilized to collect the vapor sample at each sampling interval to be analyzed for VOCs by EPA Method 8260B at an on-site mobile analytical laboratory or a stationary lab. A duplicate vapor sample will be collected at one of the sampling locations for quality control evaluation. EPA Method TO-15 may also be utilized for VOC analysis at a stationary lab, if necessary, to achieve reporting limits less than the RSLs or SLs for some of the VOCs. Methane and H2S will also be tested for at each probe location by attaching a hand-held methane and H2S meter to the soil gas tubing and reporting the highest reading. Based on the analytical results of the initial soil vapor samples additional soil vapor borings may be conducted to define the extent of elevated vapor of concern in the subsurface. See Plate 4 for a typical Soil Vapor Boring schematic. Table 1 shows the proposed sampling methods and Table 2 shows the proposed analytical detection limits for the soil gas samples.

This scope of work will be conducted in accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

Soil Sampling During Soil Gas Survey
The 4 soil vapor borings will be continuously sampled to a depth of 15' and then sampled at a depth of 40' to evaluate soil type and potential staining and odor. Vapor probe installation depths may be adjusted due to the presence of non-permeable intervals (clay) at the proposed installation depths of 5', 15' and 40'. Any sample interval with stained soil or high PID readings

will be sealed with Teflon-lined caps, labeled and placed in a cooler with blue ice. EPA Method 5035 will be utilized to preserve the soil sample portion for VOC analysis, if warranted. At a minimum a soil sample will be collected at a depth of 5' and 10' for arsenic analysis at each boring location. The soil encountered will be screened for hydrocarbon content with a PID meter and the lithology described on a boring log.

The sampling equipment will be decontaminated between each sampling event to prevent cross-contamination.

Analytical Testing of Soil Samples
The 5' and 10' soil samples from the soil gas borings will be analyzed for arsenic by EPA Method 6010 at a stationary certified analytical laboratory. Soil samples collected because of the presence of petroleum staining and or high PID readings will be analyzed for TPH by EPA Method 8015, for PAHs by EPA Method 8270SIM or 8310 and for VOCs by 8260B at a stationary certified laboratory. Table 1 shows the proposed sampling methods and Table 2 shows the proposed analytical detection limits for the soil samples. The soil samples will be transported to a State certified analytical laboratory under chain of custody documents.

SSI Reporting
The analytical results of the soil gas and soil samples will be included in a SSI Completion Report which will describe the field work and analytical testing conducted and evaluate the concentrations of chemicals of concern at the site. These analytical results will be incorporated into an updated risk and hazard evaluation of the site, if warranted.

2.2 DATA USE

Decisions to be made based upon the planned sampling and analysis effort will be determined by the data compiled from the sampling and analysis program. It is intended that data collected through implementation of this QA/QC PLAN will satisfy Federal, state, and local data quality requirements. These data may be used to characterize the nature and extent of any contamination, support risk assessment, support the evaluation of corrective/remedial action, or assist in determination of additional actions.

The presence of environmental contaminants will be determined by the extent of valid detectable concentrations of the constituents discussed above. If the data associated with any chemicals of potential concern (COPCs) are confirmed, the data will be used to assess risk using accepted methods for determining potential carcinogenic and non-carcinogenic exposures. If results from the risk screening evaluations indicate no risks of exposure with respect to the proposed use of the property, then the FSD will use this data to support No Further Action consent from DTSC, and the proposed development may continue without modification. If the evaluation indicates unacceptable risks of exposure, then the data can be used by the FSD for further consideration of action.

3.0 PROJECT ORGANIZATION

This section provides a description of the organizational structure and responsibilities of the individual positions for this project. This description defines the lines of communication and identifies key personnel assigned to various activities for the project.

3.1 REGULATORY AGENCY

The DTSC, will act as regulatory oversight for the project. The responsibilities of the DTSC will include the review and approval of work plans and work activities for the duration of the project and provide direction of DTSC policy and environmental objectives.

3.2 FAIRFAX SCHOOL DISTRICT (FSD)

Mr. David Mack is the principal contact for the FSD. The FSD has agreed to seek the review and approval of the DTSC on environmental matters relating to the selection of sites for new educational facilities. Mr. Mack will be responsible for the directional decisions, as well as budget control, for work conducted on behalf of the FSD. Mr. Mack, or designee, may perform document review of related work plans, reports, and drawings for activities associated with this project.

3.3 SOILS ENGINEERING INC. (SEI)

The investigation contractor has responsibility for assigned phases of investigation and reporting. Together the management team (Project Manager and Field Manager), will be responsible for the technical planning and implementation of the work prescribed in the site-specific FSP (Section 4.0 of PEA Workplan). The QA staff has responsibility for effective planning, verification and management of QA activities associated with the assigned project.

Mr. Robert Becker is the SEI Project Manager. Mr. Becker will serve as the primary contact for the FSD. Mr. Becker has the authority to commit the necessary resources of SEI to ensure timely completion of project tasks. His responsibilities include strategy development, budget control, day-to-day management, preparation of the required reports, and assignment of technical responsibilities to appropriate personnel or subcontractors.

Mr. Becker will also serve as the project's Field Manager and Site Safety Officer for SEI. Mr. Becker will be responsible for the day-to-day coordination of field activities under the direction of the Project Manager. Other responsibilities include coordination of subcontractors and field crews to ensure that field activities conform to the specifications presented in the site-specific FSP and Health and Safety Plan.

3.4 LABORATORY

The primary offsite and on-site laboratory will be a State certified analytical laboratory qualified to perform the requested analysis on the soil and soil gas samples collected. The respective laboratory's project manager will report to SEI's Field Manager on all aspects of the sample analysis. In addition, the SEI Project Manager will be advised of any matters related to data quality during the course of the investigation. The laboratory will conform to the QA and QC procedures outlined in the laboratory QA plan.

4.0 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) have been specified for each data collection activity, and the work will be conducted and documented so that the data collected are of sufficient quality for their intended use (USEPA, 2006). DQOs specify the data type, quality, quantity, and uses needed to make decisions, and are the basis for designing data collection activities. The DQOs have been used to design the data collection activities presented in the FSP. The DQOs for the project are discussed in the following sections.

4.1 DATA QUALITY OBJECTIVE PROCESS

The project DQOs developed specifically for the planned sampling and analysis program have been determined based on USEPA's seven-step DQO process (USEPA, 2006). The Project Manager will evaluate the project DQOs to determine if the quantitative and qualitative needs of the sampling and analysis program have been met. The project definition associated with each step of the DQO process can be summarized as follows:

State the problem: The purpose of the sampling program is to determine if the proposed site is acceptable for the development of a new educational facility. Although the proposed development of the site will result in asphalt or concrete surfacing over the majority of the site, exposed soils will exist in landscaped areas where students could come into contact. No investigations have been performed at this site to evaluate potential contamination based on historical use of the property.

Identify the Decision: The data obtained from the sampling and testing activities will be used to evaluate if releases of hazardous substances from historical uses have occurred at the site. The data results will be further evaluated to determine to what extent any found contamination will result in risk of exposure. The data results will be compiled and used to assess the relative threat associated with any found contamination through a screening risk evaluation. Based on the calculation of human health and ecological risks for the site, the suitability of the property for its intended development will be determined.

Identify Inputs to the Decision: Inputs to the decision will include results of analytical testing of soil gas samples and shallow soils from selected locations on the site. Each of these matrices will be tested for the specified analytes discussed in Section 2.0.

Define the Study Boundaries: The boundaries of the field sampling and analysis program will be the perimeter of the site as discussed above and detailed in the FSP.

Develop a Decision Rule: Decisions will be based upon laboratory results for the target constituents presented in Tables 1 and 2. If no valid detectable concentrations of target compounds are reported for the given samples, then a decision will be made that the site is fully characterized with respect to the compounds tested and no further sampling will be required as part of this PEA. If target constituents are detected in the samples tested, then the data will be compiled for use in calculating the human health and ecological risk of exposure. The results of the risk evaluation will be used by the FSD to request No Further Action consent from DTSC.

Specify Limits on Decision Error: The results of all analytical testing will be subjected to data validation specified in Section 8.3. Data are determined to be valid if the specified limits on precision, accuracy, representativeness, comparability and completeness are achieved. The results of any detected target constituents will be considered in evaluating the need for additional sampling of soil gas and/or site soil or groundwater, and assessing the necessity for reducing any risks posed by the potential contamination.

Optimize the Design: The field sampling program has been designed to provide the type and quantity of data needed to satisfy each of the aforementioned objectives. The FSP (Section 4.0 of PEA Workplan) provides the specifications for the data collection activities, including the numbers of samples, respective locations and sampling techniques. The quality of the data will be assessed through the procedures further described in this QA/QC PLAN.

4.2 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY AND COMPLETENESS

The basis for assessing the elements of data quality is discussed in the following subsections. In the absence of laboratory specific precision and accuracy limits, the QC limits listed in this section must be met.

4.2.1 Precision

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

Analytical precision is a measurement of the variability associated with duplicate or replicate analyses of the same sample in the laboratory, and is determined by analysis of laboratory quality control samples, such as duplicate control samples (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 both the laboratory and field operations. Field duplicate samples are analyzed to assess field and analytical precision.

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

$$\%RPD = 200 \times \frac{X_2 - X_1}{X_2 + X_1}$$

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

4.2.2 Accuracy

Accuracy is a statistical measurement of correctness and includes components of random error (variability due to imprecision) and systematic error. It reflects the total error associated with a measurement. A measurement is accurate when the value reported does not differ from the true value or known concentration of the spike or standard.

Accuracy of laboratory analyses will be assessed by laboratory control samples, surrogate standards, matrix spikes, and initial and continuing calibrations of instruments. Laboratory accuracy is expressed as the percent recovery (%R). Accuracy limits are statistically generated by the laboratory or required by specified EPA methods. Current laboratory limits are provided in Attachment A for laboratory control samples, surrogate recoveries, and matrix spikes. If the percent recovery is determined to be outside of acceptance criteria, data will be qualified as described in the applicable validation procedure. The calculation of percent recovery is provided below:

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

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

Field accuracy will be assessed through the analysis of field equipment and trip blanks. Analysis of blanks will monitor errors associated with the sampling process, field contamination, sample

preservation, and sample handling. The DQO for field equipment and trip blanks is that all values are less than the reporting limit for each target constituent. If contamination is reported in the field equipment or trip blanks, data will be qualified as described in the applicable validation procedure requested for the primary sample collected. The precision goal for field duplicate analyses will be plus or minus 50 percent relative percent difference for aqueous samples and plus or minus 100 percent relative percent difference for soil, or air samples.

4.2.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent selected characteristics of the media sampled. Representativeness of data collection is addressed by careful preparation of sampling and analysis programs. This QA/QC PLAN, together with the FSP, addresses representativeness by specifying sufficient and proper numbers and locations of samples; incorporating appropriate sampling methodologies; specifying proper sample collection techniques and decontamination procedures; selecting appropriate laboratory methods to prepare and analyze soil; and establishing proper field and laboratory QA/QC procedures.

4.2.4 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. Specifically for background samples, no less than 100 percent completeness of the planned data set will be acceptable. The formula for calculation of completeness is presented, as follows:

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

4.2.5 Comparability

Comparability is an expression of confidence with which one data set can be compared to another. The objective of comparability is to ensure that data developed during the investigation are comparable to site knowledge and adequately address applicable criteria or standards established by the USEPA and California Department of Health Services (CADOHS). This QA/QC PLAN addresses comparability by specifying laboratory methods that are consistent with the current standards of practice as approved by the USEPA and CADOHS. Field methods are discussed in the FSP and in Section 6.1.1.

5.0 QUALITY CONTROL ELEMENTS

This section presents QC requirements relevant to analysis of environmental samples that will be followed during all project analytical activities. The purpose of the QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials.

5.1 QUALITY CONTROL PROCEDURES

The chemical data to be collected for this effort will be used to determine that the extent of contamination is properly evaluated. As such, it is critical that the chemical data be of the highest confidence and quality. Consequently, strict QA/QC procedures will be adhered to. These procedures include:

- Adherence to strict protocols for field sampling and decontamination procedures;

- Collection and laboratory analysis of appropriate field equipment blanks to monitor for contamination of samples in the field or the laboratory;

- Collection and laboratory analysis of matrix spike, matrix spike duplicate, and blind split samples to evaluate analytical precision and accuracy; and

- Attainment of completeness goals.

5.1.1 Equipment Decontamination

Non-dedicated equipment will be decontaminated before and after each sample is collected. The equipment will be washed in a non-phosphate detergent and potable water, rinsed in potable water, and then double rinsed in distilled water. A description of the specific methodologies to be followed to maximize proper decontamination of non-dedicated sampling equipment is provided in the FSP.

5.1.2 Standards

Standards used for calibration or to prepare samples will be certified by NIST, USEPA, or other equivalent source. The standards will be current. The expiration date will be established by the manufacturer, or based on chemical stability, the possibility of contamination, and environmental and storage conditions. Standards will be labeled with expiration dates, and will reference primary standard sources if applicable. Expired standards will be discarded.

5.1.3 Supplies

All supplies will be inspected prior to their use in the field or laboratory. The descriptions for sample collection and analysis contained in the methods will be used as a guideline for establishing the acceptance criteria for supplies. A current inventory and appropriate storage system for these materials will assure their integrity prior to use. Efficiency and purity of supplies will be monitored through the use of standards and blank samples.

5.1.4 Holding Time Compliance

Sample preparation and analysis will be completed within the required method holding time (Table 1). Holding time begins at the time of sample collection. If holding times are exceeded, and the analyses are performed, the associated results will be qualified as described in the applicable validation procedure. The following definitions of extraction and analysis compliance are used to assess holding times:

- Preparation or extraction completion - completion of the sample preparation process as described in the applicable method, prior to any necessary extract cleanup.

- Analysis completion - completion of all analytical runs, including dilutions, second-column confirmations, and any required re-analyses.

5.1.5 Preventive Maintenance

The Field Manager for SEI is responsible for documenting the maintenance of all field equipment prescribed in the manufacturer's specifications. Scheduled maintenance will be performed by trained personnel. Procedures specific to the calibration, use and maintenance of field equipment are presented in the FSP. The analytical laboratory is responsible for all analytical equipment calibration and maintenance as described in their laboratory QA Plan. Subcontractors are responsible for maintenance of all equipment needed to carry out subcontracted duties.

5.2 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) SAMPLES

The purpose of this QA/QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials. Quality assurance and quality control samples will be collected as part of the overall QA/QC program.

5.2.1 Laboratory Reagent Blanks

A laboratory reagent blank is de-ionized, distilled water that is extracted by the laboratory and analyzed as a sample. Analysis of the reagent blank indicates potential sources of contamination

from laboratory procedures (e.g., contaminated reagents, improperly cleaned laboratory equipment, or persistent contamination due to presence of certain compounds in the ambient laboratory air). A reagent blank will be analyzed at least once each day for each method utilized by the laboratory for that day.

5.2.2 Field Equipment Blanks

A field equipment blank is a sample that is prepared in the field by pouring de-ionized, distilled water into cleaned sampling equipment. The water is then collected and analyzed as a sample. Field equipment blanks are typically blind (given a fictitious name so that the laboratory will not recognize it as a blank). The field equipment blank gives an indication of contamination from field procedures (e.g., improperly cleaned sampling equipment, cross-contamination). Field equipment blanks will be collected at a minimum frequency of at least one per ten, or 10 percent of primary field samples when non-dedicated equipment is utilized. The field equipment blanks should be analyzed using the same analyses requested for the associated primary samples collected.

5.2.3 Trip Blanks

The primary purpose of trip blanks is to detect potential additional sources of contamination that could potentially influence contaminant values reported in field samples, both quantitatively and qualitatively. Trip blanks serve as a mechanism of control for sample bottle preparation, blank water quality and sample handling. They are generally submitted to the laboratory for analysis of VOCs.

The trip blank consists of a VOC sample vial filled in the laboratory with ASTM Type II reagent grade water. The trip blank travels to the site with the empty sample bottles and returns from the site with the collected field samples in an effort to simulate sample handling conditions. One trip blank will be included in each shipping container transporting samples for VOCs analysis. The following are potential sources of contamination in trip blanks:

- Laboratory reagent water
- Sample containers
- Cross-contamination during shipment
- Ambient air, or contact with analytical instrumentation during preparation and analysis at the laboratory
- Laboratory reagents used in analytical procedures

When a trip blank is identified as contaminated, the appropriate validation flag, as described in the applicable validation procedure, will be applied to associated sample results. Other issues affecting the use and integrity of trip blanks include the following:

- Handling: Trip blanks may be held on the site for a maximum of one week. The temperature of the trip blanks during storage will be maintained at 4 ^{o}C. Expired trip blanks will be returned to the laboratory for disposal.

- Holding Time: The holding time clock for analysis of trip blanks begins at the time of sample collection of the oldest sample in the set.

5.2.4 Matrix Spike Samples

Matrix spikes are performed by the analytical laboratory to evaluate the efficiency of the sample extraction and analysis procedures, and are necessary because matrix interference (that is, interference from the sample matrix, water or soil) may have a widely varying impact on the accuracy and precision of the extraction analysis. The matrix spike is prepared by the addition of known quantities of target compounds to a sample. The sample is extracted and analyzed. The results of the analysis are compared with the known additions and a matrix spike recovery is calculated giving an evaluation of the accuracy of the extraction and analysis procedures. Matrix spike recoveries are reviewed to check that they are within acceptable range. However, the acceptable ranges vary widely with both sample matrix and analytical method. Matrix spikes and matrix spike duplicates will be analyzed by the laboratory at a frequency of at least one per twenty, or 5 percent of the primary field samples. Typically, matrix spikes are performed in duplicate in order to evaluate the precision of the procedures as well as the accuracy. Precision objectives (represented by agreement between matrix spike and matrix spike duplicate recoveries) and accuracy objectives (represented by matrix spike recovery results) are based on statistically generated limits established annually by the analytical laboratory. It is important to note that these objectives are to be viewed as goals, not as criteria. If matrix bias is suspected, the associated data will be qualified and the direction of the bias indicated in the data validation report.

5.2.5 Field Duplicate Samples

Field duplicate samples will be collected and analyzed to evaluate sampling and analytical precision. Field duplicates are collected and analyzed in the same manner as the primary samples. Agreement between duplicate sample results will indicate good sampling and analytical precision. Specific locations will be designated for collection of field duplicates prior to the start of field activities. Field duplicates will be collected at a frequency of 10 percent of the primary samples collected. The duplicate sample will be analyzed for all laboratory analyses requested for the primary sample collected. The precision goal for field duplicate analyses will be plus or minus 50 percent relative percent difference for aqueous samples and plus or minus 100 percent relative percent difference for soil, or air samples.

5.2.6 Performance Evaluation Samples

Double blind performance evaluation (PE) samples may be submitted to the analytical laboratory during any site investigation. These samples may be of water or soil matrix, and are used to assess the accuracy of analytical procedures employed for a given sample set. PE samples will

be used if questionable data quality is suspected as determined during laboratory audits or data validation.

If used, double blind PE samples will be prepared by Environmental Resources Standards, or similar supplier, in similar sample containers as the project field samples and shipped from the field to the laboratory for analysis.

Double blind PE samples will be prepared using National Institute of Standards and Technology (NIST) and/or A2LA certified standards. The project-specific PE samples will contain known concentrations of the analytes of interest. Laboratory results will be evaluated against the original Certificates of Analyses for precision and accuracy. PE samples may be submitted for analysis as part of the laboratory pre-qualification process, or as part of a given sampling event. Results will be reported to the laboratory and presented with associated field sample results.

6.0 SAMPLING PROCEDURES

The defensibility of data is dependent on the use of well defined, accepted sampling procedures. This section describes the sampling and handling procedures that will be followed for each sampling event.

6.1 FIELD PROCEDURES

Collection of environmental samples of high integrity is important to the quality of chemical data to be generated. To this end, strict field procedures have been developed as general descriptions of field methods that will be employed at various locations during phases of the field investigation. These procedures are summarized below in Section 6.1.1:

6.1.1 SAMPLING PROTOCOL

6.1.1.1 Soil Sampling with a Geoprobe Rig

The soil gas locations will be continuously cored to characterize the subsurface lithology to a depth of up to 15’ and a sample will be collected at a depth of 40’. This is to identify any possible non-permeable clay zones which would not be appropriate for the installation of a soil gas probe. The depth of the installation of the soil gas probes may be altered in the field based on the lithology encountered in the borings. In addition, the soil cores will be evaluated for petroleum odor with a PID and for visual staining. Soil cores that are suspected to be stained or have elevated PID readings will be saved by sealing the ends with Teflon-lined plastic caps, labeled and placed into a cooler at 4-degree C. At a minimum, soil samples will be collected at depths of 5’ and 10’ for arsenic evaluation. The VOC portion of the sample will be collected by EPA Method 5035 utilizing terra cores or equivalent.

6.1.1.2 Soil Gas Sampling

Soils Engineering, Inc. (SEI) proposes to evaluate the soil vapor in the subsurface at four (4) on-site locations (SG1 to SG4). These will be located closest to the 2 nearby oil wells or at one of the corners at the site as shown on Plate 3.

The following scope of work is proposed.

A soil vapor survey will be conducted at the four (4) locations stated above to evaluate methane, H2S and VOCs in the subsurface soil gas. Soil vapor samples will be collected at depths of 5', 15' and 40' at the locations shown on Plate 3. Soil gas samples will be collected by advancing a sealed steel probe with a Geoprobe unit (or equivalent) to the proposed sampling depths (5', 15' and 40' bgs.), then installing semi-permanent soil gas probes within a minimum of 1-foot of sand pack. At least one-foot of dry granular bentonite will be placed over each sand pack interval to preclude the infiltration of hydrated bentonite. The borehole will be grouted with hydrated bentonite between the sampling intervals and at the surface to prevent any leaks. The tubing for the soil gas probe in each borehole will be marked on the surface for depth and sample number and sealed for a minimum of 120 minutes before purging and vapor sampling. The amount of vapor volume to be purged during each sampling event will be 3 purge volumes. A leak test will be conducted during each sampling interval utilizing n-propanol (or equivalent) as the tracer chemical. After purging 3 volumes of vapors from the tubing, a clean syringe, glass bulb or summa canister will be utilized to collect the vapor sample at each sampling interval to be analyzed for VOCs by EPA Method 8260B at an on-site mobile analytical laboratory or a stationary lab. A duplicate vapor sample will be collected at one of the sampling locations for quality control evaluation. EPA Method TO-15 may also be utilized for VOC analysis at a stationary lab, if necessary, to achieve reporting limits less than the RSLs or SLs for some of the VOCs. Methane and H2S will also be tested for at each probe location by attaching a hand-held methane and H2S meter to the soil gas tubing and reporting the highest reading. Based on the analytical results of the initial soil vapor samples additional soil vapor borings may be conducted to define the extent of elevated vapor of concern in the subsurface. See Plate 4 for a typical Soil Vapor Boring schematic. Table 1 shows the proposed sampling methods and Table 2 shows the proposed analytical detection limits for the soil gas samples.

This scope of work will be conducted in accordance with the DTSC's "Advisory Active Soil Gas Investigations" dated July 2015 and the DTSC's "PEA Guidance Manual" dated January 1994 (Revised October 2015).

6.2 SAMPLE CONTAINERS, PRESERVATION AND HOLDING TIMES

Table 1 lists the required sample containers, preservatives, and recommended maximum holding times for samples. Sample containers provided by the laboratory will be purchased commercially from I-Chem, Eagle Pitcher, or other equivalent source.

6.3 SAMPLE HANDLING AND STORAGE

In the field, each sample container will be marked with the sampling location number, and date and time of sample collection. All sample containers will be wiped with paper towels and securely packed, in a cooler on ice, in preparation for delivery to the laboratory.

Upon receipt of the samples, the laboratory will immediately notify the Field Manager if conditions or problems are identified which require immediate resolution. Such conditions include, container breakage, missing or improper chain-of-custody, exceeded holding times, missing or illegible sample labeling, or temperature excursions.

6.4 SAMPLE CUSTODY

For each sample that is submitted to the laboratory for analysis, an entry will be made on a chain-of-custody form supplied by the laboratory. The information to be recorded includes the sampling date and time, sample identification number, matrix type, requested analyses and methods, preservatives, and the sampler's name. Sampling team members will maintain custody of the samples until they are relinquished to laboratory personnel or a professional courier service. The chain-of-custody form will accompany the samples from the time of collection until received by the laboratory. Each party in possession of the samples (except the professional courier service) will sign the chain-of-custody form signifying receipt. The chain-of-custody form will be placed in a plastic bag and shipped with samples inside the cooler. After the samples, ice, and chain-of-custody forms are packed in the coolers, the cooler will be appropriately sealed before it is relinquished to the courier. A copy of the original completed form will be provided by the laboratory along with the report of results. Upon receipt, the laboratory will inspect the condition of the sample containers and report the information on chain-of-custody or similar form.

7.0 ANALYTICAL PROCEDURES

The analytical methods used for this project are primarily USEPA approved methods and are listed in Table 1. Specific analytical method procedures are detailed in the laboratory QA Plan and standard operating procedures of the selected laboratory. These documents may be reviewed by SEI's quality assurance staff during laboratory audits to ensure that project specifications are met. Laboratory audits are discussed in Section 9.2.

7.1 INTERNAL STANDARDS

Internal standards are measured amounts of method-specified compounds added after preparation, or extraction, of a sample. Internal standards are added to samples, controls, and blanks in accordance with method requirements to identify column injection losses, purging losses, or viscosity effects.

Acceptance limits for internal standard recoveries are set forth in the applicable method. If the internal standard recovery falls outside of acceptance criteria, the instrument will be checked for malfunction and reanalysis of the sample will be performed after any problems are resolved.

7.2 RETENTION TIME WINDOWS

Retention time windows will be established as described in SW-846 Method 8000A for applicable analyses of organic compounds. Retention time windows are used for qualitative identification of analytes and are calculated based on multiple, replicated analyses of a respective standard.

Retention times will be checked on a daily basis. Acceptance criteria for retention time windows are established in the referenced method. If the retention time falls outside the respective window, actions will be taken to correct the problem. The instrument must be re-calibrated after any retention time window failure and the affected samples must be reanalyzed.

7.3 METHOD DETECTION LIMITS

The method detection limit (MDL) is the minimum concentration of an analyte, or compound, that can be measured and reported with 99 percent confidence that the concentration is greater than zero. MDLs are established for each method, matrix and analyte, and for each instrument used to analyze project samples. MDLs are derived using the procedures described in 40CFR 136 Appendix B (USEPA, July 2021). USEPA requires that MDLs be established on an annual basis. MDLs must be less than applicable reporting limits for each target analyte presented in Table 2.

7.4 INSTRUMENT CALIBRATION

Analytical instruments will be calibrated in accordance with the procedures specified in the applicable method. All analytes that are reported shall be present in the initial and continuing calibrations, and these calibrations must meet the acceptance criteria specified in the reference method. Records of standard preparation and instrument calibration will be maintained. Records shall unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration records will be traceable to standard materials as described in Section 5.1.2.

At the onset of analysis, instrument calibrations will be checked using all of the analytes of interest. This applies equally to multi-response analytes. At a minimum, calibration criteria will satisfy method requirements. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. Guidance provided in SW-846 should be considered to determine appropriate evaluation procedures.

8.0 DATA REPORTING

This section presents reporting requirements relevant to the data produced during all project analytical activities.

8.1 FIELD DATA

Data measured by field instruments will be recorded in field notebooks, laptops, and/or on required field forms. Examples of field documentation forms are included in the FSP for each site. Units of measure for field analyses are identified on the field forms. The field data will be reviewed by the Project or Field Manager to evaluate completeness of the field records and appropriateness of the field methods employed. All field records will be retained in the project files.

8.2 LABORATORY DATA

Analytical data will contain the necessary sample results and quality control data to evaluate the data quality objectives defined for the project. Documentation requirements for laboratory data are defined in USEPA Region 9 Laboratory Documentation Requirements for Data Validation (USEPA, August 2001). The laboratory reports will be consistent with USEPA Level IV documentation and include the following data and summary forms:

- Narrative, cross-reference, chain of custody, and method references
- Analytical results
- Surrogate recoveries (as applicable)
- Calibration summary
- Blank results
- Laboratory control sample recoveries
- Duplicate sample results or duplicate spike recoveries
- Sample spike recoveries
- Instrument tuning summary
- Associated raw data
- Magnetic tape or equivalent upon request

Data validation criteria are derived from the USEPA Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review (USEPA, 1994b and 1994c). The Functional Guidelines provide specific data validation criteria that can be applied to data generated for this investigation.

The laboratory data will be reviewed for compliance with the applicable method and the quality of the data reported. The following summarizes the areas of data validation.

- Data Completeness
- Holding Times
- Calibrations
- Blanks
- Laboratory Control Samples
- Matrix Spike/Matrix Spike Duplicates
- Surrogates/Internal Standards (as applicable);
- Field Quality Control Samples
- Compound Identification and Quantification

The application of data validation criteria is a function of project-specific DQOs. The QA/QC Manager will determine if the data quality objectives for the analytical data have been met. Results of the data validation review will be documented and summarized in a Data Validation Memorandum, which is reported along with the associated data.

8.3 PROCEDURES FOR DATA VALIDATION

Procedures for performing data validation for the types of analyses to be performed for this investigation are documented in the *National Functional Guidelines*. Data validation will be documented in a manner consistent with the functional guidelines. The results of the data validation will be included in a Data Validation Memorandum. This documentation will be maintained by SEI in the project files.

8.4 DATA QUALIFIERS

The data validation procedures were designed to review each data set and identify biases inherent to the data and determine its usefulness. Data validation flags are applied to those sample results that fall outside of specified tolerance limits, and, therefore, did not meet the program's quality assurance objectives described in Section 4.2. Data validation flags to be used for this project are defined in the *National Functional Guidelines*. Data validation flags will indicate if results are considered anomalous, estimated, or rejected. Only rejected data are considered unusable for decision-making purposes; however, other qualified data may require further verification.

9.0 PERFORMANCE AND SYSTEM AUDITS

Audit programs are established and directed by the SEI quality assurance staff to ensure that field and laboratory activities are performed in compliance with project controlling documents. This section describes responsibilities, requirements and methods for scheduling, conducting and documenting audits of field and laboratory activities.

9.1 FIELD AUDITS

Field audits focus on appropriateness of personnel assignments and expertise, availability of field equipment, adherence to project controlling documents for sample collection and identification,

sample handling and transport, use of QA samples, chain of custody procedures, equipment decontamination and documentation. Field audits are not required, but may be performed in the event significant discrepancies are identified that warrant evaluation of field practices.

9.2 LABORATORY AUDITS

Laboratory audits include reviews of sample handling procedures, internal sample tracking, SOPs, analytical data documentation, QA/QC protocols, and data reporting. Any selected mobile or offsite laboratory will be licensed by the State of California as a certified testing laboratory, and will participate in the WP/WS Performance Program for hazardous waste, wastewater and drinking water analyses.

9.3 DATA AUDITS

Data audits will be performed on analytical results received from the laboratories. These audits will be accomplished through the process of data validation as described in Section 8.3, or may involve a more detailed review of laboratory analytical results. Data audits require the laboratory to submit complete raw data files to SEI for validation. SEI's project manager will perform a review of the data consistent with the level of effort described in the *National Functional Guidelines*. This level of validation consists of a detailed review of sample data, including verification of data calculations for calibration and quality control samples to assess if these data are consistent with method requirements. Upon request, the laboratory will make available all supporting documentation in a timely fashion.

9.4 SCHEDULING

Audits will be scheduled such that field and laboratory activities are adequately monitored, or in the event discrepancies are identified. The overall frequency of audits conducted for these activities will be based on the importance and duration of work, as well as significant changes in project scope or personnel. Field audits will be conducted once for field investigations at each site.

9.5 REPORTS TO MANAGEMENT AND RESPONSIBILITIES

Upon completion of any audit, the auditor will submit to the Project and Field Manager a report or memorandum describing any problems or deficiencies identified during the audit. It is the responsibility of the Project Manager to determine if the deviations will result in any adverse effect on the project conclusions. If it is determined that corrective action is necessary, procedures outlined in Section 9.6 will be followed.

9.6 CORRECTIVE ACTION

Corrective actions will be initiated whenever data quality indicators suggest that DQOs have not been met. Corrective actions will begin with identifying the source of the problem. Potential problem sources include failure to adhere to method procedures, improper data reduction, equipment malfunctions, or systemic contamination. The first level of responsibility for identifying the problems and initiating corrective action lies with the analyst/field personnel.

The second level of responsibility lies with any person reviewing the data. Corrective actions may include more intensive staff training, equipment repair followed by a more intensive preventive maintenance program, or removal of the source of systemic contamination. Once resolved, the corrective action procedure will be fully documented, and if DQOs were not met, the samples in question must be recollected and/or reanalyzed utilizing a properly functioning system.

10.0 REFERENCES

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USEPA, May 2000. EPA Quality Manual for Environmental Programs, U.S. Environmental Protection Agency, Washington, DC.

DTSC, PEA Guidance Manual (January 1994, Revised October 2015).

CalEPA/DTSC/LA RWQCB/SF RWQCB, Advisory Active Soil Gas Investigations, July 2015.

TABLE 1
SUMMARY OF ANALYSES – SOIL & SOIL GAS SAMPLING
Proposed FSD School Site #5
Bakersfield, CA

SOIL ANALYSES				
Analyte	**Method**	**Container**	**Preservative**	**Holding Time**
Total Petroleum Hydrocarbons (TPH)	EPA 8015	4 oz glass or sleeve	4 ºC	14 days
Metals & Arsenic	EPA 6010B & 7471A	4 oz glass or sleeve	4 ºC	180 days
Volatile Organic Compounds (VOCs)	EPA 8260	Terra Core or Equivalent EPA 5035	4 ºC	14 days
PAHs	8270SIM	4 oz glass or sleeve	4 ºC	14 days
SOIL GAS ANALYSES				
Methane	EPA 8015 or Hand-Held Meter	Syringe or Summa or Direct Readout	NA	30 minutes for syringe, 30 days for summa or direct readout on hand-held monitor within 30 minutes
Hydrogen Sulfide (H2S)	EPA 15/16 or D-3246 or Hand-Held Meter	Syringe or Summa or Direct Readout	NA	30 minutes for syringe, 30 days for summa or direct readout on hand-held monitor within 30 minutes
Volatile Organic Compounds (VOCs)	EPA 8260 or TO-15	Syringe or Summa	NA	30 minutes for syringe, 30 days for summa

PROPOSED SAMPLE ID & ANALYSIS

Sample Type	**Sample Quantity**	**Location**	**TPH, VOCs & PAHs**	**Metals**	**Methane, H2S & VOCs**
On-site Discrete Soil From soil gas borings 5’ & 10’ Sample Loc #-depth	4 borings, 8 samples estimated + 1 duplicate = 9 samples	Closest to Oil Wells or at Site Corners		8X for arsenic + 1 Dup	
On-site Discrete Soil From soil gas borings 5’ & 10’ Sample Loc #-depth	To Be Determined (TBD) Stained Samples or higher PID reading samples	Closest to Oil Wells or at Site Corners	TBD	TBD	
Discrete Soil Gas Sample SG#@ 5’, 15’ & 40’	4 borings, 12 samples + 1 duplicate = 13	Closest to Oil Wells or at Site Corners			9X (8 + 1 dup)

Note: X = Sample analysis will be done

TABLE 2
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

Total Petroleum Hydrocarbons (TPH)		
Compound	**Soil Detection Limit (mg/kg)**	**Soil RSL, All Non-Cancer (mg/kg)**
Total Petroleum Hydrocarbons Carbon Chain Ranges		
C5-C8	0.5	82 Low Aromatic 520 Low Aliphatic
C9-C16 C9-C18	10 10	97 Medium Aromatic 96 Medium Aliphatic
C17-C32 C19-C36	100 100	2400 High Aromatic 230,000 High Aliphatic

Volatile Organic Compounds (VOCs)			
Method	**Compound**	**Soil Detection Limit (ug/kg)**	**Soil Residential USEPA RSLs or DTSC SLs, Cancer/ Non-Cancer (mg/kg)**
EPA 8260	Benzene	<0.33	0.33/11
	Toluene	1	NA/1100
	Ethylbenzene	1	5.8/NA
	Xylenes	2	NA/580

RSL = EPA Residential Screening levels (November 2022),
***SLs = DTSC Screening Levels (June 2020), NA = Not Applicable**

TABLE 2
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

Title 22 Metals			
Method	**Compound**	**Soil Detection Limit (mg/kg)**	**Soil EPA RSL or DTSC-SLs, Cancer/ Non-Cancer (mg/kg)**
EPA 7471A	Mercury[3]	0.2	NA/1
EPA 6010B	Antimony[3]	10	NA/31
	Arsenic	0.5	0.68/0.41
	Barium[3]	0.5	NA/15000
	Beryllium[3]	0.5	1600/15
	Cadmium[3]	0.5	2100/7.1
	Chromium	0.5	36000
	Cobalt	2.5	420/23
	Copper[3]	0.5	NA/3100
	Lead[3]	2.5	NA/80
	Nickel[4]	2.5	15000/820
	Molybdenum	2.5	NA/390
	Selenium	0.5	NA/390
	Silver[3]	1	NA/390
	Thallium[5]	≤0.78	NA/0.78
	Vanadium	0.5	NA/390
	Zinc	2.5	NA/23,000

RSL = EPA Residential Screening levels (Nov 2022), SLs = DTSC Screening Levels (June 2020), NA = Not Applicable

Method – 8270SIM **Compound**	**Soil Detection Limit (mg/kg)**	**Soil EPA RSL or DTSC-SLs, Cancer/Non-Cancer (mg/kg)**
Naphthalene	0.015	2/130
2-Methylnaphthalene	0.015	NA/190
1-Methylnaphthalene	0.015	9.9/3400
Acenaphthylene	0.015	
Acenaphthene	0.015	NA/3300
Fluorene	0.015	NA/2300
Phenanthrene	0.015	
Anthracene	0.015	NA/17000
Fluoranthene	0.015	NA/2400
Pyrene	0.015	NA/1800
Benzo(a)anthracene	0.015	1.1/NA
Chrysene	0.015	110/NA
Benzo(b)fluoranthene	0.015	1.1/NA
Benzo(k)fluoranthene	0.015	11/NA
Benzo(a)pyrene	0.015	0.11/18
Indeno(1,2,3-cd)pyrene	0.015	1.1/NA
Dibenzo(a,h)anthracene	0.015	0.028/NA
Benzo(g,h,i)perylene	0.015	

TABLE 2
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES

METHANE			
Method	**Compound**	**Air Detection Limit (ppm/Vol)**	**Air Ambient DTSC Action Level**
8015	Methane	10 ppmV (Lab) 25 ppmV (Handheld)	500 ppmV (16,667 ppmV subslab)

HYDROGEN SULFIDE (H_2S)			
Method	**Compound**	**Air Detection Limit (ppm/Vol)**	**Air Ambient RSL (ug/m3)**
EPA 15/16, D-3246 or hand-held direct readout	H_2S	2 ppmV	2.1

RSL = EPA Residential Screening levels (Nov 2022), SLs = DTSC Screening Levels (June 2020), NA = Not Applicable

TABLE 2
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES - Volatile Organic Compounds (VOCs)

Volatile Organic Compounds (VOCs) by TO-15 (SUMMA)	Air Detection Limit (ug/m3)	Screening Levels with EPA Attenuation Factor (0.03) for Soil Gas (ug/m3)	Screening Levels with DTSC Residential Attenuation Factor (0.001) for Soil Gas using EPA RSL or DTSC SL (ug/m3)
Benzene	0.2	3.23	97
Toluene	0.2	10333	310000
Ethylbenzene	0.2	37	1100
Xylenes (total)	0.2	3333	100000
Isopropyl Alcohol (LCC)	0.2	NA	NA
1,1,1,2-Tetrachloroethane	0.2	12.67	380
1,1,1-Trichloroethane	0.2	33333	1000000
1,1,2-Trichloroethane	0.2	6.00	180
1,1,2-Trichloro-trifluoroethane	0.2	173333	5200000
1,1-Dichloroethane	0.2	60.00	1800
1,1-Dichloroethene	0.2	2433	73000
1,2,3-Trichlorobenzene	0.2	110	3300
1,2,3-Trichloropropane	0.2	0.0047	0.14
1,2,4-Trichlorobenzene	0.2	12.67	380
1,2,4-Trimethylbenzene	0.2	2100	63000
1,2-Dibromo-3-Chloropropane	0.2	0.01	0.17
1,2-Dibromoethane (EDB)	0.2	0.16	4.7
1,2-Dichlorobenzene	0.2	7000	210000
1,2-Dichloroethane	0.2	3.67	110
1,2-Dichloropropane	0.2	25.33	760
1,2,4-Trimethylbenzene	0.2	2100.00	63000
1,2,4-Trichlorobenzene	0.2	70.00	2100
Dichlorotetrafluoroethane	0.2	NA	NA
1,3,5-Trimethylbenzene	0.2	2100.00	63000
1,3-Dichlorobenzene	0.2	NA	NA
1,3-Dichloropropane	0.2	2767	83000
1,4-Dichlorobenzene	0.2	8.67	260
2,2-Dichloropropane	0.2	NA	NA
2-Butanone (MEK)	2.3	173333.33	5200000
2-Hexanone	2.3	1033	31000
4-Chlorotoluene	0.2	2767	83000
4-Ethyltoluene	0.2	NA	NA
4-Methyl-2-pentanone	2.3	103333.33	3100000
Acetone	2.3	36666667	1100000000
Benzl Chloride	0.2	1.90	57
Bromobenzene	0.2	2100.00	63000
Bromochloromethane	0.2	1400.00	42000
Bromodichloromethane	0.2	2.53	76
Bromoform	0.2	86.7	2600
Bromomethane	0.2	173.3	5200
Carbon Disulfide	0.2	24333	730000
Carbon Tetrachloride	0.2	15.7	470

TABLE 2
List of Method Compounds and Reporting Limits
Soil, Soil Gas, and Blank Sample Analysis
Proposed FSD School Site #5
Bakersfield, CA

SOIL GAS SAMPLES – VOCs - Continued

Volatile Organic Compounds (VOCs) by TO-15 (SUMMA)	Air Detection Limit (ug/m3)	Screening Levels with EPA Attenuation Factor (0.03) for Soil Gas (ug/m3)	Screening Levels with DTSC Residential Attenuation Factor (0.001) for Soil Gas using EPA RSL or DTSC SL (ug/m3)
Chlorobenzene	0.2	1733	52000
Chloroethane	0.2	NA	NA
Chloroform	0.2	4.00	120
Chloromethane	0.2	3133	94000
cis-1,2-Dichloroethene	0.2	276.7	8300
cis-1,3- Dichloropropene	0.2	23.3	700
Cyclohexane	0.2	210000	6300000
Dibromochloromethane	0.2	NA	NA
Dibromomethane	0.2	140.0	4200
Dichlorodifluoromethane	0.2	3333	100000
Ethyl Acetate	0.2	2433	73000
Heptane	0.2	14000	420000
Hexane	0.2	24333	730000
Hexachlorobutadiene	0.2	4.33	130
Isopropylbenzene	0.2	NA	NA
Methylene Chloride	0.2	33.33	1000
MTBE	0.2	367	11000
Naphthalene	0.2	2.77	83
n-Butylbenzene	0.2	0.00	0
n-Propylbenzene	0.2	33333.33	1000000
p-Isopropyltoluene	0.2	0.00	0
sec-Butylbenzene	0.2	0.00	0
Propylene	0.2	103333	3100000
Styrene	0.2	31333	940000
tert-Butylbenzene	0.2	14000.0	420000
Tetrachloroethene (PCE)	0.2	15.3	460
Tetrahydrofuran	0.2	NA	NA
trans-1,2-Dichloroethane	0.2	2766.7	83000
Trans-1,3-Dichloropropane	0.2	NA	NA
Trichloroethene	0.2	16.0	480
Trichlorofluoromethane	0.2	43333.3	1300000
Vinyl Acetate	0.2	7000	210000
Vinyl Chloride	0.2	0.32	9.5

RSL = EPA Residential Screening levels (Nov 2022),
SLs = DTSC Screening Levels (June 2020)

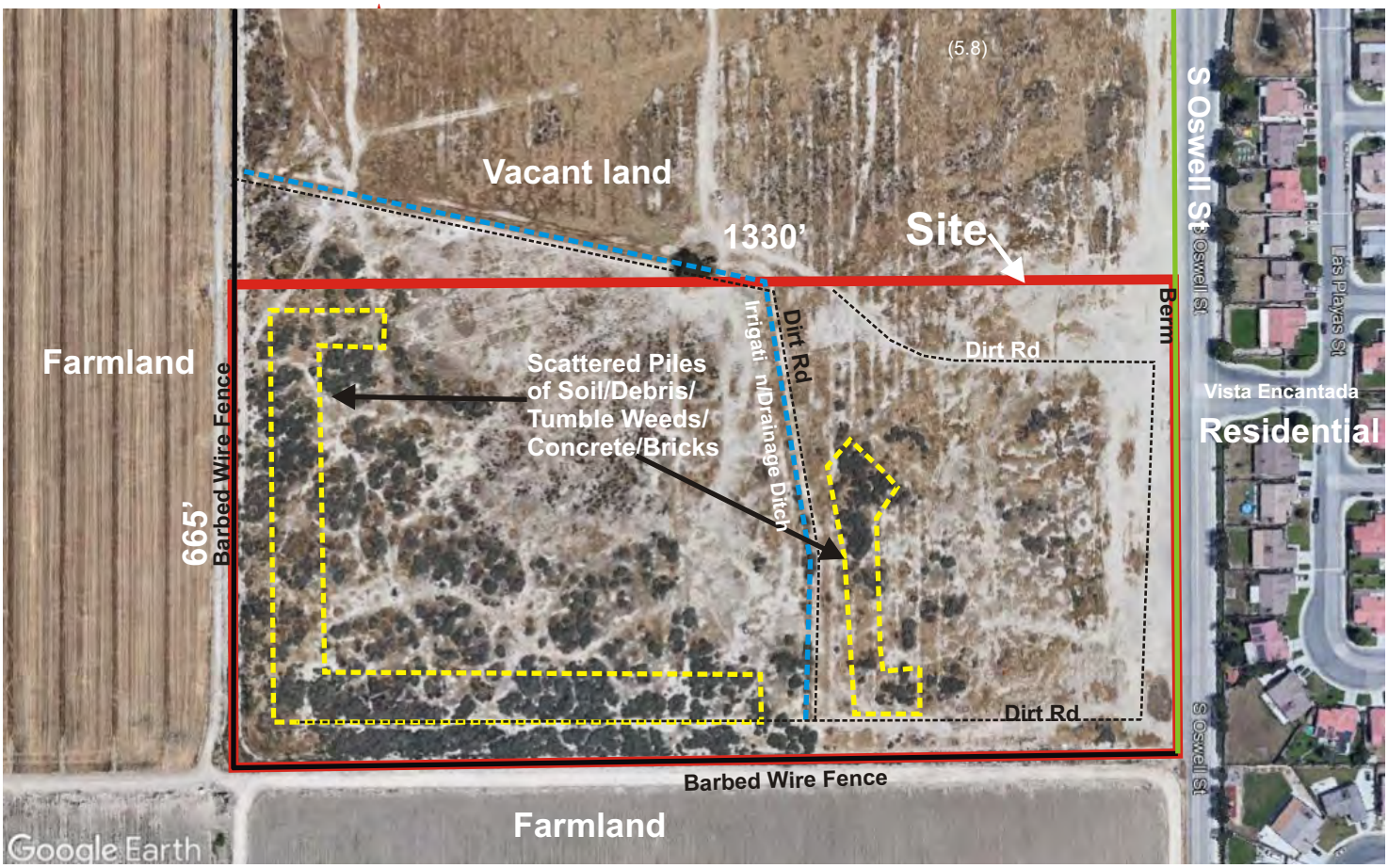
SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 8/22
PROJECT: #18503

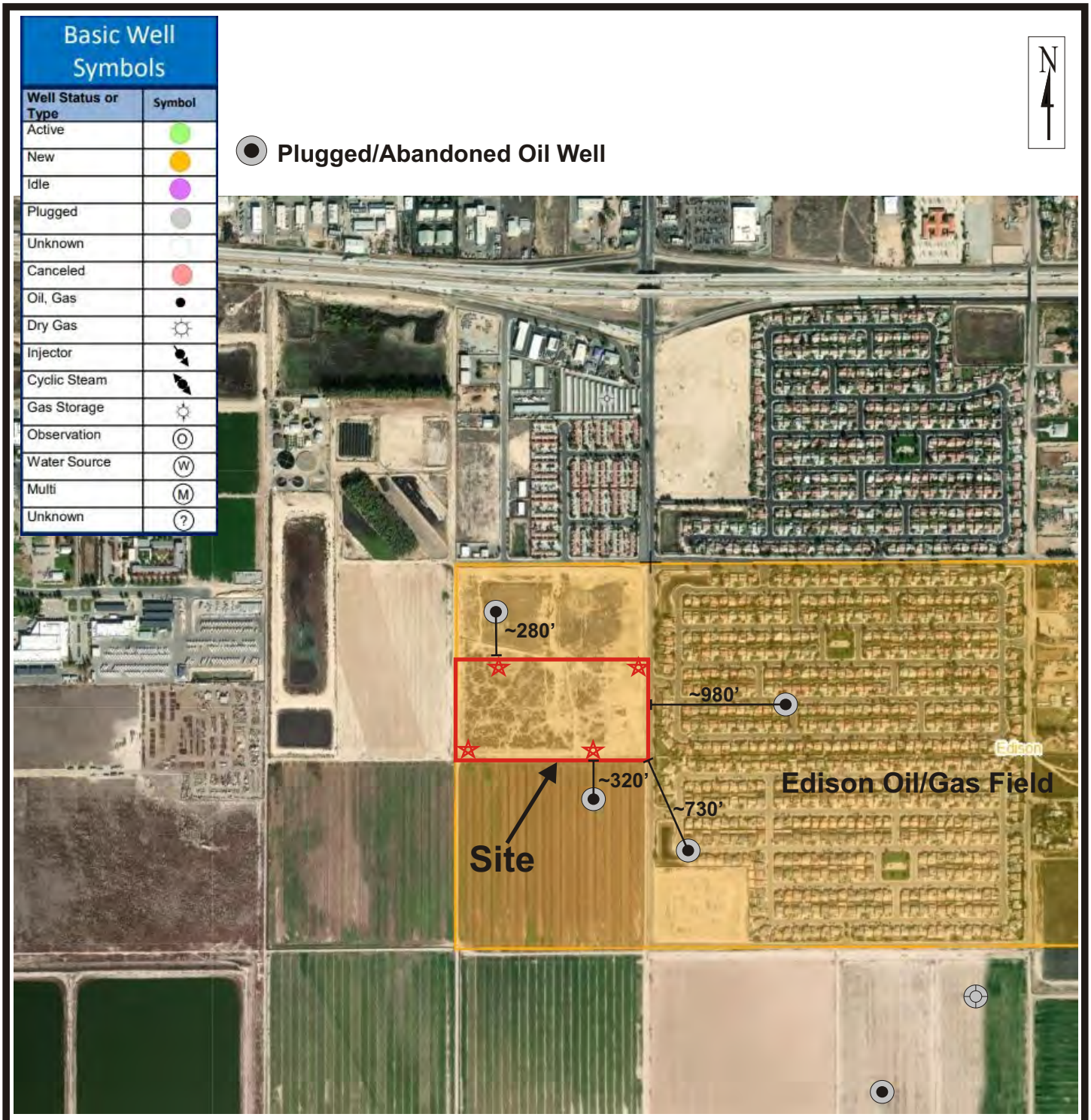
FSD Proposed School Site #5
SW of S. Oswell St. and Zephyr Lane
Bakersfield, CA

LOCATION MAP

PLATE
1

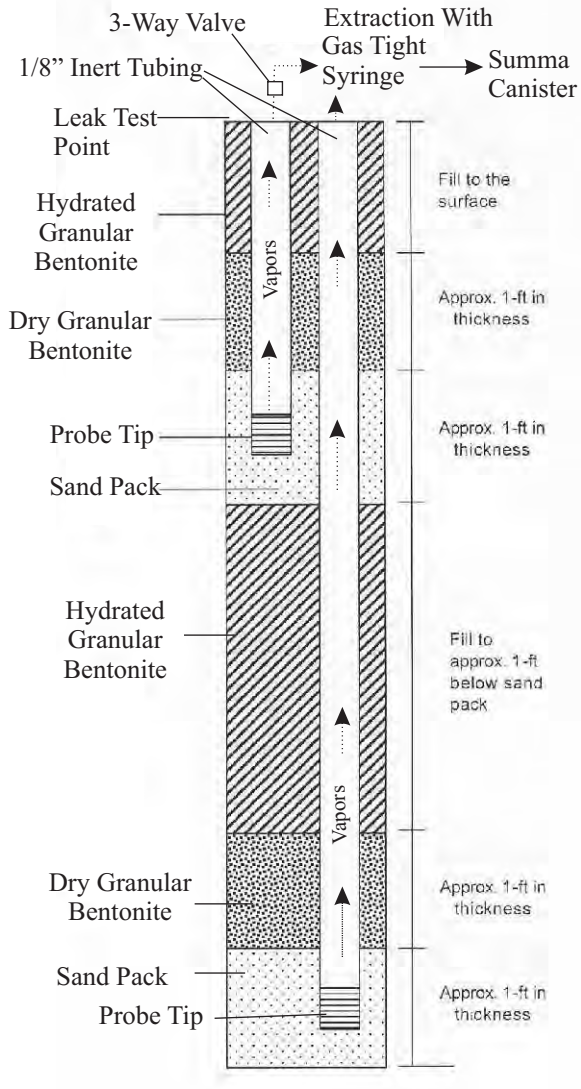


SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **PLOT PLAN**	**PLATE** **2**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 8/22 PROJECT: #18503	**FSD Proposed School Site #5** **SW of S. Oswell St. and Zephyr Lane** **Bakersfield, CA** **Proposed SSI Sample Map**	**PLATE** **3**

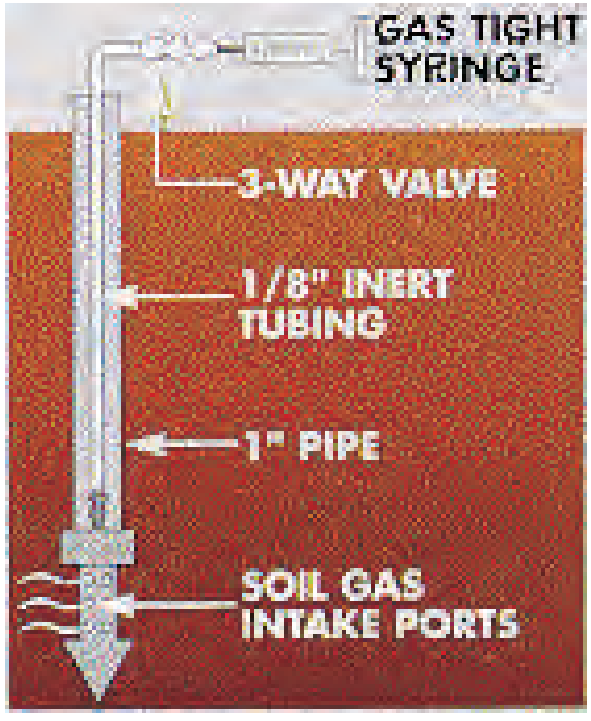
Temporary Multi-Depth Gas Probe Construction Diagram (From DTSC Advisory)



NOTE : Probe Tip Placed In Permeable Layer

NOTE : Probe Tip Placed In Permeable Layer

Vapor Sample Collection Diagram
From H & P Labs



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 12/2022
PROJECT:18503

Soil Vapor Boring

PLATE

4

Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
5796 Corporate Avenue
Cypress, California 90630

Yana Garcia
Secretary for
Environmental Protection

Gavin Newsom
Governor

January 23, 2023 **SENT VIA ELECTRONIC MAIL**

Ms. Lora Brown
Superintendent
Fairfax School District
1500 South Fairfax Road
Bakersfield, California 93307
lbrown@fairfaxsd.us

ADEQUACY OF PRELIMINARY ENVIRONMENTAL ASSESSMENT EQUIVALENT REPORT FOR PUBLIC REVIEW, FAIRFAX NEW PROPOSED SCHOOL SITE #5, SOUTHWEST OF SOUTH OSWELL STREET AND ZEPHYR LANE, BAKERSFIELD (SITE CODE: 104860)

Dear Ms. Brown:

The Department of Toxic Substances Control (DTSC) reviewed the following documents for the Fairfax New Proposed School Site #5 (Site):

- Enhanced Phase 1 Environmental Site Assessment "PEA Equivalent Report" (Soils Engineering, Inc., September 2022), received on November 16, 2022; and

- Geological Hazard Study (Soils Engineering, Inc., September 2022), received on November 16, 2022.

DTSC considers these reports collectively as a Preliminary Environmental Assessment Equivalent Report (hereinafter referred to as PEA). The PEA presents site background information and soil sampling results at the Site.

According to the PEA, the Site is approximately 20 acres located SW of South Oswell Street & Zephyr Lane., Bakersfield, California. A portion of the Site was used for agricultural activities from the late 1960s to early 1970s. The Site is adjacent to abandoned oil wells to the east and southeast and is located within the Edison Oil and Gas Field. Currently the Site is overgrown with seasonal vegetation, debris, traces of the irrigation/drainage ditch, and multiple scattered piles of

debris/concrete/vegetation/soil/bricks. Recognized environmental conditions identified at the Site are petroleum hydrocarbon vapors from Historical oilfield activities, and pesticides and herbicides from historic agricultural use.

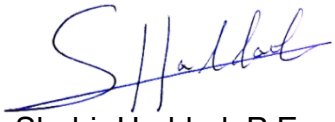
DTSC has identified discrepancies in the PEA that require clarification and/or modification and should be addressed in a supplemental site investigation (SSI). Revisions to the PEA are no longer necessary. Please submit a table with responses to the enclosed comments along with the SSI workplan by January 31, 2022. Furthermore, DTSC concludes that the PEA is adequate for public review.

DTSC understands that the Fairfax School District (District) plans to make the PEA available for public review and comment concurrent with DTSC review pursuant to Option A (Ed. Code § 17213.1, subd. (a)(6)(A)). As such, this letter, the enclosed comments, responses to the comments and the revised document should be made available to the public in the information repository.

Immediately after the public comment period and hearing, the District should provide written notification to DTSC of the start and end dates of the public comment period, date of the public hearing, and all public comments received on the PEA.

If you have any questions regarding the project, please contact Mr. Safouh Sayed, Project Manager, at (714) 713-3806 or by e-mail at Safouh.Sayed@dtsc.ca.gov or me at (714) 484-5368 or by e-mail at Shahir.Haddad@dtsc.ca.gov.

Sincerely,



Shahir Haddad, P.E.
Supervising Engineer
Brownfields Restoration and School Evaluation Branch
Site Mitigation and Restoration Program

mm/ss/sh

Enclosure

cc: See next page

cc: (via e-mail)

Mr. Robert Becker, P.G., CGE
Consultant
Soils Engineering, Inc.
bob@soilsengineering.com

Mr. Joe Hwong, P.G., C.HG.
Senior Engineering Geologist
DTSC/Brownfield Restoration and Schools Evaluation Branch
Joe.Hwong@dtsc.ca.gov

Ms. Farah Esfandiari, Ph.D.
Staff Toxicologist
DTSC/Human and Ecological Risk
Farah.Esfandiari@dtsc.ca.gov

Mr. Safouh Sayed
Project Manager
DTSC/Brownfields Restoration and School Evaluation Branch
Safouh.Sayed@dtsc.ca.gov

Brownfields Restoration and School Evaluation Branch Reading File - Cypress

DTSC COMMENTS
PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
FAIRFAX SCHOOL DISTRICT NEW SCHOOL SITE #5
SOUTHWEST OF S. OSWELL STREET AND ZEPHYR LANE
BAKERSFIELD

The following Department of Toxic Substances Control (DTSC) staff reviewed and provided comments herein to the Preliminary Environmental Assessment Equivalent Report (PEA). Please contact the Project Manager if you have any questions on the comments. Original comments from the DTSC Geological Services Branch and Human and Ecological Risk Office are available for review in the DTSC project files.

Farah Esfandiari, MPH, PhD
Staff Toxicologist
Human and Ecological Risk Office

DOCUMENTS REVIEWED:

Enhanced Phase 1 Environmental Site Assessment "PEA Equivalent Report" (Soils Engineering, Inc., September 2022), received on November 16, 2022.

SCOPE OF REVIEW:

HERO reviewed the Report focusing on potential for human health risks to future Site occupants from releases (known, suspected, or potential) known as recognized environmental conditions (RECs). Comments pertinent to human health risk assessment are noted below. Please refer to the DTSC HERO website (https://dtsc.ca.gov/human-health-risk-hero/) for the latest versions of DTSC HHRA Notes and other related guidance documents.

COMMENTS

1) Further Investigation Needed: The Report indicates that there is potential for soil and soil vapor impacts, due to the use of pesticides and other hazardous substances which include petroleum products associated with abandoned oil wells and Edison Oil and Gas field. The following are chemicals of potential concern (COPCs) at the Site: organochlorine pesticides (OCPs), volatile organic compounds (VOCs), total petroleum hydrocarbons (TPHs), semi volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs), and metals.

2) Conceptual Site Model (CSM): The text on subsection 2.12 (page 11) states "SEI has prepared a Conceptual Site Model to show the potential exposure pathways at this site, which is included as Plate 9". Plate 9 is not included in this

Report. CSM should be developed and discussed in all the site related Reports. CSM outlines COPCs, identifies the impacted media and exposure pathways, and identifies data gaps in accordance with DTSC 2015 PEA Guidance.

3) Analytical Results: The Report's Findings and analytical results are discussed in Section 11 and Appendix B. HERO recommends including a table with the results of all the sampling in the main body of the Report to transparently present the site conditions. This will create a stand-alone document which make the review easier and less time consuming. Please note that the table should include the screening levels (SLs). Human health risk-based SLs that are acceptable to DTSC are found in DTSC HHRA Note 3 (Revised May 2022) and, for those chemicals not listed in the HHRA Note 3, USEPA Regional Screening Levels (November 2022 RSLs).

4. Soil Gas Sampling Needed: Soil as a media of concern for this Site was analyzed for the COPCs including for TPHs. Please note that soil (as opposed to soil gas) sampling and analysis is not recommended for assessing the vapor intrusion exposure pathway (future or current). Due to the volatility of VOCs/TPHs and subsequent losses during collection, storage and handling, soil samples may not be reflective of the total amount of volatile contaminants. The bulk soil concentration data could be used in a qualitative sense for delineation of sources, where appropriate. For example, high soil concentrations would indicate impacted soils; unfortunately, the converse is not always true and consistent with EPA, non-detect analytical results cannot be interpreted to indicate the absence of a vapor source. HERO recommends soil gas sampling from multiple locations to delineate the contamination vertically and laterally to verify that the potential subsurface source of the vapor forming chemicals vapors is accurately reflected in the CSM.

CONCLUSIONS AND RECOMMENDATIONS

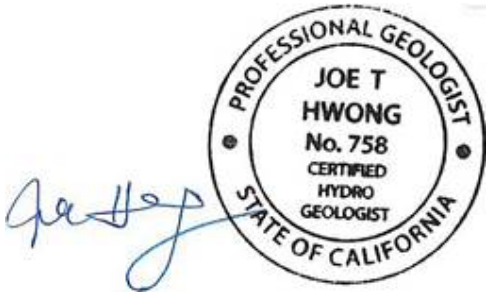
HERO acknowledges that there is potential for soil vapor migration and indoor air vapor intrusion risks to future site occupants if chemical releases have occurred and if VOCs are present underneath the Site. HERO recommends soil vapor sampling and analysis for volatile COPCs. HERO concurs with SEI recommendation of soil gas survey as part of a Supplemental Site Investigation (SSI) under DTSC oversight. HERO's above comments and recommendations can be addressed in future site investigation Reports.

Joe Hwong, P.G., C.HG.
Senior Engineering Geologist
Brownfields Restoration and School Evaluation Branch

COMMENTS:

1) A total of 64 soil samples were collected at the Site and 8 samples found concentration of arsenic (ranging from 12.2 to 17.8 mg/kg) were above the DTSC background level of 12 mg/kg. The vertical extents of arsenic were later delineated at 2' below ground surface (bgs). In addition, 2 soil samples collected from berm piles were detected arsenic at 15.5 and 14.1 mg/kg. These findings are deferred to a DTSC toxicologist to determine if it is a concern. If it is, a house-keeping removal or Removal Action Plan (RAW) should be prepared to remove the arsenic-impacted soil at the Site.

2) Because the Site is located within the Edison Oil and Gas Field, DTSC concurs with the recommendation of a Soil Gas Survey be conducted at the Site. DTSC recommends a total of 4 soil gas wells (SGW) be installed at 5', 15' and 40' below ground surface and collected samples for VOCs and TPHs analyses. The SGW should be located one at northwest near former the dry well, one at southwester, and two at east near 3 dry wells.



Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
5796 Corporate Avenue
Cypress, California 90630

Yana Garcia
Secretary for
Environmental Protection

Gavin Newsom
Governor

January 24, 2023 **SENT VIA ELECTRONIC MAIL**

Ms. Lora Brown
Superintendent
Fairfax School District
1500 South Fairfax Road
Bakersfield, California 93307
lbrown@fairfaxsd.us

CONDITIONAL APPROVAL OF SUPPLEMENTAL SITE INVESTIGATION WORKPLAN, FAIRFAX NEW PROPOSED SCHOOL SITE #5, SOUTHWEST OF SOUTH OSWELL STREET AND ZEPHYR LANE, BAKERSFIELD
(SITE CODE: 104860)

Dear Ms. Brown:

The Department of Toxic Substances Control (DTSC) reviewed the Supplemental Site Investigation (SSI) Workplan (Workplan) (Soils Engineering, Inc., December 2022), received on December 22, 2022, for the Fairfax New Proposed School Site #5 (Site). The Workplan includes scope of work for soil and soil gas sampling at the Site.

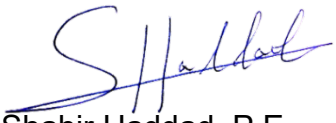
According to the Workplan, the Site is approximately 20 acres located SW of South Oswell Street & Zephyr Lane, in Bakersfield, California. A portion of the Site was used for agricultural activities from the late 1960s to early 1970s. The Site is adjacent to abandoned oil wells to the east and southeast and is located within the Edison Oil and Gas Field. Currently the Site is overgrown with seasonal vegetation, debris, traces of the irrigation/drainage ditch, and multiple scattered piles of debris/concrete/vegetation/soil/bricks.

To evaluate potential impact from chemicals associated with previous operations, a Preliminary Environmental Assessment (PEA) was conducted, without DTSC oversight, to investigate Site soil. Based on the PEA, DTSC determined that a SSI is required at the Site.

DTSC hereby approves the Workplan provided the enclosed comments are addressed during future fieldwork and/or reports. Revisions to the Workplan are no longer necessary. Please notify DTSC at least seven (7) working days in advance of the fieldwork so that DTSC staff can be present at the Site.

If you have any questions regarding the project, please contact Mr. Safouh Sayed, Project Manager, at (714) 713-3806 or by e-mail at Safouh.Sayed@dtsc.ca.gov or me at (714) 484-5368 or by e-mail at Shahir.Haddad@dtsc.ca.gov.

Sincerely,



Shahir Haddad, P.E.
Supervising Engineer
Brownfields Restoration and School Evaluation Branch
Site Mitigation and Restoration Program

mm/ss/sh

cc: (via e-mail)

Mr. Robert Becker, P.G., CGE
Consultant
Soils Engineering, Inc.
bob@soilsengineering.com

Mr. Joe Hwong, P.G., C.HG.
Senior Engineering Geologist
DTSC/Brownfield Restoration and Schools Evaluation Branch
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Ms. Farah Esfandiari, Ph.D.
Staff Toxicologist
DTSC/Human and Ecological Risk
Farah.Esfandiari@dtsc.ca.gov

Mr. Safouh Sayed
Project Manager
DTSC/Brownfields Restoration and School Evaluation Branch
Safouh.Sayed@dtsc.ca.gov

Brownfields Restoration and School Evaluation Branch Reading File - Cypress

DTSC COMMENTS
SUPPLEMENTAL SITE INVESTIGATION WORKPLAN
FAIRFAX NEW PROPOSED SCHOOL SITE #5
SOUTHWEST OF SOUTH OSWELL STREET AND ZEPHYR LANE
BAKERSFIELD

The following Department of Toxic Substances Control (DTSC) staff reviewed and provided comments herein to the Supplemental Site Investigation Workplan for the Fairfax New Proposed School Site #5 (Site). Please contact the Project Manager if you have any questions on the comments. Original comments are available for review in the DTSC project files.

Farah Esfandiari, MPH, PhD
Staff Toxicologist
Human and Ecological Risk Office

COMMENTS:

1. Conceptual Site Model: It is not clear whether a conceptual site model (CSM) has been developed for this Site. Please include a schematic figure of the conceptual site model in the WP. The interpretation of the surface and subsurface data should be linked to the CSM of the Site.

2. Reporting: SSI Reporting is described on page 7. HERO recommends including the following when reporting the Site data:

   I. Cumulative Risk Estimate: Comparison to individual screening levels does not evaluate cumulative risk. For decision making it is important to consider risks from all chemicals and all exposure routes to obtain the cumulative risk.

   II. Uncertainty Evaluation: Risk evaluations should include an evaluation of the uncertainties associated with the calculated risk or hazard.

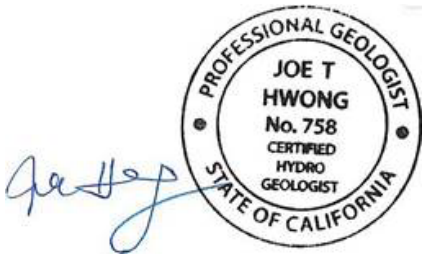
3. Screening Levels: Throughout the WP, the June 2020 version of DTSC's screening levels (SLs) has been referenced as the basis for the DTSC SLs. This is not the most current source of DTSC human health risk-based SLs. The WP needs to include the most recent HERO Note 3 as the reference for DTSC-recommended SLs. The updated HERO Note 3 [Revised May, 2022] can be found at https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf. For those chemicals not listed in the HHRA Note 3, USEPA Regional Screening Levels (November 2022 RSLs) should be used.

4. Soil Gas Sampling: Table 3 depicts the summary of analyses-soil and soil gas sampling. Conducting one round of soil gas sampling might not be sufficient. Soil gas probes should be sampled at least twice but in different seasons to capture seasonal/temporal variability. HERO defers to DTSC's GSU for the evaluation of details regarding the sampling frequency.

Joe Hwong, P.G., C.HG.
Senior Engineering Geologist
Brownfields Restoration and School Evaluation Branch

COMMENTS:

A hand-held methane (CH4) and hydrogen sulfide (H2S) meter will be used and reporting the highest readings. DTSC recommends the hand-held equipment should be calibrated and certified by a qualified vender. One sample for the highest reading of CH4 and H2S should be collected and analyzed in the lab for confirmation.



APPENDIX D
TRAFFIC IMPACT STUDY

Project No: 257-75

TRAFFIC STUDY

ELEMENTARY SCHOOL LOCATED AT OSWELL STREET & ZEPHYR LANE IN BAKERSFIELD, CA

Prepared for:

QK

December 2022

Prepared by:

RUETTGERS & SCHULER
CIVIL ENGINEERS

1800 30TH STREET, SUITE 260
BAKERSFIELD, CA 93301

Ian J. Parks, RCE 58155

TABLE OF CONTENTS

INTRODUCTION

The purpose of this study is to evaluate the proposed elementary school located on the southwest corner of Oswell Street & Zephyr Lane in Bakersfield, CA. A vicinity map and location map are presented in Figures 1 and 2, respectively. The school is anticipated to have 700 students in attendance.

A. Land Use, Site and Study Area Boundaries

The existing zoning is Agricultural (A). The project site is bounded by Zephyr Lane to the north and Oswell Street to the east.

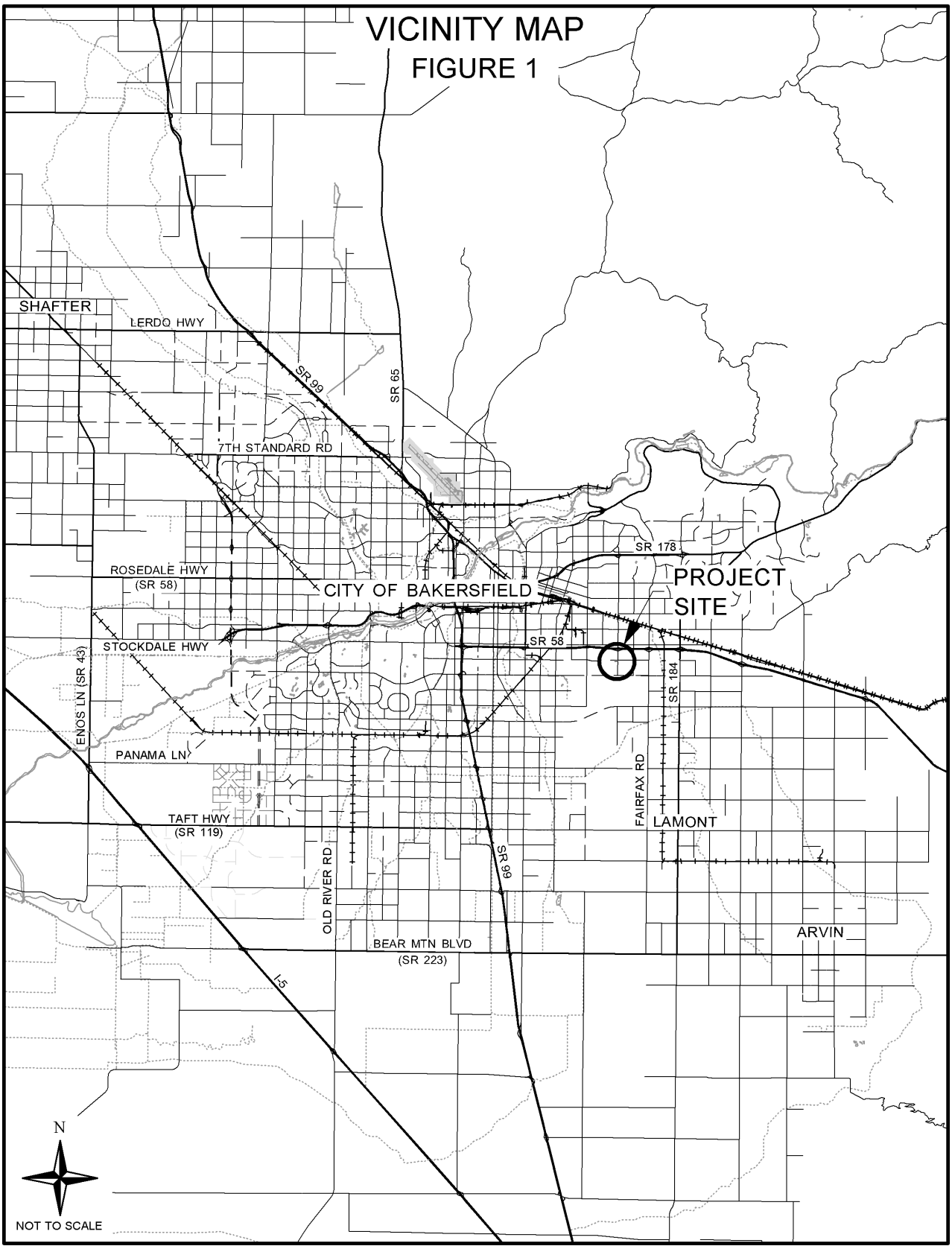
The study area includes a total of four intersections, two signalized and two stop-controlled.

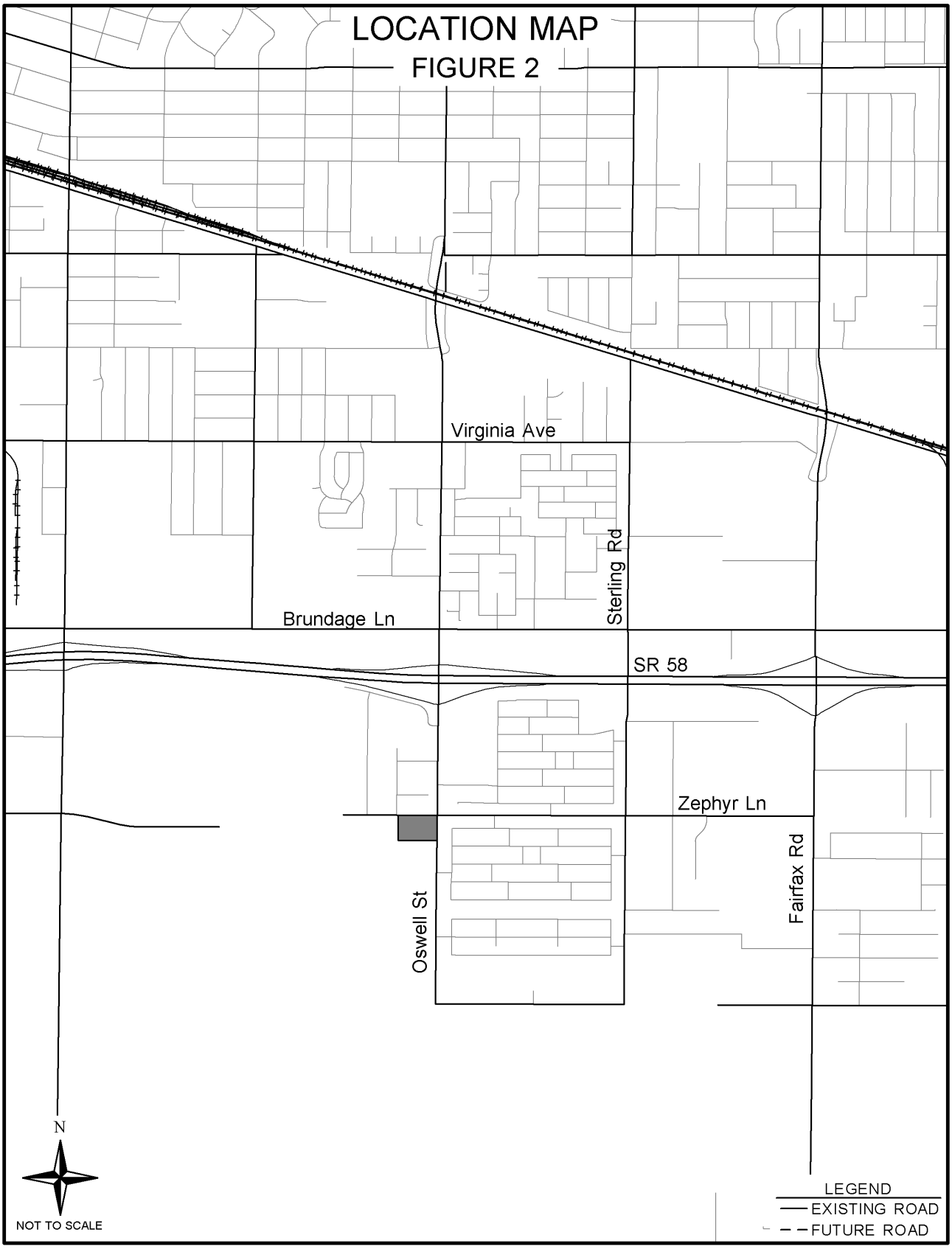
B. Existing Site Uses and Site Access

The site is currently vacant land. As currently planned, access to the proposed development would be provided along Zephyr Lane and Oswell Street.

C. Existing Uses in Vicinity of the Site

Existing land uses in the vicinity of the project site include a mix of residential subdivisions, industrial and agricultural land uses. Further north is State Route 58 and commercial land uses.


VICINITY MAP
FIGURE 1
SHAFTER
LERDO HWY
SR 99
SR 65
7TH STANDARD RD
SR 178
ROSEDALE HWY
(SR 58)
CITY OF BAKERSFIELD
PROJECT
SITE
STOCKDALE HWY
SR 58
ENOS LN (SR 43)
SR 184
PANAMA LN
FAIRFAX RD
TAFT HWY
(SR 119)
LAMONT
OLD RIVER RD
SR 99
ARVIN
BEAR MTN BLVD
(SR 223)
I-5
N
NOT TO SCALE


LOCATION MAP
FIGURE 2
Virginia Ave
Sterling Rd
Brundage Ln
SR 58
Zephyr Ln
Fairfax Rd
Oswell St
N
NOT TO SCALE
LEGEND
EXISTING ROAD
FUTURE ROAD

D. Roadway Descriptions

Brundage Lane is an east-west arterial which is aligned north of and generally parallel to State Route 58. It extends west from Edison Highway near Vineland Road and continues west of Wible Road as Stockdale Highway. Within the project vicinity, Brundage Lane exists as a two-lane roadway and provides access residential, commercial, and industrial land uses.

Oswell Street is a north-south arterial which extends from Columbus Street to Redbank Road. In the vicinity of the project, Oswell Street exists as four-lane roadway and provides access to residential and commercial land uses.

State Route 58 is an east-west highway that extends east from State Route 99. In the vicinity of the project it exists as a six-lane freeway and provides access to East Bakersfield.

Zephyr Lane is an east-west collector that exists generally between Oswell Street and Fairfax Road. In the vicinity of the project it exists as a two-lane roadway and provides access to residential and educational land uses.

PROJECT TRIP GENERATION

The trip generation for the residential development were calculated using the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition. Trip generation and design hour volumes for all land uses are shown in Table 1.

The ADT, AM and PM peak hour rate equations, and peak hour directional splits for ITE Land Use Code 520 (Elementary School) were used to estimate the project traffic.

Table 1
Project Trip Generation

General Information			Daily Trips		AM Peak Hour Trips			PM Peak Hour Trips		
ITE Code	Development Type	Variable	ADT RATE	ADT	Rate	In % Split/ Trips	Out % Split/ Trips	Rate	In % Split/ Trips	Out % Split/ Trips
520	Elementary School	700 Students	2.27	1589	0.75	54% 284	46% 242	0.16	46% 52	54% 60

TRIP DISTRIBUTION AND ASSIGNMENT

The project trip distribution in Table 2 represents the most likely travel routes for traffic accessing the project. Project traffic distribution was estimated based on a review of the potential draw from population centers within the region and the types of land uses involved. These assumptions were used to distribute project traffic as shown in Figure 4.

Table 2
Project Trip Distribution

Direction	Percent
North	20
East	30
South	0
West	50

EXISTING AND FUTURE TRAFFIC

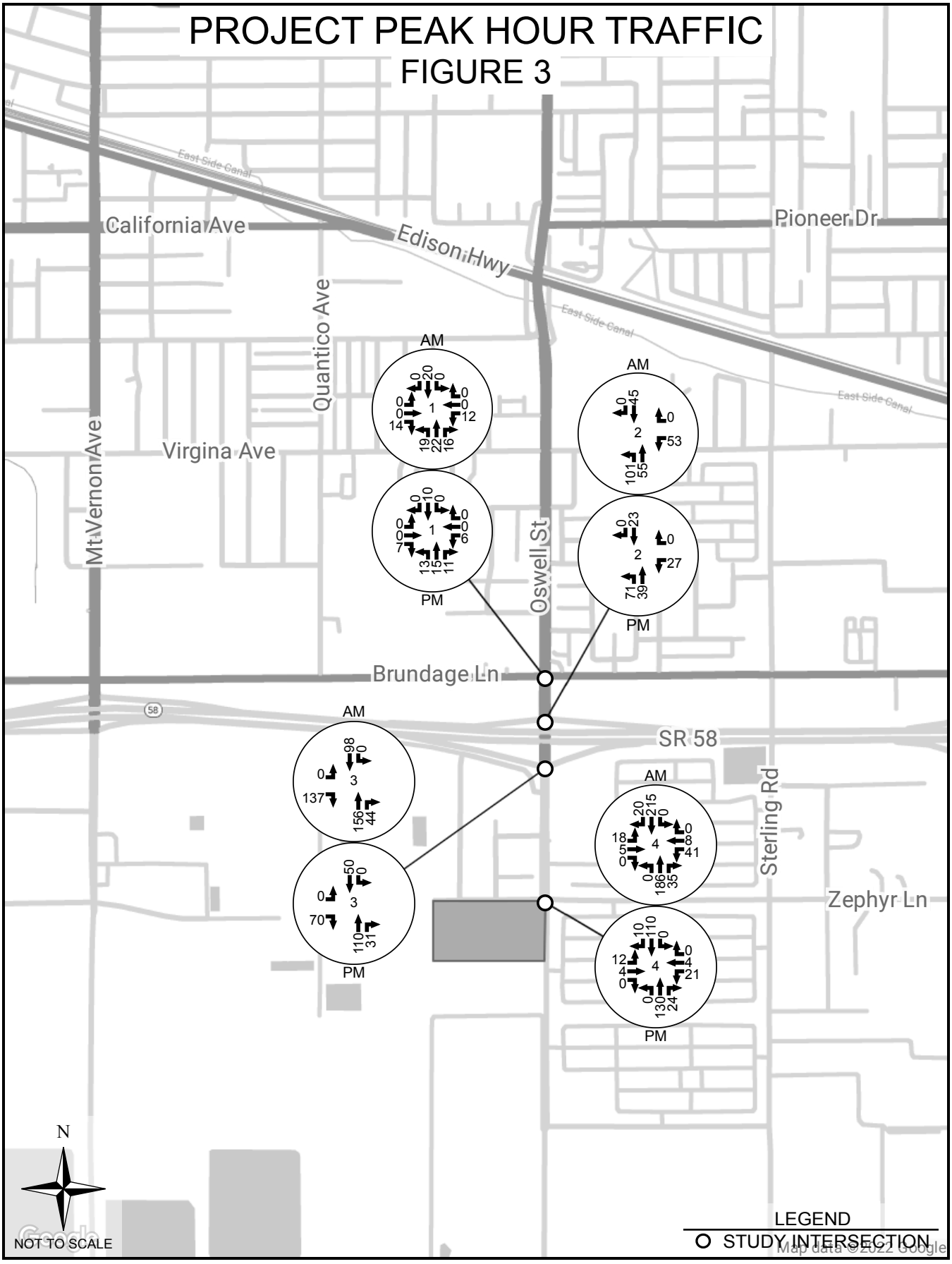
Weekday peak hour turning movements were counted at the following intersections in October 2022 (see Appendix for count data). The scope of intersections was determined using a threshold of 50 project trips.

- Oswell Street & Brundage Lane
- Oswell Street & State Route 58 Westbound Ramps
- Oswell Street & State Route 58 Eastbound Ramps
- Oswell Street & Zephyr Lane

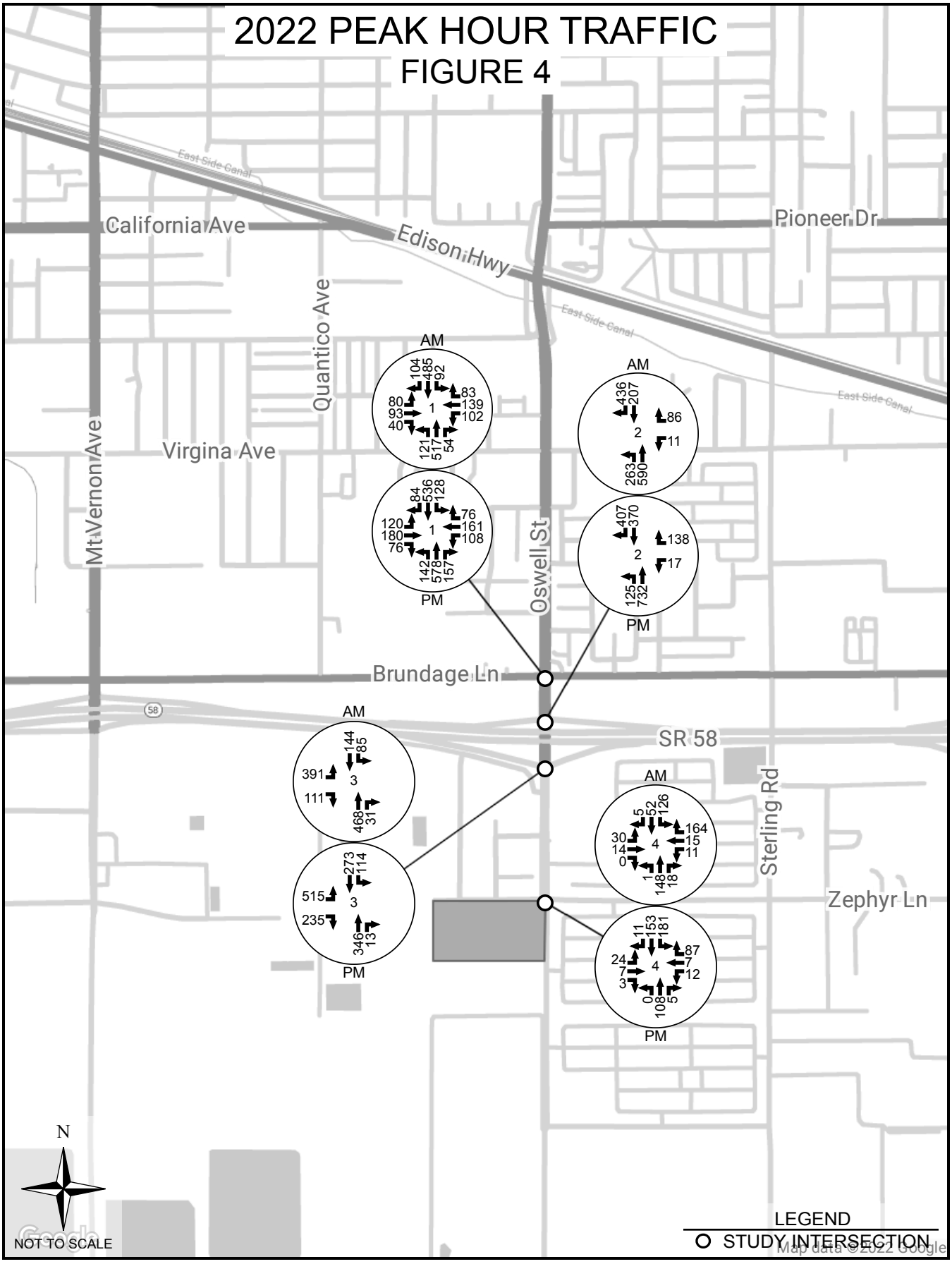
Traffic counts were conducted between the hours 7:30 to 8:30 AM and 4:30 to 5:30 PM and are shown in Figure 5. Existing + Project peak hour volumes are shown in Figure 6. Raw count data is included in the appendix.

Annual growth rates ranging between 0.45% and 1.71% were applied to existing traffic volumes to estimate future traffic volumes for the year 2042. These growth rates were estimated based on a review of existing and approved future developments in the vicinity of the project and KernCOG traffic model data. Future peak hour volumes and future peak hour plus project volumes are shown in Figures 7 and 8, respectively.

PROJECT PEAK HOUR TRAFFIC
FIGURE 3

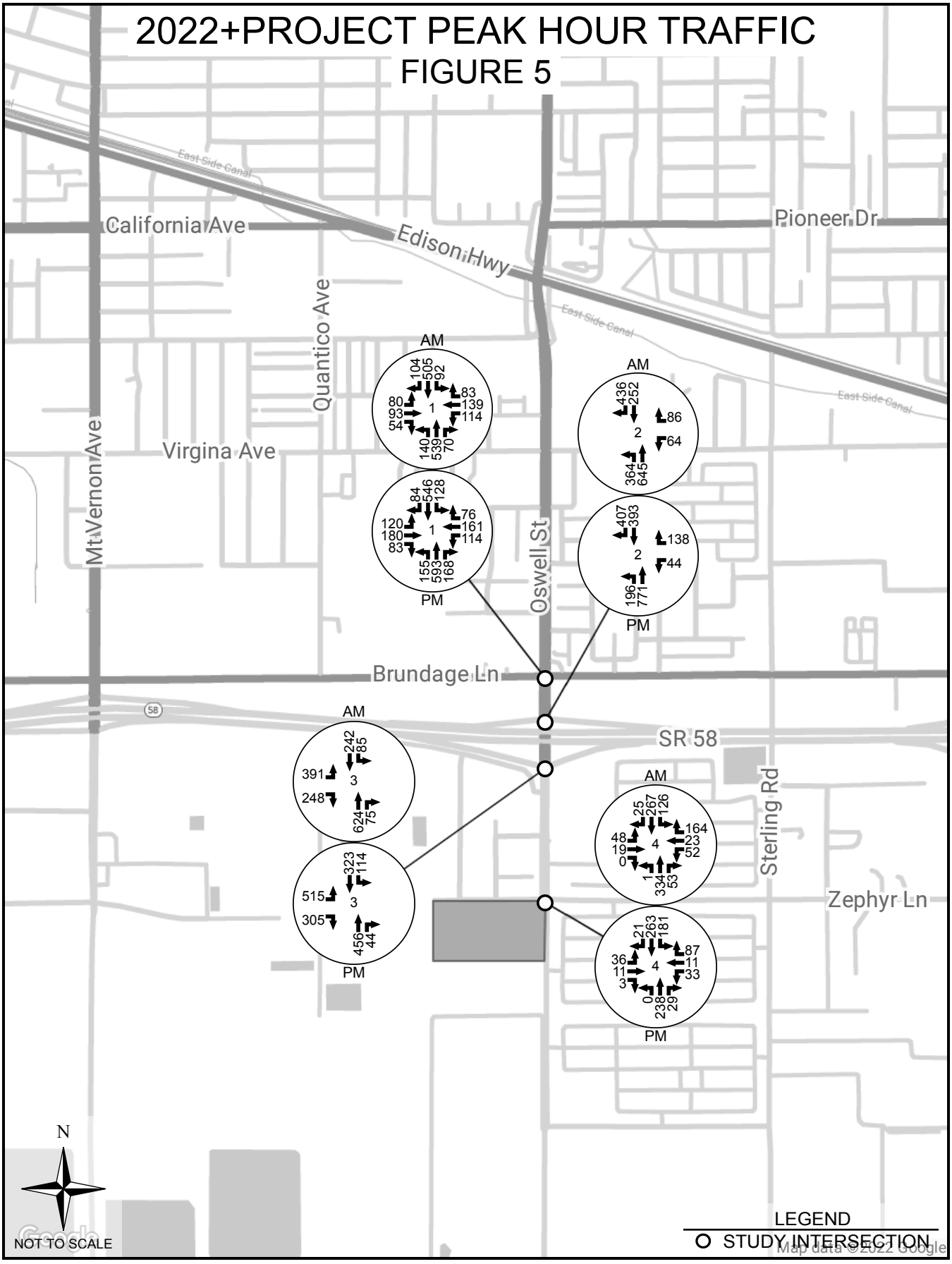


2022 PEAK HOUR TRAFFIC
FIGURE 4

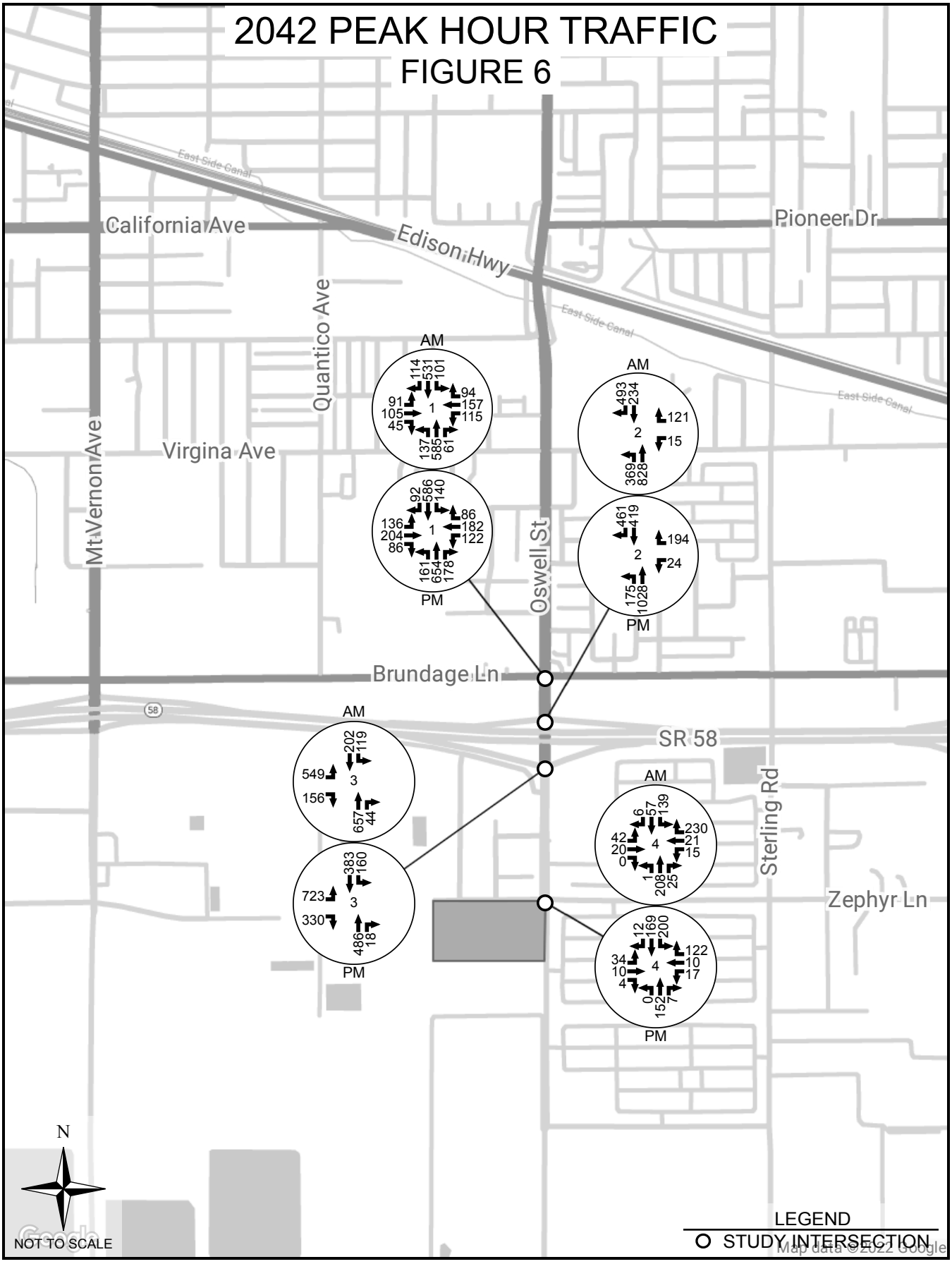


2022+PROJECT PEAK HOUR TRAFFIC

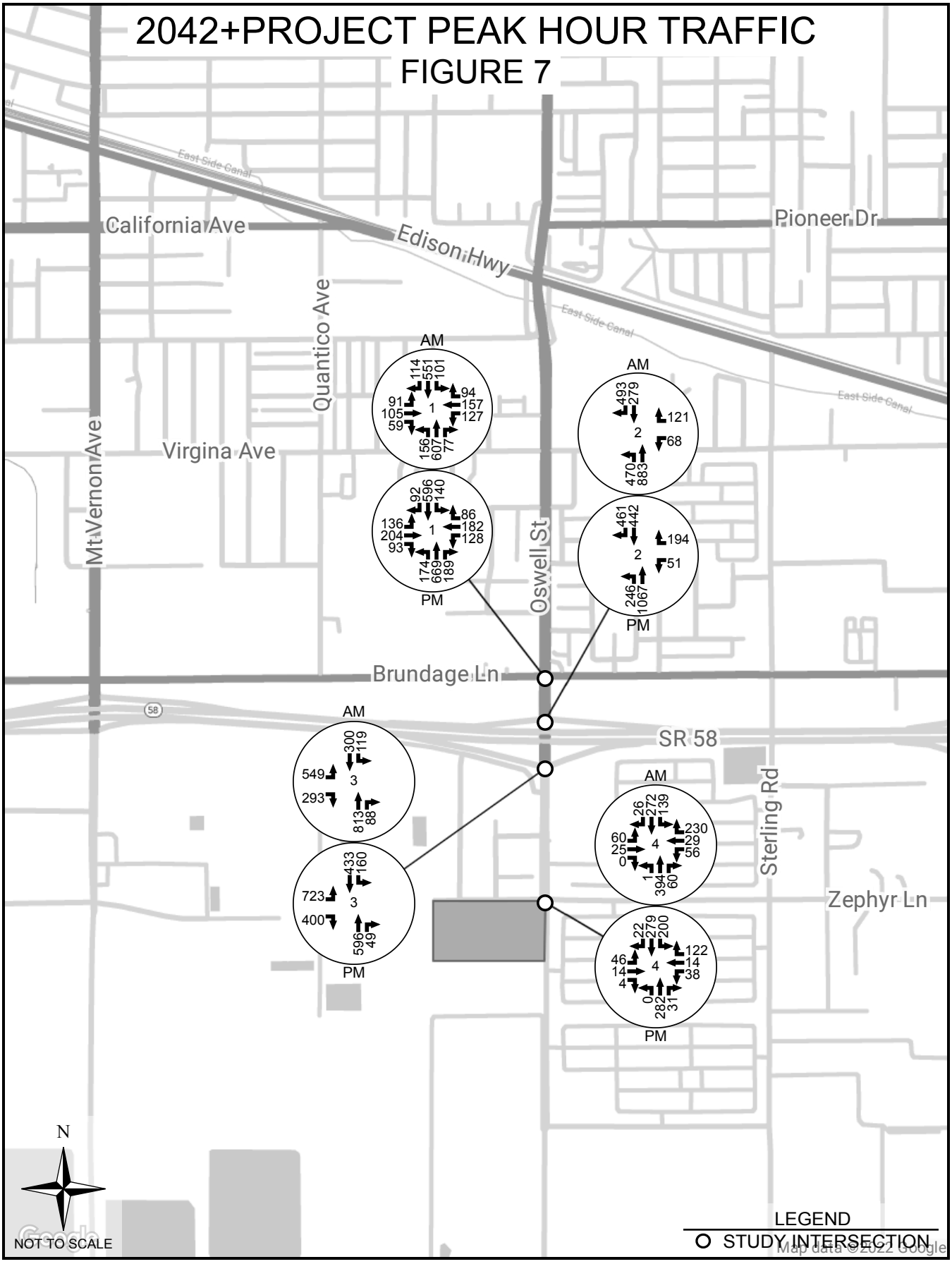
FIGURE 5



2042 PEAK HOUR TRAFFIC
FIGURE 6



2042+PROJECT PEAK HOUR TRAFFIC
FIGURE 7



INTERSECTION ANALYSIS

A capacity analysis of the study intersections was conducted using Synchro 9 software from Trafficware. This software utilizes the HCM 2010 Edition analysis methodology in the Transportation Research Board's Highway Capacity Manual.

- Existing (2022)
- Existing (2022) + Project
- Future (2042)
- Future (2042) + Project

Criteria for intersection level of service (LOS) are shown in the tables below.

LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTION

Average Control Delay (sec/veh)	Level of Service	Expected Delay to Minor Street Traffic
≤ 10	A	Little or no delay
> 10 and ≤ 15	B	Short traffic delays
> 15 and ≤ 25	C	Average traffic delays
> 25 and ≤ 35	D	Long traffic delays
> 35 and ≤ 50	E	Very long traffic delays
> 50	F	Extreme delays

LEVEL OF SERVICE CRITERIA
SIGNALIZED INTERSECTIONS

Volume/Capacity	Control Delay (sec/veh)	Level of Service
< 0.60	≤ 10	A
0.61 - 0.70	> 10 and ≤ 20	B
0.71 - 0.80	> 20 and ≤ 35	C
0.81 - 0.90	> 35 and ≤ 55	D
0.91 - 1.00	> 55 and ≤ 80	E
> 1.0	> 80	F

Level of service for the study intersections is presented in Tables 3a and 3b. The level of service goal for roadway facilities in Bakersfield is LOS "C". Intersection delays are shown for all intersections that operate below LOS "C". A level of service deficiency is generally defined as a condition where the addition of project traffic reduces the LOS to below LOS C, or where the pre-existing condition of the roadway is below LOS C, and the LOS degrades below the pre-existing level of service with the addition of the project.

Table 3a
PM Intersection Level of Service

#	Intersection	Control Type	2022	2022+ Project	2042	2042+ Project	2042+ Project w/Mitigation[1]
1	Oswell Street & Brundage Lane	Signal	C	C	C	C	-
2	Oswell Street & SR 58 WB Ramps	WB	C	D (30.9)	D (27.7)	F (113.2)	B
3	Oswell Street & SR 58 EB Ramps	Signal	C	C	C	C	-
4	Oswell Street & Zephyr Lane	AWSC	B	C	C	C	C[2]

[1]Mitigation shown in Table 5
[2]Mitigation necessary due to AM Peak Hour

Table 3b
AM Intersection Level of Service

#	Intersection	Control Type	2022	2022+ Project	2042	2042+ Project	2042+ Project w/Mitigation[1]
1	Oswell Street & Brundage Lane	Signal	C	C	C	C	-
2	Oswell Street & SR 58 WB Ramps	WB	C	F (>300)	F (55.0)	F (>300)	C
3	Oswell Street & SR 58 EB Ramps	Signal	C	C	C	C	-
4	Oswell Street & Zephyr Lane	AWSC	B	E (35.9)	B	E (40.2)	C

[1]Mitigation shown in Table 5

ROADWAY ANALYSIS

Published ADT information and future projected traffic, as shown in Table 4a, were used to calculate the volume-to-capacity ratios shown in Table 4b.

A volume-to-capacity ratio (v/c) of greater than 0.80 corresponds to a LOS of less than "C", as defined in the Highway Capacity Manual. As mentioned previously, a level of service "C" is the standard in the City of Bakersfield. A level of service deficiency is generally defined as a condition where the addition of project traffic reduces the LOS to below LOS C, or where the pre-existing condition of the roadway is below LOS C, and the LOS degrades below the pre-existing level of service with the addition of the project.

Table 4a
Roadway ADT & Capacity

Roadway Segment	2022[1]	Project ADT	2022+ Project ADT	2042 ADT	2042+ Project ADT
Oswell St: Brundage Ln - SR 58	22,439	807	23,246	25,392	26,199
Oswell St: SR 58 - Zephyr Ln	6,220	1,322	7,542	8,729	10,051

[1]Historic ADT Counts Grown out to 2022

Table 4b
Roadway Level of Service

Roadway Segment	Existing Capacity	v/c 2022	v/c 2022+ Project	v/c 2042	v/c 2042 Project
Oswell St: Brundage Ln - SR 58	40,000	0.56	0.58	0.63	0.65
Oswell St: SR 58 - Zephyr Ln	40,000	0.16	0.19	0.22	0.25

INTERSECTION IMPROVEMENTS

Intersection improvements needed by the year 2042 to maintain or improve the operational level of service of the street system in the vicinity of the project are presented in Table 5.

Table 5
Future Intersection Improvements

#	Intersection	Total Improvements Required by 2042
2	Oswell Street & SR 58 WB Ramps	Install Signal
4	Oswell Street & Zephyr Lane	Install Signal

As part of the development of the school, it is anticipated that frontage street improvements will be constructed along both Oswell Street and Zephyr Lane. As shown in table 5 there are improvements needed in order to improve level of service for the two intersections which do not meet the General Plan goals for the City of Bakersfield. There may need to be discussions between the school district and the City of Bakersfield for partial funding of the improvements through the City of Bakersfield Regional Transportation Impact Fee (RTIF) or Local Mitigation programs.

VEHICLE MILES TRAVELED (VMT)

In 2013, the state of California enacted legislation (SB 743) that required the Governor's Office of Planning and Research (OPR) to recommend new metrics for assessing and mitigating transportation impacts within the California Environmental Quality Act (CEQA). Regulatory changes to CEQA Guidelines adopting the use of a VMT metric were approved on December 28, 2018. Statewide implementation began on July 1, 2020.

OPR also released a Technical Advisory on December 28, 2018, which provides guidance related to the evaluation of VMT as part of a transportation impact analysis under CEQA. The advisory contains technical recommendations regarding VMT assessment, significance thresholds and mitigation measures. Many lead agencies conduct VMT analyses for land development projects pursuant to the OPR Technical Advisory or have adopted their own VMT analysis methodologies based on the advisory recommendations.

The Technical Advisory and CEQA Guidelines identify project types that are presumed to have a less than significant impact on VMT, and therefore, a less than significant impact on transportation. The advisory also contains "screening thresholds" for identifying whether a land use project should be expected to result in a less than significant transportation impact. Projects meeting one or more of these screening criteria are presumed to have a less than significant transportation impact, and therefore, would not be required to undergo a detailed VMT analysis.

One screening threshold pertains to "local-serving" retail land uses. According to the OPR Technical Advisory, retail developments including stores no larger than 50,000 square feet can be presumed to create a less than significant VMT impact since such projects typically provide more proximate shopping destinations, resulting in shorter trip lengths. It is expected that a school would act similarly to a locally serving retail as it will offer an alternative location for students and staff to travel. Similarly, the OPR Technical Advisory lists "Schools" under ways to "mitigate" vehicle miles traveled, which indicates that schools would result in a reduction in VMT. This would be expected as schools are typically located in areas to serve the surrounding population. Therefore, it is expected that this school will result in a less than significant VMT impact and would not require a detailed VMT analysis.

SUMMARY AND CONCLUSIONS

The purpose of this study is to evaluate the proposed elementary school located on the southwest corner of Oswell Street & Zephyr Lane in Bakersfield, CA. The study included both level of service (LOS) and vehicle miles traveled (VMT) analyses.

Intersection Level of Service Analysis

In 2022, all intersections are anticipated to operate at an acceptable level of service. With the addition of project traffic, the intersections of Oswell Street & SR 58 WB Ramps and Oswell Street & Zephyr Lane operate below an acceptable level of service prior to the addition of project traffic. The remaining intersections are anticipated to operate at an acceptable level of service through 2042, prior to and with the addition of project traffic.

Roadway Capacity

All roadway segments are anticipated to operate at an acceptable level of service prior to and with the addition of project through 2042.

VMT

The project is anticipated to have a less than significant impact in accordance with OPR guidelines.

REFERENCES

1. Annual Traffic Census, KernCOG
2. Kern County General Plan, approved September 22, 2009
3. Highway Capacity Manual, Special Report 209, Transportation Research Board
4. California Manual on Uniform Traffic Control Devices for Streets and Highways, 2012 Edition, Federal Highway Administration (FHA)
5. Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE)

APPENDIX

Intersection 1
Oswell Sr & Brundage Ln

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	180	76	108	161	76	142	578	157	128	536	84
Future Volume (veh/h)	120	180	76	108	161	76	142	578	157	128	536	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	136	205	86	126	187	88	146	596	162	135	564	88
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	419	322	162	364	279	188	1024	409	179	907	141
Arrive On Green	0.12	0.23	0.23	0.10	0.20	0.20	0.12	0.29	0.29	0.11	0.30	0.28
Sat Flow, veh/h	1634	1863	1428	1634	1863	1427	1634	3539	1413	1634	3055	475
Grp Volume(v), veh/h	136	205	86	126	187	88	146	596	162	135	326	326
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1427	1634	1770	1413	1634	1770	1761
Q Serve(g_s), s	4.9	5.8	3.0	4.6	5.5	3.2	5.3	8.7	3.4	4.9	9.6	9.7
Cycle Q Clear(g_c), s	4.9	5.8	3.0	4.6	5.5	3.2	5.3	8.7	3.4	4.9	9.6	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	189	419	322	162	364	279	188	1024	409	179	526	523
V/C Ratio(X)	0.72	0.49	0.27	0.78	0.51	0.32	0.77	0.58	0.40	0.75	0.62	0.62
Avail Cap(c_a), veh/h	258	1218	934	162	1108	849	188	2525	1008	188	1262	1256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	20.5	19.4	26.7	21.8	20.9	26.1	18.4	6.5	26.2	18.4	18.6
Incr Delay (d2), s/veh	6.0	0.9	0.4	21.3	1.1	0.6	18.0	0.5	0.6	15.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.1	1.2	3.0	2.9	1.3	3.3	4.3	2.0	2.9	4.9	4.9
LnGrp Delay(d),s/veh	31.9	21.4	19.8	48.0	23.0	21.6	44.1	19.0	7.2	41.2	19.6	19.8
LnGrp LOS	C	C	B	D	C	C	D	B	A	D	B	B
Approach Vol, veh/h		427			401			904			787	
Approach Delay, s/veh		24.4			30.5			20.9			23.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	21.6	10.0	17.7	11.0	22.0	11.8	15.8
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	4.5	5.3	5.3	* 5.3
Max Green Setting (Gmax), s	6.5	* 42	5.5	38.4	6.5	42.0	9.1	* 35
Max Q Clear Time (g_c+I1), s	6.9	10.7	6.6	7.8	7.3	11.7	6.9	7.5
Green Ext Time (p_c), s	0.0	3.3	0.0	1.5	0.0	2.9	0.4	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	180	83	114	161	76	155	593	168	128	546	84
Future Volume (veh/h)	120	180	83	114	161	76	155	593	168	128	546	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	136	205	94	133	187	88	160	611	173	135	575	88
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	416	319	161	391	300	187	1040	415	179	925	141
Arrive On Green	0.11	0.22	0.22	0.10	0.21	0.21	0.11	0.29	0.29	0.11	0.30	0.28
Sat Flow, veh/h	1634	1863	1428	1634	1863	1428	1634	3539	1413	1634	3065	468
Grp Volume(v), veh/h	136	205	94	133	187	88	160	611	173	135	331	332
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1428	1634	1770	1413	1634	1770	1762
Q Serve(g_s), s	4.9	5.9	3.3	4.9	5.4	2.0	5.9	9.0	3.7	4.9	9.8	9.9
Cycle Q Clear(g_c), s	4.9	5.9	3.3	4.9	5.4	2.0	5.9	9.0	3.7	4.9	9.8	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	182	416	319	161	391	300	187	1040	415	179	534	532
V/C Ratio(X)	0.75	0.49	0.29	0.83	0.48	0.29	0.85	0.59	0.42	0.75	0.62	0.62
Avail Cap(c_a), veh/h	257	1211	929	161	1101	844	187	2509	1002	187	1255	1250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	20.7	19.7	27.0	21.2	7.9	26.5	18.4	6.6	26.4	18.3	18.5
Incr Delay (d2), s/veh	7.2	0.9	0.5	28.8	0.9	0.5	29.9	0.5	0.7	15.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.1	1.4	3.5	2.9	1.2	4.2	4.5	2.1	3.0	5.0	5.0
LnGrp Delay(d),s/veh	33.5	21.6	20.2	55.9	22.1	8.5	56.4	18.9	7.2	41.6	19.5	19.7
LnGrp LOS	C	C	C	E	C	A	E	B	A	D	B	B
Approach Vol, veh/h		435			408			944			798	
Approach Delay, s/veh		25.0			30.2			23.1			23.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	21.9	10.0	17.6	11.0	22.4	10.8	16.8
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	6.5	* 42	5.5	38.4	6.5	42.0	9.1	34.8
Max Q Clear Time (g_c+I1), s	6.9	11.0	6.9	7.9	7.9	11.9	6.9	7.4
Green Ext Time (p_c), s	0.0	3.4	0.0	2.1	0.0	3.0	0.1	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	204	86	122	182	86	161	654	178	140	586	92
Future Volume (veh/h)	136	204	86	122	182	86	161	654	178	140	586	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	155	232	98	142	212	100	166	674	184	147	617	97
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	419	321	185	400	307	216	1132	453	191	895	140
Arrive On Green	0.12	0.22	0.22	0.11	0.21	0.21	0.13	0.32	0.32	0.12	0.29	0.27
Sat Flow, veh/h	1634	1863	1428	1634	1863	1428	1634	3539	1415	1634	3051	479
Grp Volume(v), veh/h	155	232	98	142	212	100	166	674	184	147	357	357
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1428	1634	1770	1415	1634	1770	1760
Q Serve(g_s), s	6.5	7.8	2.5	6.0	7.2	4.2	7.0	11.4	7.2	6.2	12.7	12.8
Cycle Q Clear(g_c), s	6.5	7.8	2.5	6.0	7.2	4.2	7.0	11.4	7.2	6.2	12.7	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	201	419	321	185	400	307	216	1132	453	191	519	516
V/C Ratio(X)	0.77	0.55	0.30	0.77	0.53	0.33	0.77	0.60	0.41	0.77	0.69	0.69
Avail Cap(c_a), veh/h	281	1041	798	207	957	734	230	2157	862	230	1078	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	24.4	8.9	30.6	24.7	23.6	29.8	20.3	18.9	30.4	22.2	22.4
Incr Delay (d2), s/veh	8.3	1.1	0.5	14.4	1.1	0.6	13.7	0.5	0.6	12.3	1.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.1	1.0	3.5	3.8	1.7	4.0	5.6	2.9	3.4	6.4	6.4
LnGrp Delay(d),s/veh	38.5	25.5	9.4	45.1	25.8	24.2	43.5	20.8	19.5	42.7	23.9	24.1
LnGrp LOS	D	C	A	D	C	C	D	C	B	D	C	C
Approach Vol, veh/h		485			454			1024			861	
Approach Delay, s/veh		26.4			31.5			24.2			27.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	26.7	12.0	20.0	14.2	24.8	12.8	19.3
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	* 5.3	4.5	5.3
Max Green Setting (Gmax), s	9.5	42.0	8.5	38.4	9.5	* 42	11.7	35.2
Max Q Clear Time (g_c+I1), s	8.2	13.4	8.0	9.8	9.0	14.8	8.5	9.2
Green Ext Time (p_c), s	0.1	4.5	0.0	2.3	0.3	2.7	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	204	93	128	182	86	174	669	189	140	596	92
Future Volume (veh/h)	136	204	93	128	182	86	174	669	189	140	596	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	155	232	106	149	212	100	179	690	195	147	627	97
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.97	0.97	0.97	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	407	312	193	398	305	258	1205	482	190	882	136
Arrive On Green	0.12	0.22	0.22	0.12	0.21	0.21	0.16	0.34	0.34	0.12	0.29	0.27
Sat Flow, veh/h	1634	1863	1428	1634	1863	1428	1634	3539	1416	1634	3059	472
Grp Volume(v), veh/h	155	232	106	149	212	100	179	690	195	147	362	362
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1428	1634	1770	1416	1634	1770	1761
Q Serve(g_s), s	7.1	8.6	3.0	6.8	7.8	4.6	8.0	12.4	8.2	6.8	14.2	14.3
Cycle Q Clear(g_c), s	7.1	8.6	3.0	6.8	7.8	4.6	8.0	12.4	8.2	6.8	14.2	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	201	407	312	193	398	305	258	1205	482	190	511	508
V/C Ratio(X)	0.77	0.57	0.34	0.77	0.53	0.33	0.69	0.57	0.40	0.77	0.71	0.71
Avail Cap(c_a), veh/h	334	956	733	275	888	681	317	2013	805	260	945	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	27.0	9.5	33.1	27.0	25.7	30.8	20.9	19.5	33.2	24.6	24.8
Incr Delay (d2), s/veh	6.2	1.3	0.6	8.4	1.1	0.6	4.8	0.4	0.5	9.5	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.5	1.8	3.6	4.1	1.9	4.0	6.1	3.2	3.6	7.2	7.2
LnGrp Delay(d),s/veh	39.1	28.2	10.1	41.5	28.1	26.3	35.7	21.3	20.1	42.7	26.5	26.7
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		493			461			1064			871	
Approach Delay, s/veh		27.8			32.0			23.5			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	30.3	13.1	20.9	17.0	26.3	13.5	20.5
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	* 5.3	4.5	5.3
Max Green Setting (Gmax), s	11.8	42.7	12.5	38.4	14.5	* 40	15.3	35.6
Max Q Clear Time (g_c+I1), s	8.8	14.4	8.8	10.6	10.0	16.3	9.1	9.8
Green Ext Time (p_c), s	0.1	4.7	0.1	2.4	2.0	2.7	0.2	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	93	40	102	139	83	121	517	54	92	485	104
Future Volume (veh/h)	80	93	40	102	139	83	121	517	54	92	485	104
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	94	109	47	111	151	90	133	568	59	103	545	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	332	254	151	355	272	172	1280	512	141	989	211
Arrive On Green	0.08	0.18	0.18	0.09	0.19	0.19	0.11	0.36	0.36	0.09	0.34	0.32
Sat Flow, veh/h	1634	1863	1425	1634	1863	1426	1634	3539	1416	1634	2885	617
Grp Volume(v), veh/h	94	109	47	111	151	90	133	568	59	103	333	329
Grp Sat Flow(s),veh/h/ln	1634	1863	1425	1634	1863	1426	1634	1770	1416	1634	1770	1732
Q Serve(g_s), s	3.2	2.9	1.6	3.8	4.1	3.1	4.5	7.0	1.6	3.5	8.7	8.8
Cycle Q Clear(g_c), s	3.2	2.9	1.6	3.8	4.1	3.1	4.5	7.0	1.6	3.5	8.7	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	131	332	254	151	355	272	172	1280	512	141	607	594
V/C Ratio(X)	0.72	0.33	0.18	0.73	0.43	0.33	0.77	0.44	0.12	0.73	0.55	0.55
Avail Cap(c_a), veh/h	275	1298	993	172	1180	904	172	2690	1077	143	1314	1286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	20.4	19.9	25.2	20.3	19.9	24.8	13.8	12.1	25.4	15.2	15.4
Incr Delay (d2), s/veh	7.1	0.6	0.3	13.1	0.8	0.7	19.3	0.2	0.1	16.8	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.5	0.6	2.2	2.2	1.3	3.0	3.4	0.6	2.2	4.3	4.4
LnGrp Delay(d),s/veh	32.6	21.0	20.2	38.3	21.1	20.6	44.1	14.1	12.2	42.2	15.9	16.2
LnGrp LOS	C	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		250			352			760			765	
Approach Delay, s/veh		25.2			26.4			19.2			19.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	24.6	9.3	14.2	10.0	23.5	8.6	14.9
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	4.5	42.0	5.5	38.4	5.5	41.0	9.1	34.8
Max Q Clear Time (g_c+I1), s	5.5	9.0	5.8	4.9	6.5	10.8	5.2	6.1
Green Ext Time (p_c), s	0.0	5.7	0.0	1.4	0.0	5.6	0.1	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	93	54	114	139	83	140	539	70	92	505	104
Future Volume (veh/h)	80	93	54	114	139	83	140	539	70	92	505	104
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	94	109	64	124	151	90	154	592	77	103	567	117
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	361	276	143	373	286	143	1062	424	153	935	192
Arrive On Green	0.08	0.19	0.19	0.09	0.20	0.20	0.09	0.30	0.30	0.09	0.32	0.30
Sat Flow, veh/h	1634	1863	1426	1634	1863	1427	1634	3539	1414	1634	2907	598
Grp Volume(v), veh/h	94	109	64	124	151	90	154	592	77	103	344	340
Grp Sat Flow(s),veh/h/ln	1634	1863	1426	1634	1863	1427	1634	1770	1414	1634	1770	1735
Q Serve(g_s), s	2.9	2.6	2.0	3.9	3.6	1.7	4.5	7.3	1.2	3.1	8.5	8.6
Cycle Q Clear(g_c), s	2.9	2.6	2.0	3.9	3.6	1.7	4.5	7.3	1.2	3.1	8.5	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	131	361	276	143	373	286	143	1062	424	153	569	558
V/C Ratio(X)	0.72	0.30	0.23	0.87	0.40	0.31	1.08	0.56	0.18	0.67	0.60	0.61
Avail Cap(c_a), veh/h	228	1433	1098	143	1336	1023	143	2902	1159	153	1451	1423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	17.8	17.6	23.3	17.9	6.5	23.5	15.2	4.5	22.6	14.7	15.0
Incr Delay (d2), s/veh	7.0	0.5	0.4	40.0	0.7	0.6	98.5	0.5	0.2	11.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.4	0.8	3.3	1.9	1.0	5.9	3.6	0.8	1.9	4.3	4.2
LnGrp Delay(d),s/veh	30.2	18.3	18.0	63.2	18.7	7.1	122.1	15.6	4.7	33.7	15.8	16.0
LnGrp LOS	C	B	B	E	B	A	F	B	A	C	B	B
Approach Vol, veh/h		267			365			823			787	
Approach Delay, s/veh		22.4			30.9			34.5			18.2	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	19.5	8.5	14.0	8.5	20.6	8.1	14.3
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	4.0	* 41	4.0	38.4	4.0	41.0	6.7	35.7
Max Q Clear Time (g_c+I1), s	5.1	9.3	5.9	4.6	6.5	10.6	4.9	5.6
Green Ext Time (p_c), s	0.0	2.9	0.0	1.5	0.0	2.9	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	105	45	115	157	94	137	585	61	101	531	114
Future Volume (veh/h)	91	105	45	115	157	94	137	585	61	101	531	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	107	124	53	125	171	102	151	643	67	113	597	128
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	343	262	168	366	280	208	1268	507	153	898	192
Arrive On Green	0.09	0.18	0.18	0.10	0.20	0.20	0.13	0.36	0.36	0.09	0.31	0.29
Sat Flow, veh/h	1634	1863	1426	1634	1863	1427	1634	3539	1416	1634	2884	617
Grp Volume(v), veh/h	107	124	53	125	171	102	151	643	67	113	366	359
Grp Sat Flow(s),veh/h/ln	1634	1863	1426	1634	1863	1427	1634	1770	1416	1634	1770	1731
Q Serve(g_s), s	3.9	3.6	1.2	4.5	5.0	3.8	5.4	8.7	2.0	4.1	11.0	11.1
Cycle Q Clear(g_c), s	3.9	3.6	1.2	4.5	5.0	3.8	5.4	8.7	2.0	4.1	11.0	11.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	147	343	262	168	366	280	208	1268	507	153	551	539
V/C Ratio(X)	0.73	0.36	0.20	0.74	0.47	0.36	0.73	0.51	0.13	0.74	0.66	0.67
Avail Cap(c_a), veh/h	286	1208	925	214	1126	863	240	2504	1002	187	1194	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	21.8	8.0	26.7	21.8	21.3	25.7	15.4	13.2	27.0	18.3	18.5
Incr Delay (d2), s/veh	6.6	0.6	0.4	10.0	0.9	0.8	8.9	0.3	0.1	11.5	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.9	0.7	2.5	2.7	1.5	2.9	4.3	0.8	2.3	5.5	5.5
LnGrp Delay(d),s/veh	33.7	22.5	8.4	36.7	22.7	22.1	34.6	15.7	13.3	38.5	19.7	20.0
LnGrp LOS	C	C	A	D	C	C	C	B	B	D	B	B
Approach Vol, veh/h		284			398			861			838	
Approach Delay, s/veh		24.1			26.9			18.8			22.3	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	25.9	10.3	15.3	12.6	23.1	9.5	16.0
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	* 5.3	4.5	5.3
Max Green Setting (Gmax), s	6.5	42.0	7.5	38.4	8.5	* 40	10.2	35.7
Max Q Clear Time (g_c+I1), s	6.1	10.7	6.5	5.6	7.4	13.1	5.9	7.0
Green Ext Time (p_c), s	0.0	3.7	0.0	1.6	0.5	2.7	0.1	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	105	59	127	157	94	156	607	77	101	551	114
Future Volume (veh/h)	91	105	59	127	157	94	156	607	77	101	551	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	107	124	69	138	171	102	171	667	85	113	619	128
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	338	258	101	283	216	116	892	355	582	1583	327
Arrive On Green	0.08	0.18	0.18	0.06	0.15	0.15	0.07	0.25	0.25	0.36	0.54	0.53
Sat Flow, veh/h	1634	1863	1425	1634	1863	1423	1634	3539	1411	1634	2908	600
Grp Volume(v), veh/h	107	124	69	138	171	102	171	667	85	113	376	371
Grp Sat Flow(s),veh/h/ln	1634	1863	1425	1634	1863	1423	1634	1770	1411	1634	1770	1738
Q Serve(g_s), s	7.3	6.6	4.7	7.0	9.7	7.4	8.0	19.6	4.3	5.4	13.9	14.1
Cycle Q Clear(g_c), s	7.3	6.6	4.7	7.0	9.7	7.4	8.0	19.6	4.3	5.4	13.9	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	138	338	258	101	283	216	116	892	355	582	963	946
V/C Ratio(X)	0.78	0.37	0.27	1.36	0.60	0.47	1.48	0.75	0.24	0.19	0.39	0.39
Avail Cap(c_a), veh/h	153	654	501	101	595	454	116	1387	553	582	963	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	40.6	39.8	53.0	44.8	43.8	52.5	39.0	21.1	25.2	14.9	15.1
Incr Delay (d2), s/veh	20.0	0.7	0.5	214.4	2.1	1.6	252.9	5.3	1.5	0.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	3.5	1.9	9.2	5.2	3.0	11.7	10.3	1.8	2.5	7.1	7.1
LnGrp Delay(d),s/veh	70.7	41.2	40.4	267.4	46.8	45.4	305.4	44.2	22.6	25.3	16.1	16.3
LnGrp LOS	E	D	D	F	D	D	F	D	C	C	B	B
Approach Vol, veh/h		300			411			923			860	
Approach Delay, s/veh		51.5			120.5			90.6			17.4	
Approach LOS		D			F			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	45.1	32.5	11.0	24.5	12.0	65.5	14.3	21.2
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	4.5	5.3	5.3	* 5.3
Max Green Setting (Gmax), s	5.5	* 43	6.5	38.4	7.5	41.0	10.1	* 35
Max Q Clear Time (g_c+I1), s	7.4	21.6	9.0	8.6	10.0	16.1	9.3	11.7
Green Ext Time (p_c), s	0.0	3.1	0.0	1.0	0.0	3.2	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	65.6
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection 2
Oswell Sr & SR 58 WB Off Ramp/SR 58 WB On Ramp

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	17	0	138	125	732	0	0	370	407
Future Vol, veh/h	0	0	0	17	0	138	125	732	0	0	370	407
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	81	81	81	97	97	97	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	21	0	170	129	755	0	0	407	447

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1215	1866	377	854	0	0	755	0	0
Stage 1	1012	1012	-	-	-	-	-	-	-
Stage 2	203	854	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	174	72	621	781	-	-	851	-	-
Stage 1	312	315	-	-	-	-	-	-	-
Stage 2	811	373	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	145	0	621	781	-	-	851	-	-
Mov Cap-2 Maneuver	145	0	-	-	-	-	-	-	-
Stage 1	260	0	-	-	-	-	-	-	-
Stage 2	811	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	1.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	781	-	-	145	621	851	-	-
HCM Lane V/C Ratio	0.165	-	-	0.145	0.274	-	-	-
HCM Control Delay (s)	10.5	-	-	34	13	0	-	-
HCM Lane LOS	B	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.5	1.1	0	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	44	0	138	196	771	0	0	393	407
Future Vol, veh/h	0	0	0	44	0	138	196	771	0	0	393	407
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	81	81	81	97	97	97	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	0	170	202	795	0	0	432	447

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1415	2078	397	879	0	0	795	0	0
Stage 1	1199	1199	-	-	-	-	-	-	-
Stage 2	216	879	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	128	53	602	764	-	-	822	-	-
Stage 1	248	257	-	-	-	-	-	-	-
Stage 2	799	363	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	94	0	602	764	-	-	822	-	-
Mov Cap-2 Maneuver	94	0	-	-	-	-	-	-	-
Stage 1	182	0	-	-	-	-	-	-	-
Stage 2	799	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.9	2.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	764	-	-	94	602	822	-	-
HCM Lane V/C Ratio	0.264	-	-	0.578	0.283	-	-	-
HCM Control Delay (s)	11.4	-	-	86.1	13.3	0	-	-
HCM Lane LOS	B	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	1.1	-	-	2.7	1.2	0	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	24	0	194	175	1028	0	0	419	461
Future Vol, veh/h	0	0	0	24	0	194	175	1028	0	0	419	461
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	81	81	81	97	97	97	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	30	0	240	180	1060	0	0	460	507

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1651	2388	530	967	0	0	1060	0	0
Stage 1	1421	1421	-	-	-	-	-	-	-
Stage 2	230	967	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	89	34	493	708	-	-	653	-	-
Stage 1	189	201	-	-	-	-	-	-	-
Stage 2	786	331	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	66	0	493	708	-	-	653	-	-
Mov Cap-2 Maneuver	66	0	-	-	-	-	-	-	-
Stage 1	141	0	-	-	-	-	-	-	-
Stage 2	786	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.7	1.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	708	-	-	66	493	653	-	-
HCM Lane V/C Ratio	0.255	-	-	0.449	0.486	-	-	-
HCM Control Delay (s)	11.8	-	-	98	19	0	-	-
HCM Lane LOS	B	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	1	-	-	1.8	2.6	0	-	-

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	51	0	194	246	1067	0	0	442	461
Future Vol, veh/h	0	0	0	51	0	194	246	1067	0	0	442	461
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	81	81	81	97	97	97	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	63	0	240	254	1100	0	0	486	507

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1850	2599	550	992	0	0	1100	0	0
Stage 1	1607	1607	-	-	-	-	-	-	-
Stage 2	243	992	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	66	24	479	693	-	-	630	-	-
Stage 1	150	163	-	-	-	-	-	-	-
Stage 2	775	322	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 42	0	479	693	-	-	630	-	-
Mov Cap-2 Maneuver	~ 42	0	-	-	-	-	-	-	-
Stage 1	95	0	-	-	-	-	-	-	-
Stage 2	775	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	113.2	2.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	42	479	630	-	-
HCM Lane V/C Ratio	0.366	-	-	1.499	0.5	-	-	-
HCM Control Delay (s)	13.2	-	-	$ 468.4	19.8	0	-	-
HCM Lane LOS	B	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	1.7	-	-	6.3	2.7	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

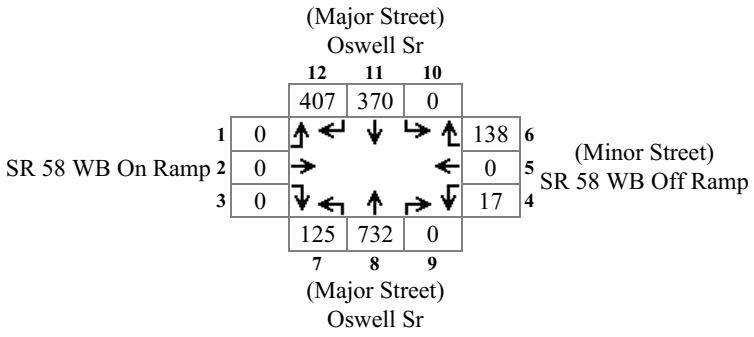
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	51	0	194	246	1067	0	0	442	461
Future Volume (veh/h)	0	0	0	51	0	194	246	1067	0	0	442	461
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1716	1863	1716	1716	1863	0	0	1863	1750
Adj Flow Rate, veh/h				63	0	240	254	1100	0	0	486	507
Adj No. of Lanes				1	1	1	1	2	0	0	2	0
Peak Hour Factor				0.81	0.81	0.81	0.97	0.97	0.97	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				306	349	273	285	2523	0	0	864	773
Arrive On Green				0.19	0.00	0.19	0.35	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				1634	1863	1458	1634	3632	0	0	1863	1583
Grp Volume(v), veh/h				63	0	240	254	1100	0	0	486	507
Grp Sat Flow(s),veh/h/ln				1634	1863	1458	1634	1770	0	0	1770	1583
Q Serve(g_s), s				2.9	0.0	14.4	13.2	0.0	0.0	0.0	17.4	21.7
Cycle Q Clear(g_c), s				2.9	0.0	14.4	13.2	0.0	0.0	0.0	17.4	21.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				306	349	273	285	2523	0	0	864	773
V/C Ratio(X)				0.21	0.00	0.88	0.89	0.44	0.00	0.00	0.56	0.66
Avail Cap(c_a), veh/h				372	424	332	408	2523	0	0	864	773
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.38	0.38	0.00	0.00	0.79	0.79
Uniform Delay (d), s/veh				30.9	0.0	35.6	28.5	0.0	0.0	0.0	16.2	17.3
Incr Delay (d2), s/veh				0.3	0.0	19.9	7.0	0.2	0.0	0.0	2.1	3.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	7.3	6.5	0.1	0.0	0.0	9.0	10.2
LnGrp Delay(d),s/veh				31.3	0.0	55.5	35.5	0.2	0.0	0.0	18.3	20.7
LnGrp LOS				C		E	D	A			B	C
Approach Vol, veh/h					303			1354			993	
Approach Delay, s/veh					50.4			6.8			19.6	
Approach LOS					D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		68.7			20.2	48.5		21.3
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		60.5			22.5	33.5		20.5
Max Q Clear Time (g_c+I1), s		2.0			15.2	23.7		16.4
Green Ext Time (p_c), s		13.7			0.5	6.3		0.4

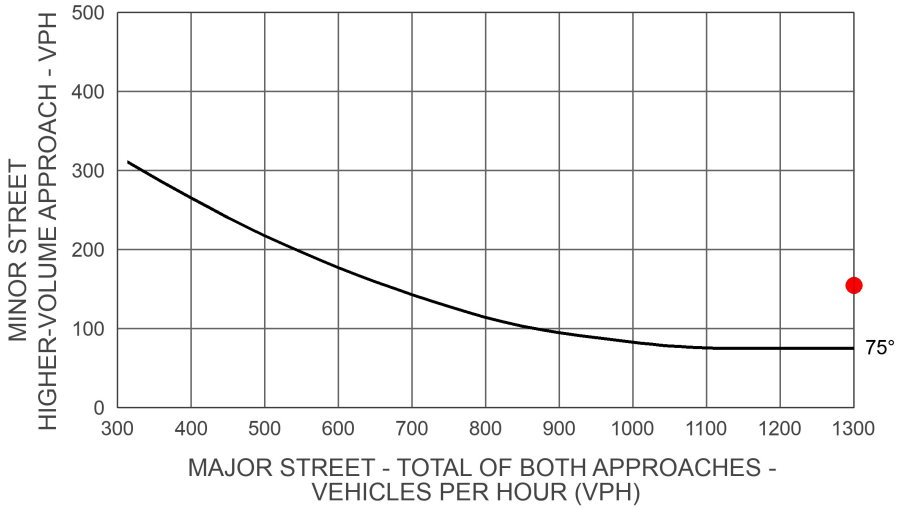
Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing
Intersection #: 2

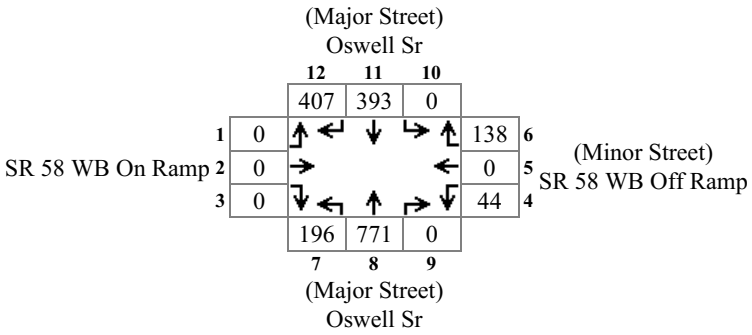


Major Total: 1634
Minor High Volume: 155

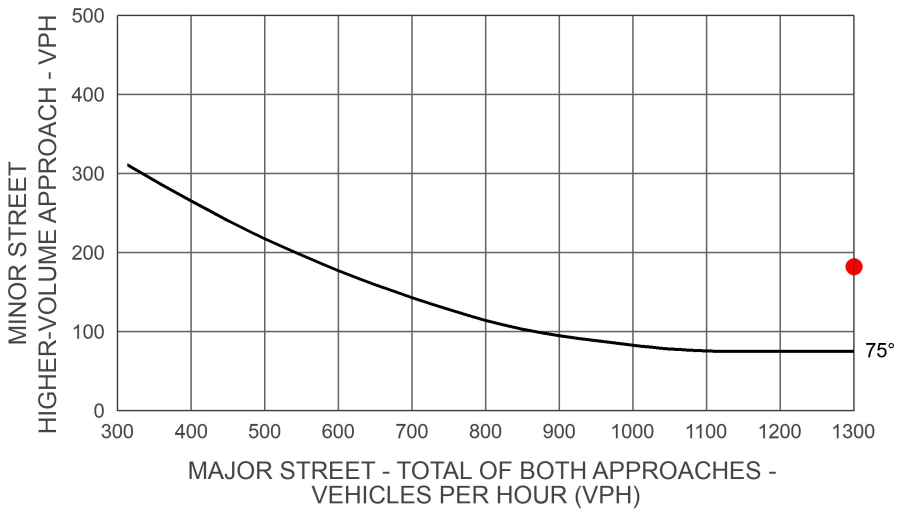


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 2

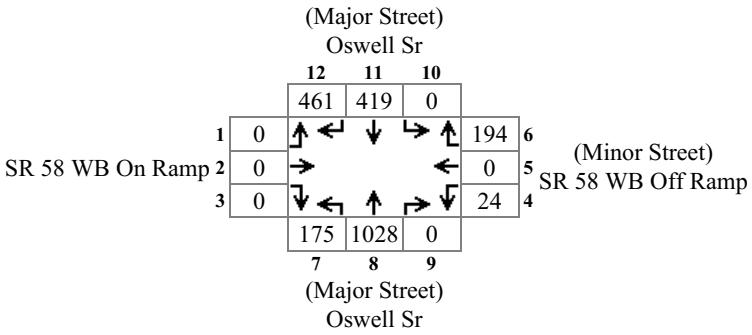


Major Total: 1767
Minor High Volume: 182

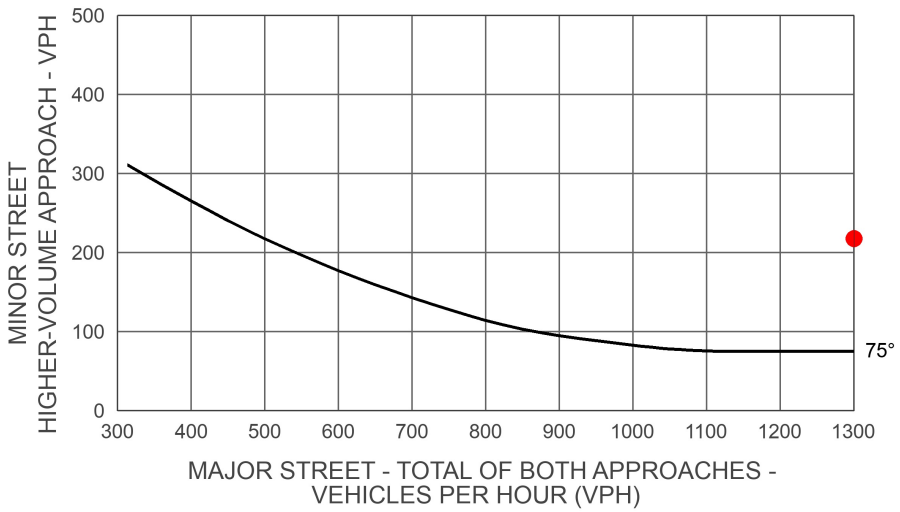


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 2

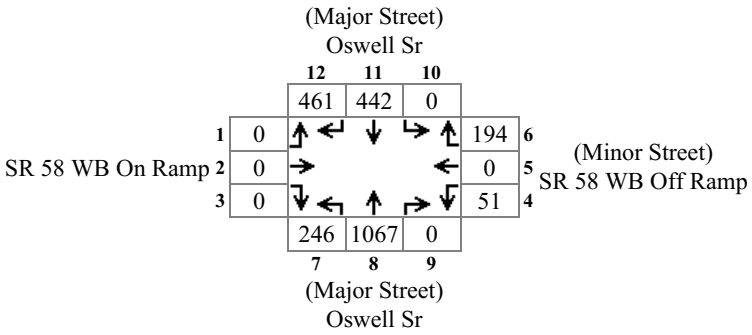


Major Total: 2083
Minor High Volume: 218

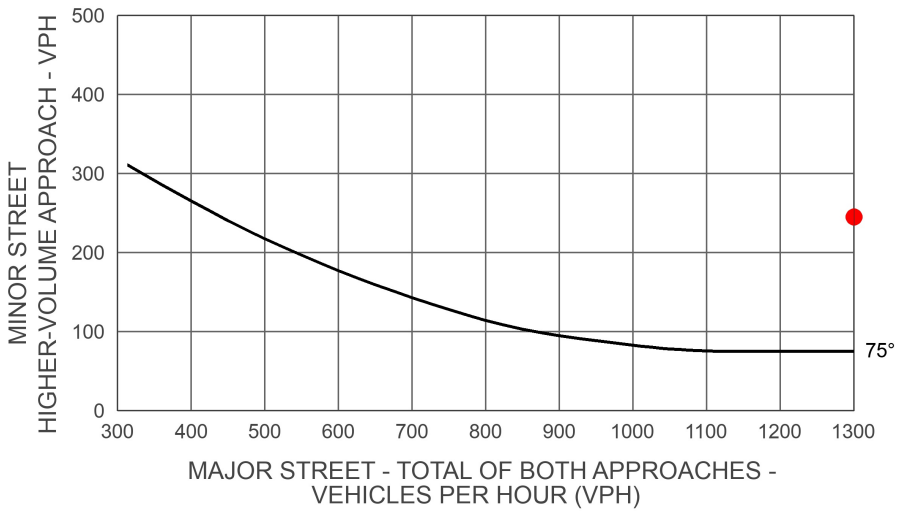


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 2



Major Total: 2216
Minor High Volume: 245



Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	11	0	86	263	590	0	0	207	436
Future Vol, veh/h	0	0	0	11	0	86	263	590	0	0	207	436
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	76	76	76	83	83	83	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	14	0	113	317	711	0	0	235	495

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1463	2076	355	731	0	0	711	0	0
Stage 1	1345	1345	-	-	-	-	-	-	-
Stage 2	118	731	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	119	53	641	869	-	-	884	-	-
Stage 1	207	218	-	-	-	-	-	-	-
Stage 2	894	425	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	76	0	641	869	-	-	884	-	-
Mov Cap-2 Maneuver	76	0	-	-	-	-	-	-	-
Stage 1	131	0	-	-	-	-	-	-	-
Stage 2	894	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	3.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	869	-	-	76	641	884	-	-
HCM Lane V/C Ratio	0.365	-	-	0.19	0.177	-	-	-
HCM Control Delay (s)	11.5	-	-	63.2	11.8	0	-	-
HCM Lane LOS	B	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	1.7	-	-	0.7	0.6	0	-	-

Intersection	
Int Delay, s/veh	38.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	64	0	86	364	645	0	0	252	436
Future Vol, veh/h	0	0	0	64	0	86	364	645	0	0	252	436
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	76	76	76	83	83	83	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	84	0	113	439	777	0	0	286	495

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1797	2436	389	782	0	0	777	0	0
Stage 1	1654	1654	-	-	-	-	-	-	-
Stage 2	143	782	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 71	31	610	832	-	-	835	-	-
Stage 1	141	154	-	-	-	-	-	-	-
Stage 2	869	403	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 34	0	610	832	-	-	835	-	-
Mov Cap-2 Maneuver	~ 34	0	-	-	-	-	-	-	-
Stage 1	~ 67	0	-	-	-	-	-	-	-
Stage 2	869	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 400	5.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	832	-	-	34	610	835	-	-
HCM Lane V/C Ratio	0.527	-	-	2.477	0.186	-	-	-
HCM Control Delay (s)	14	-	-	$ 921.1	12.2	0	-	-
HCM Lane LOS	B	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	3.1	-	-	9.6	0.7	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	0	15	0	121	369	828	0	0	234	493
Future Vol, veh/h	0	0	0	15	0	121	369	828	0	0	234	493
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	130	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	76	76	76	83	83	83	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	20	0	159	445	998	0	0	266	560

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2020	2713	499	826	0	0	998	0	0
Stage 1	1887	1887	-	-	-	-	-	-	-
Stage 2	133	826	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	51	21	517	800	-	-	689	-	-
Stage 1	105	118	-	-	-	-	-	-	-
Stage 2	879	385	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	23	0	517	800	-	-	689	-	-
Mov Cap-2 Maneuver	23	0	-	-	-	-	-	-	-
Stage 1	47	0	-	-	-	-	-	-	-
Stage 2	879	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	55	4.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	800	-	-	23	517	689	-	-
HCM Lane V/C Ratio	0.556	-	-	0.858	0.308	-	-	-
HCM Control Delay (s)	15	-	-	$ 377.5	15	0	-	-
HCM Lane LOS	B	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	3.5	-	-	2.5	1.3	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	68	0	121	470	883	0	0	279	493
Future Volume (veh/h)	0	0	0	68	0	121	470	883	0	0	279	493
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1716	1863	1716	1716	1863	0	0	1863	1750
Adj Flow Rate, veh/h				89	0	159	566	1064	0	0	317	560
Adj No. of Lanes				1	1	1	1	2	0	0	2	0
Peak Hour Factor				0.76	0.76	0.76	0.83	0.83	0.83	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				218	248	194	451	2714	0	0	1357	1214
Arrive On Green				0.13	0.00	0.13	1.00	1.00	0.00	0.00	0.77	0.77
Sat Flow, veh/h				1634	1863	1458	580	3632	0	0	1863	1583
Grp Volume(v), veh/h				89	0	159	566	1064	0	0	317	560
Grp Sat Flow(s),veh/h/ln				1634	1863	1458	580	1770	0	0	1770	1583
Q Serve(g_s), s				4.5	0.0	9.5	57.5	0.0	0.0	0.0	4.6	11.5
Cycle Q Clear(g_c), s				4.5	0.0	9.5	69.0	0.0	0.0	0.0	4.6	11.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				218	248	194	451	2714	0	0	1357	1214
V/C Ratio(X)				0.41	0.00	0.82	1.26	0.39	0.00	0.00	0.23	0.46
Avail Cap(c_a), veh/h				327	373	292	451	2714	0	0	1357	1214
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.54	0.54	0.00	0.00	0.79	0.79
Uniform Delay (d), s/veh				35.8	0.0	38.0	10.8	0.0	0.0	0.0	3.0	3.8
Incr Delay (d2), s/veh				1.2	0.0	10.6	124.7	0.2	0.0	0.0	0.3	1.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	4.4	26.7	0.1	0.0	0.0	2.3	5.2
LnGrp Delay(d),s/veh				37.0	0.0	48.6	135.5	0.2	0.0	0.0	3.3	4.8
LnGrp LOS				D		D	F	A			A	A
Approach Vol, veh/h					248			1630			877	
Approach Delay, s/veh					44.4			47.2			4.2	
Approach LOS					D			D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		73.5				73.5		16.5
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.0				63.0		18.0
Max Q Clear Time (g_c+I1), s		71.0				13.5		11.5
Green Ext Time (p_c), s		0.0				27.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

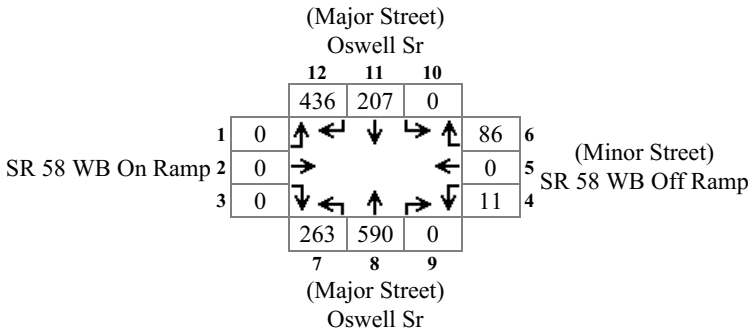
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	68	0	121	470	883	0	0	279	493
Future Volume (veh/h)	0	0	0	68	0	121	470	883	0	0	279	493
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1716	1863	1716	1716	1863	0	0	1863	1750
Adj Flow Rate, veh/h				89	0	159	566	1064	0	0	317	560
Adj No. of Lanes				1	1	1	1	2	0	0	2	0
Peak Hour Factor				0.76	0.76	0.76	0.83	0.83	0.83	0.88	0.88	0.88
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				218	248	194	451	2714	0	0	1357	1214
Arrive On Green				0.13	0.00	0.13	1.00	1.00	0.00	0.00	0.77	0.77
Sat Flow, veh/h				1634	1863	1458	580	3632	0	0	1863	1583
Grp Volume(v), veh/h				89	0	159	566	1064	0	0	317	560
Grp Sat Flow(s),veh/h/ln				1634	1863	1458	580	1770	0	0	1770	1583
Q Serve(g_s), s				4.5	0.0	9.5	57.5	0.0	0.0	0.0	4.6	11.5
Cycle Q Clear(g_c), s				4.5	0.0	9.5	69.0	0.0	0.0	0.0	4.6	11.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				218	248	194	451	2714	0	0	1357	1214
V/C Ratio(X)				0.41	0.00	0.82	1.26	0.39	0.00	0.00	0.23	0.46
Avail Cap(c_a), veh/h				327	373	292	451	2714	0	0	1357	1214
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.54	0.54	0.00	0.00	0.79	0.79
Uniform Delay (d), s/veh				35.8	0.0	38.0	10.8	0.0	0.0	0.0	3.0	3.8
Incr Delay (d2), s/veh				1.2	0.0	10.6	124.7	0.2	0.0	0.0	0.3	1.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	4.4	26.7	0.1	0.0	0.0	2.3	5.2
LnGrp Delay(d),s/veh				37.0	0.0	48.6	135.5	0.2	0.0	0.0	3.3	4.8
LnGrp LOS				D		D	F	A			A	A
Approach Vol, veh/h					248			1630			877	
Approach Delay, s/veh					44.4			47.2			4.2	
Approach LOS					D			D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		73.5				73.5		16.5
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.0				63.0		18.0
Max Q Clear Time (g_c+I1), s		71.0				13.5		11.5
Green Ext Time (p_c), s		0.0				27.7		0.5

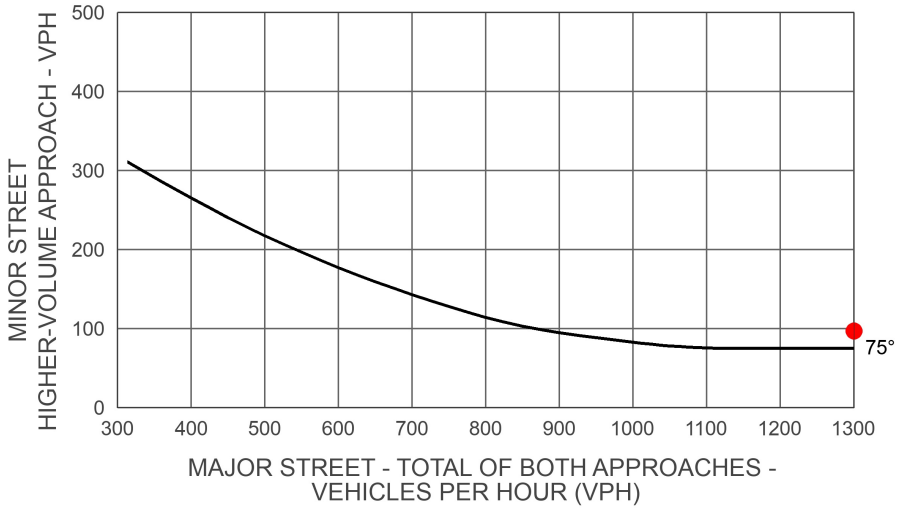
Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing
Intersection #: 2

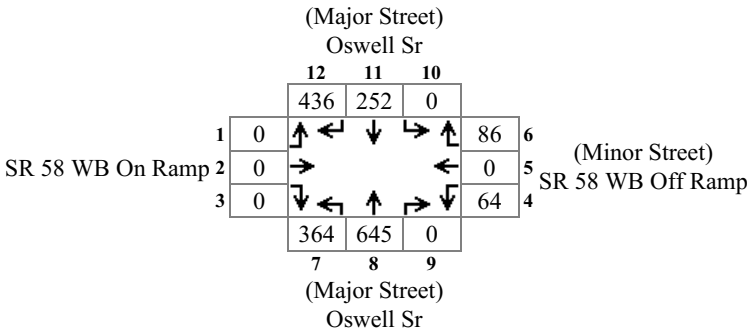


Major Total: 1496
Minor High Volume: 97

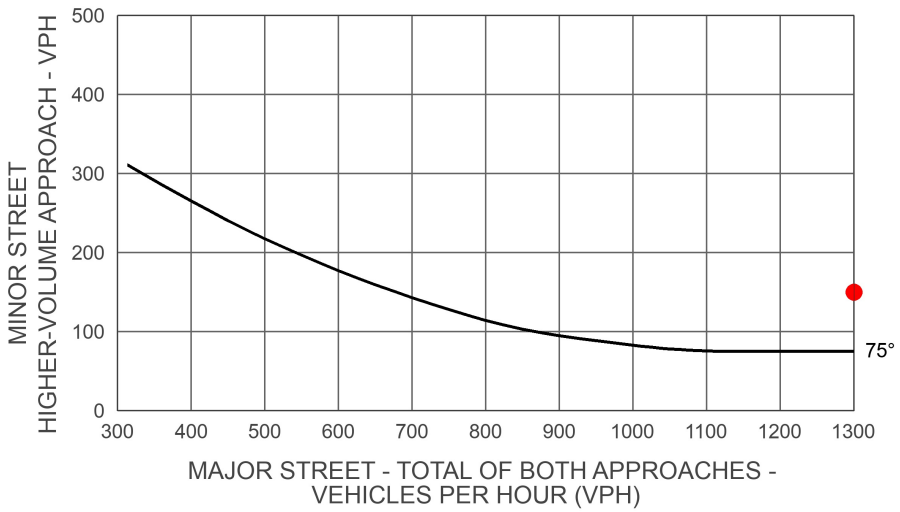


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 2

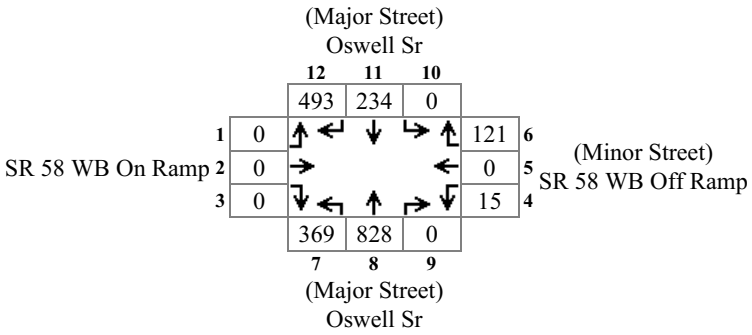


Major Total: 1697
Minor High Volume: 150

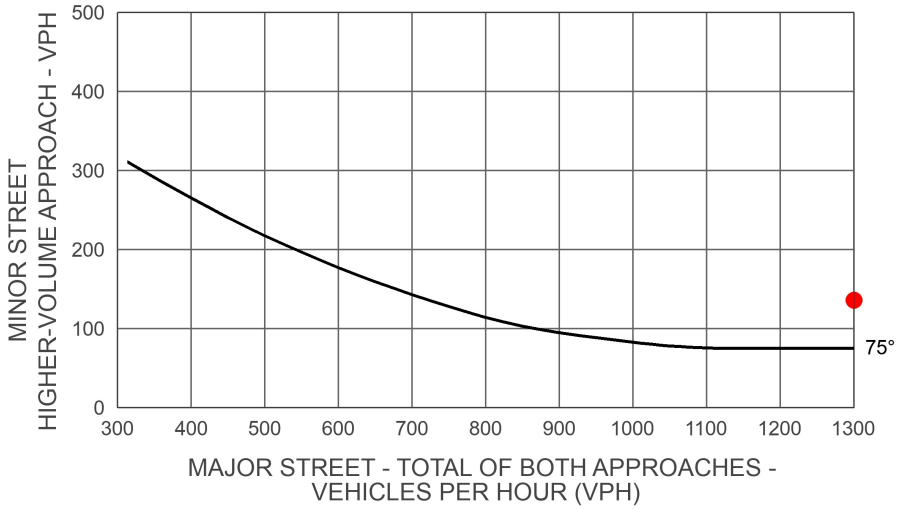


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 2

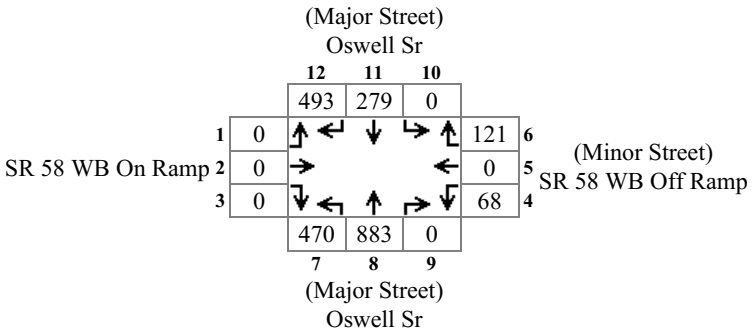


Major Total: 1924
Minor High Volume: 136

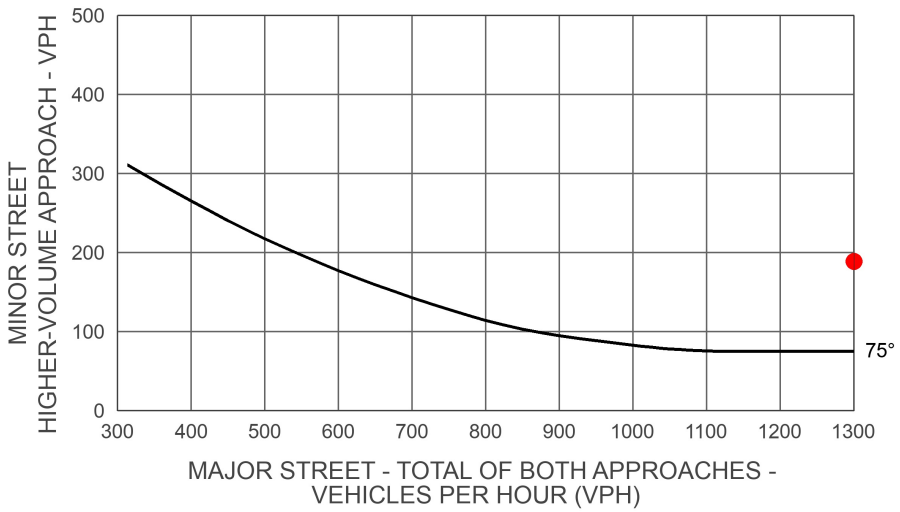


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 2



Major Total: 2125
Minor High Volume: 189



Intersection 3
Oswell Sr & SR 58 EB On Ramp/SR 58 EB Off Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	515	0	235	0	0	0	0	346	13	114	273	0
Future Volume (veh/h)	515	0	235	0	0	0	0	346	13	114	273	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	531	0	242				0	353	13	127	303	0
Adj No. of Lanes	1	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.98	0.98	0.98	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	593	676	529				0	1870	69	532	1901	0
Arrive On Green	0.36	0.00	0.36				0.00	0.54	0.54	0.54	0.54	0.00
Sat Flow, veh/h	1634	1863	1458				0	3575	128	932	3632	0
Grp Volume(v), veh/h	531	0	242				0	179	187	127	303	0
Grp Sat Flow(s),veh/h/ln	1634	1863	1458				0	1770	1840	932	1770	0
Q Serve(g_s), s	27.6	0.0	11.4				0.0	4.7	4.7	7.3	3.9	0.0
Cycle Q Clear(g_c), s	27.6	0.0	11.4				0.0	4.7	4.7	12.0	3.9	0.0
Prop In Lane	1.00		1.00				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	593	676	529				0	951	989	532	1901	0
V/C Ratio(X)	0.90	0.00	0.46				0.00	0.19	0.19	0.24	0.16	0.00
Avail Cap(c_a), veh/h	899	1025	802				0	951	989	532	1901	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.1	0.0	21.9				0.0	10.7	10.7	13.8	10.5	0.0
Incr Delay (d2), s/veh	8.0	0.0	0.6				0.0	0.4	0.4	1.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	0.0	4.7				0.0	2.4	2.5	2.0	1.9	0.0
LnGrp Delay(d),s/veh	35.1	0.0	22.5				0.0	11.2	11.2	14.9	10.7	0.0
LnGrp LOS	D		C					B	B	B	B	
Approach Vol, veh/h		773						366			430	
Approach Delay, s/veh		31.1						11.2			11.9	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		52.8		37.2		52.8		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		31.5		49.5		31.5		
Max Q Clear Time (g_c+I1), s		6.7		29.6		14.0		
Green Ext Time (p_c), s		3.3		3.0		3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	515	0	305	0	0	0	0	456	44	114	323	0
Future Volume (veh/h)	515	0	305	0	0	0	0	456	44	114	323	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	531	0	314				0	465	45	127	359	0
Adj No. of Lanes	1	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.98	0.98	0.98	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	595	678	531				0	1749	169	454	1898	0
Arrive On Green	0.36	0.00	0.36				0.00	0.54	0.54	0.54	0.54	0.00
Sat Flow, veh/h	1634	1863	1458				0	3355	315	816	3632	0
Grp Volume(v), veh/h	531	0	314				0	251	259	127	359	0
Grp Sat Flow(s),veh/h/ln	1634	1863	1458				0	1770	1807	816	1770	0
Q Serve(g_s), s	27.6	0.0	15.7				0.0	6.9	7.0	9.0	4.7	0.0
Cycle Q Clear(g_c), s	27.6	0.0	15.7				0.0	6.9	7.0	15.9	4.7	0.0
Prop In Lane	1.00		1.00				0.00		0.17	1.00		0.00
Lane Grp Cap(c), veh/h	595	678	531				0	949	969	454	1898	0
V/C Ratio(X)	0.89	0.00	0.59				0.00	0.27	0.27	0.28	0.19	0.00
Avail Cap(c_a), veh/h	826	942	737				0	949	969	454	1898	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.0	0.0	23.2				0.0	11.3	11.3	15.6	10.8	0.0
Incr Delay (d2), s/veh	9.3	0.0	1.1				0.0	0.7	0.7	1.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	6.4				0.0	3.5	3.6	2.2	2.4	0.0
LnGrp Delay(d),s/veh	36.3	0.0	24.3				0.0	12.0	12.0	17.1	11.0	0.0
LnGrp LOS	D		C					B	B	B	B	
Approach Vol, veh/h		845						510			486	
Approach Delay, s/veh		31.8						12.0			12.6	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		52.8		37.2		52.8		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		35.5		45.5		35.5		
Max Q Clear Time (g_c+I1), s		9.0		29.6		17.9		
Green Ext Time (p_c), s		4.4		3.2		4.0		

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	723	0	330	0	0	0	0	486	18	160	383	0
Future Volume (veh/h)	723	0	330	0	0	0	0	486	18	160	383	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	745	0	340				0	496	18	178	426	0
Adj No. of Lanes	1	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.98	0.98	0.98	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	794	905	708				0	1443	52	338	1466	0
Arrive On Green	0.49	0.00	0.49				0.00	0.41	0.41	0.41	0.41	0.00
Sat Flow, veh/h	1634	1863	1458				0	3577	126	813	3632	0
Grp Volume(v), veh/h	745	0	340				0	252	262	178	426	0
Grp Sat Flow(s),veh/h/ln	1634	1863	1458				0	1770	1840	813	1770	0
Q Serve(g_s), s	38.8	0.0	14.1				0.0	8.7	8.8	17.2	7.2	0.0
Cycle Q Clear(g_c), s	38.8	0.0	14.1				0.0	8.7	8.8	26.0	7.2	0.0
Prop In Lane	1.00		1.00				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	794	905	708				0	733	762	338	1466	0
V/C Ratio(X)	0.94	0.00	0.48				0.00	0.34	0.34	0.53	0.29	0.00
Avail Cap(c_a), veh/h	873	996	779				0	733	762	338	1466	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.9	0.0	15.5				0.0	18.0	18.0	26.9	17.6	0.0
Incr Delay (d2), s/veh	16.6	0.0	0.5				0.0	1.3	1.2	5.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.1	0.0	5.8				0.0	4.5	4.7	4.4	3.6	0.0
LnGrp Delay(d),s/veh	38.5	0.0	16.0				0.0	19.3	19.2	32.7	18.1	0.0
LnGrp LOS	D		B					B	B	C	B	
Approach Vol, veh/h		1085						514			604	
Approach Delay, s/veh		31.5						19.3			22.4	
Approach LOS		C						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		41.8		48.2		41.8		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		32.9		48.1		32.9		
Max Q Clear Time (g_c+I1), s		10.8		40.8		28.0		
Green Ext Time (p_c), s		5.0		2.9		2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	26.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	723	0	400	0	0	0	0	596	49	160	433	0
Future Volume (veh/h)	723	0	400	0	0	0	0	596	49	160	433	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	745	0	412				0	608	50	178	481	0
Adj No. of Lanes	1	1	1				0	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97				0.98	0.98	0.98	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	781	890	697				0	1398	115	288	1494	0
Arrive On Green	0.48	0.00	0.48				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	1634	1863	1458				0	3405	272	712	3632	0
Grp Volume(v), veh/h	745	0	412				0	324	334	178	481	0
Grp Sat Flow(s),veh/h/ln	1634	1863	1458				0	1770	1815	712	1770	0
Q Serve(g_s), s	39.4	0.0	18.5				0.0	11.7	11.7	21.3	8.2	0.0
Cycle Q Clear(g_c), s	39.4	0.0	18.5				0.0	11.7	11.7	33.0	8.2	0.0
Prop In Lane	1.00		1.00				0.00		0.15	1.00		0.00
Lane Grp Cap(c), veh/h	781	890	697				0	747	766	288	1494	0
V/C Ratio(X)	0.95	0.00	0.59				0.00	0.43	0.44	0.62	0.32	0.00
Avail Cap(c_a), veh/h	808	921	721				0	747	766	288	1494	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.5	0.0	17.1				0.0	18.4	18.4	30.1	17.4	0.0
Incr Delay (d2), s/veh	20.9	0.0	1.2				0.0	1.8	1.8	9.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.1	0.0	7.7				0.0	6.1	6.2	4.9	4.1	0.0
LnGrp Delay(d),s/veh	43.4	0.0	18.3				0.0	20.2	20.2	39.7	18.0	0.0
LnGrp LOS	D		B					C	C	D	B	
Approach Vol, veh/h		1157						658			659	
Approach Delay, s/veh		34.5						20.2			23.8	
Approach LOS		C						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.5		47.5		42.5		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		36.5		44.5		36.5		
Max Q Clear Time (g_c+I1), s		13.7		41.4		35.0		
Green Ext Time (p_c), s		6.3		1.6		1.0		

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	0	111	0	0	0	0	468	31	85	144	0
Future Volume (veh/h)	391	0	111	0	0	0	0	468	31	85	144	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	0	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	465	0	132				0	585	39	98	166	0
Adj No. of Lanes	1	0	1				0	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84				0.80	0.80	0.80	0.87	0.87	0.87
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	516	0	461				0	1546	103	123	2067	0
Arrive On Green	0.32	0.00	0.32				0.00	0.46	0.46	0.08	0.58	0.00
Sat Flow, veh/h	1634	0	1458				0	3462	224	1634	3632	0
Grp Volume(v), veh/h	465	0	132				0	307	317	98	166	0
Grp Sat Flow(s),veh/h/ln	1634	0	1458				0	1770	1823	1634	1770	0
Q Serve(g_s), s	24.5	0.0	6.1				0.0	10.2	10.3	5.3	1.8	0.0
Cycle Q Clear(g_c), s	24.5	0.0	6.1				0.0	10.2	10.3	5.3	1.8	0.0
Prop In Lane	1.00		1.00				0.00		0.12	1.00		0.00
Lane Grp Cap(c), veh/h	516	0	461				0	812	837	123	2067	0
V/C Ratio(X)	0.90	0.00	0.29				0.00	0.38	0.38	0.80	0.08	0.00
Avail Cap(c_a), veh/h	717	0	640				0	812	837	209	2067	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.4	0.0	23.1				0.0	15.9	16.0	41.0	8.2	0.0
Incr Delay (d2), s/veh	11.3	0.0	0.3				0.0	1.3	1.3	11.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	0.0	2.5				0.0	5.2	5.4	2.8	0.9	0.0
LnGrp Delay(d),s/veh	40.7	0.0	23.5				0.0	17.3	17.3	52.2	8.3	0.0
LnGrp LOS	D		C					B	B	D	A	
Approach Vol, veh/h		597						624			264	
Approach Delay, s/veh		36.9						17.3			24.6	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.3	45.8		32.9		57.1		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	11.5	25.5		39.5		41.5		
Max Q Clear Time (g_c+I1), s	7.3	12.3		26.5		3.8		
Green Ext Time (p_c), s	0.1	2.5		2.0		3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	0	248	0	0	0	0	624	75	85	242	0
Future Volume (veh/h)	391	0	248	0	0	0	0	624	75	85	242	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	0	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	465	0	295				0	780	94	98	278	0
Adj No. of Lanes	1	0	1				0	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84				0.80	0.80	0.80	0.87	0.87	0.87
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	520	0	464				0	1455	175	122	2060	0
Arrive On Green	0.32	0.00	0.32				0.00	0.46	0.46	0.07	0.58	0.00
Sat Flow, veh/h	1634	0	1458				0	3275	383	1634	3632	0
Grp Volume(v), veh/h	465	0	295				0	434	440	98	278	0
Grp Sat Flow(s),veh/h/ln	1634	0	1458				0	1770	1795	1634	1770	0
Q Serve(g_s), s	24.4	0.0	15.6				0.0	15.9	15.9	5.3	3.2	0.0
Cycle Q Clear(g_c), s	24.4	0.0	15.6				0.0	15.9	15.9	5.3	3.2	0.0
Prop In Lane	1.00		1.00				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	520	0	464				0	809	821	122	2060	0
V/C Ratio(X)	0.90	0.00	0.64				0.00	0.54	0.54	0.80	0.13	0.00
Avail Cap(c_a), veh/h	645	0	575				0	809	821	172	2060	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.3	0.0	26.2				0.0	17.6	17.6	41.0	8.5	0.0
Incr Delay (d2), s/veh	13.0	0.0	1.6				0.0	2.5	2.5	16.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	0.0	6.4				0.0	8.3	8.4	3.0	1.6	0.0
LnGrp Delay(d),s/veh	42.3	0.0	27.8				0.0	20.1	20.1	57.4	8.7	0.0
LnGrp LOS	D		C					C	C	E	A	
Approach Vol, veh/h		760						874			376	
Approach Delay, s/veh		36.7						20.1			21.4	
Approach LOS		D						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	45.7		33.1		56.9		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	31.5		35.5		45.5		
Max Q Clear Time (g_c+I1), s	7.3	17.9		26.4		5.2		
Green Ext Time (p_c), s	0.0	3.9		2.2		4.9		

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	549	0	156	0	0	0	0	657	44	119	202	0
Future Volume (veh/h)	549	0	156	0	0	0	0	657	44	119	202	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	0	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	654	0	186				0	821	55	137	232	0
Adj No. of Lanes	1	0	1				0	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84				0.80	0.80	0.80	0.87	0.87	0.87
Percent Heavy Veh, %	2	0	2				0	2	2	2	2	0
Cap, veh/h	708	0	632				0	1063	71	165	1652	0
Arrive On Green	0.43	0.00	0.43				0.00	0.32	0.32	0.10	0.47	0.00
Sat Flow, veh/h	1634	0	1458				0	3460	226	1634	3632	0
Grp Volume(v), veh/h	654	0	186				0	431	445	137	232	0
Grp Sat Flow(s),veh/h/ln	1634	0	1458				0	1770	1823	1634	1770	0
Q Serve(g_s), s	34.0	0.0	7.5				0.0	19.9	19.9	7.4	3.4	0.0
Cycle Q Clear(g_c), s	34.0	0.0	7.5				0.0	19.9	19.9	7.4	3.4	0.0
Prop In Lane	1.00		1.00				0.00		0.12	1.00		0.00
Lane Grp Cap(c), veh/h	708	0	632				0	559	575	165	1652	0
V/C Ratio(X)	0.92	0.00	0.29				0.00	0.77	0.77	0.83	0.14	0.00
Avail Cap(c_a), veh/h	881	0	786				0	559	575	172	1652	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.1	0.0	16.6				0.0	27.9	27.9	39.7	13.7	0.0
Incr Delay (d2), s/veh	13.3	0.0	0.3				0.0	10.0	9.7	26.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.9	0.0	3.0				0.0	11.3	11.6	4.6	1.7	0.0
LnGrp Delay(d),s/veh	37.4	0.0	16.8				0.0	37.8	37.6	66.3	13.9	0.0
LnGrp LOS	D		B					D	D	E	B	
Approach Vol, veh/h		840						876			369	
Approach Delay, s/veh		32.8						37.7			33.3	
Approach LOS		C						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.6	32.9		43.5		46.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	18.5		48.5		32.5		
Max Q Clear Time (g_c+I1), s	9.4	21.9		36.0		5.4		
Green Ext Time (p_c), s	0.0	0.0		2.9		4.5		

Intersection Summary	
HCM 2010 Ctrl Delay	35.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	549	0	293	0	0	0	0	813	88	119	300	0
Future Volume (veh/h)	549	0	293	0	0	0	0	813	88	119	300	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716				0	1863	1750	1716	1863	0
Adj Flow Rate, veh/h	654	0	349				0	1016	110	137	345	0
Adj No. of Lanes	1	1	1				0	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84				0.80	0.80	0.80	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	645	735	575				0	1629	176	207	1789	0
Arrive On Green	0.39	0.00	0.39				0.00	0.51	0.51	1.00	1.00	0.00
Sat Flow, veh/h	1634	1863	1458				0	3315	349	459	3632	0
Grp Volume(v), veh/h	654	0	349				0	558	568	137	345	0
Grp Sat Flow(s),veh/h/ln	1634	1863	1458				0	1770	1801	459	1770	0
Q Serve(g_s), s	35.5	0.0	17.1				0.0	20.5	20.5	25.0	0.0	0.0
Cycle Q Clear(g_c), s	35.5	0.0	17.1				0.0	20.5	20.5	45.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	645	735	575				0	895	911	207	1789	0
V/C Ratio(X)	1.01	0.00	0.61				0.00	0.62	0.62	0.66	0.19	0.00
Avail Cap(c_a), veh/h	645	735	575				0	895	911	207	1789	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	27.2	0.0	21.7				0.0	16.1	16.1	11.1	0.0	0.0
Incr Delay (d2), s/veh	39.2	0.0	1.8				0.0	3.3	3.2	14.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.9	0.0	7.2				0.0	10.7	10.9	4.2	0.1	0.0
LnGrp Delay(d),s/veh	66.4	0.0	23.5				0.0	19.3	19.3	25.7	0.2	0.0
LnGrp LOS	F		C					B	B	C	A	
Approach Vol, veh/h		1003						1126			482	
Approach Delay, s/veh		51.5						19.3			7.5	
Approach LOS		D						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		50.0		40.0		50.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		45.5		35.5		45.5		
Max Q Clear Time (g_c+I1), s		22.5		37.5		47.5		
Green Ext Time (p_c), s		8.7		0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Intersection 4
Oswell Sr & Zephyr Ln

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	24	7	3	0	12	7	87	0	0	108	5	0	181	153	11
Future Vol, veh/h	0	24	7	3	0	12	7	87	0	0	108	5	0	181	153	11
Peak Hour Factor	0.92	0.77	0.77	0.77	0.92	0.80	0.80	0.80	0.92	0.76	0.76	0.76	0.92	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	31	9	4	0	15	9	109	0	0	142	7	0	221	187	13
Number of Lanes	0	0	1	0	0	0	1	1	0	0	2	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	10.3	9.7	9.7	18.5
HCM LOS	B	A	A	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	0%	71%	63%	0%	54%	0%
Vol Thru, %	100%	100%	0%	21%	37%	0%	46%	0%
Vol Right, %	0%	0%	100%	9%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	54	5	34	19	87	334	11
LT Vol	0	0	0	24	12	0	181	0
Through Vol	54	54	0	7	7	0	153	0
RT Vol	0	0	5	3	0	87	0	11
Lane Flow Rate	71	71	7	44	24	109	407	13
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.122	0.122	0.007	0.085	0.045	0.173	0.656	0.018
Departure Headway (Hd)	6.166	6.166	3.706	6.933	6.749	5.727	5.795	4.817
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	582	582	963	517	531	626	623	744
Service Time	3.901	3.901	1.44	4.677	4.488	3.466	3.518	2.54
HCM Lane V/C Ratio	0.122	0.122	0.007	0.085	0.045	0.174	0.653	0.017
HCM Control Delay	9.8	9.8	6.5	10.3	9.8	9.7	18.9	7.6
HCM Lane LOS	A	A	A	B	A	A	C	A
HCM 95th-tile Q	0.4	0.4	0	0.3	0.1	0.6	4.8	0.1

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	36	11	3	0	33	11	87	0	0	238	29	0	181	263	21
Future Vol, veh/h	0	36	11	3	0	33	11	87	0	0	238	29	0	181	263	21
Peak Hour Factor	0.92	0.77	0.77	0.77	0.92	0.80	0.80	0.80	0.92	0.76	0.76	0.76	0.92	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	47	14	4	0	41	14	109	0	0	313	38	0	221	321	26
Number of Lanes	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11.7	11.3	17.1	15.6
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	238	29	36	11	3	33	11	87	181	263	21
LT Vol	0	0	0	36	0	0	33	0	0	181	0	0
Through Vol	0	238	0	0	11	0	0	11	0	0	263	0
RT Vol	0	0	29	0	0	3	0	0	87	0	0	21
Lane Flow Rate	0	313	38	47	14	4	41	14	109	221	321	26
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0	0.576	0.063	0.108	0.031	0.008	0.091	0.028	0.204	0.417	0.561	0.04
Departure Headway (Hd)	6.622	6.622	5.922	8.351	7.841	7.129	7.966	7.458	6.748	6.798	6.296	5.593
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	542	601	432	459	505	447	477	527	528	571	636
Service Time	4.397	4.397	3.697	6.051	5.541	4.829	5.761	5.253	4.542	4.569	4.067	3.364
HCM Lane V/C Ratio	0	0.577	0.063	0.109	0.031	0.008	0.092	0.029	0.207	0.419	0.562	0.041
HCM Control Delay	9.4	18.1	9.1	12.1	10.8	9.9	11.6	10.5	11.3	14.4	16.9	8.6
HCM Lane LOS	N	C	A	B	B	A	B	B	B	B	C	A
HCM 95th-tile Q	0	3.6	0.2	0.4	0.1	0	0.3	0.1	0.8	2	3.5	0.1

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	34	10	4	0	17	10	122	0	0	152	7	0	200	169	12
Future Vol, veh/h	0	34	10	4	0	17	10	122	0	0	152	7	0	200	169	12
Peak Hour Factor	0.92	0.77	0.77	0.77	0.92	0.80	0.80	0.80	0.92	0.76	0.76	0.76	0.92	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	44	13	5	0	21	13	153	0	0	200	9	0	244	206	15
Number of Lanes	0	0	1	0	0	0	1	1	0	0	2	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	11.5	11.1	10.8	27.6
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	0%	71%	63%	0%	54%	0%
Vol Thru, %	100%	100%	0%	21%	37%	0%	46%	0%
Vol Right, %	0%	0%	100%	8%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	76	7	48	27	122	369	12
LT Vol	0	0	0	34	17	0	200	0
Through Vol	76	76	0	10	10	0	169	0
RT Vol	0	0	7	4	0	122	0	12
Lane Flow Rate	100	100	9	62	34	152	450	15
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.185	0.185	0.011	0.131	0.068	0.264	0.784	0.022
Departure Headway (Hd)	6.66	6.66	4.189	7.54	7.248	6.223	6.274	5.292
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	536	845	473	492	573	576	673
Service Time	4.434	4.434	1.96	5.331	5.027	4.001	4.03	3.047
HCM Lane V/C Ratio	0.187	0.187	0.011	0.131	0.069	0.265	0.781	0.022
HCM Control Delay	11	11	7	11.5	10.6	11.2	28.2	8.2
HCM Lane LOS	B	B	A	B	B	B	D	A
HCM 95th-tile Q	0.7	0.7	0	0.4	0.2	1.1	7.4	0.1

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	46	14	4	0	38	14	122	0	0	282	31	0	200	279	22
Future Vol, veh/h	0	46	14	4	0	38	14	122	0	0	282	31	0	200	279	22
Peak Hour Factor	0.92	0.77	0.77	0.77	0.92	0.80	0.80	0.80	0.92	0.76	0.76	0.76	0.92	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	60	18	5	0	48	18	153	0	0	371	41	0	244	340	27
Number of Lanes	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	12.9	13.1	26	19.6
HCM LOS	B	B	D	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	0%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	282	31	46	14	4	38	14	122	200	279	22
LT Vol	0	0	0	46	0	0	38	0	0	200	0	0
Through Vol	0	282	0	0	14	0	0	14	0	0	279	0
RT Vol	0	0	31	0	0	4	0	0	122	0	0	22
Lane Flow Rate	0	371	41	60	18	5	48	18	152	244	340	27
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0	0.741	0.074	0.15	0.043	0.011	0.114	0.039	0.313	0.504	0.656	0.046
Departure Headway (Hd)	7.187	7.187	6.487	9.049	8.537	7.821	8.605	8.095	7.382	7.442	6.939	6.233
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	505	552	396	419	457	417	442	486	485	521	574
Service Time	4.927	4.927	4.227	6.81	6.297	5.58	6.356	5.846	5.132	5.184	4.68	3.974
HCM Lane V/C Ratio	0	0.735	0.074	0.152	0.043	0.011	0.115	0.041	0.313	0.503	0.653	0.047
HCM Control Delay	9.9	27.8	9.7	13.4	11.7	10.7	12.5	11.2	13.5	17.5	22	9.3
HCM Lane LOS	N	D	A	B	B	B	B	B	B	C	C	A
HCM 95th-tile Q	0	6.2	0.2	0.5	0.1	0	0.4	0.1	1.3	2.8	4.7	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	14	4	38	14	122	0	282	31	200	279	22
Future Volume (veh/h)	46	14	4	38	14	122	0	282	31	200	279	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	60	18	5	48	18	152	0	371	41	244	340	27
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.80	0.80	0.80	0.76	0.76	0.76	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1631	672	68	1596	658	282	521	215	282	491	202
Arrive On Green	0.05	0.46	0.46	0.04	0.45	0.45	0.00	0.15	0.15	0.35	0.28	0.28
Sat Flow, veh/h	1634	3539	1458	1634	3539	1458	1634	3539	1458	1634	3539	1458
Grp Volume(v), veh/h	60	18	5	48	18	152	0	371	41	244	340	27
Grp Sat Flow(s),veh/h/ln	1634	1770	1458	1634	1770	1458	1634	1770	1458	1634	1770	1458
Q Serve(g_s), s	3.3	0.2	0.1	2.6	0.3	5.7	0.0	9.0	2.2	12.5	7.7	1.0
Cycle Q Clear(g_c), s	3.3	0.2	0.1	2.6	0.3	5.7	0.0	9.0	2.2	12.5	7.7	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	1631	672	68	1596	658	282	521	215	282	491	202
V/C Ratio(X)	0.72	0.01	0.01	0.71	0.01	0.23	0.00	0.71	0.19	0.86	0.69	0.13
Avail Cap(c_a), veh/h	169	1631	672	131	1596	658	282	763	314	436	1530	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	42.1	13.2	2.6	42.6	13.6	15.1	0.0	36.5	33.7	28.5	30.8	18.4
Incr Delay (d2), s/veh	10.9	0.0	0.0	12.7	0.0	0.8	0.0	1.8	0.4	10.0	1.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.1	0.0	1.4	0.1	2.4	0.0	4.5	0.9	6.3	3.9	0.4
LnGrp Delay(d),s/veh	52.9	13.2	2.6	55.3	13.6	16.0	0.0	38.4	34.1	38.4	32.4	18.7
LnGrp LOS	D	B	A	E	B	B		D	C	D	C	B
Approach Vol, veh/h		83			218			412			611	
Approach Delay, s/veh		41.3			24.4			37.9			34.2	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	17.3	7.7	45.5	20.3	16.5	8.6	44.6
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	* 5.3	4.5	5.3
Max Green Setting (Gmax), s	23.5	18.1	6.7	22.1	4.0	* 38	8.8	20.0
Max Q Clear Time (g_c+I1), s	14.5	11.0	4.6	2.2	0.0	9.7	5.3	7.7
Green Ext Time (p_c), s	0.5	1.0	0.0	0.6	0.0	1.4	0.0	0.5

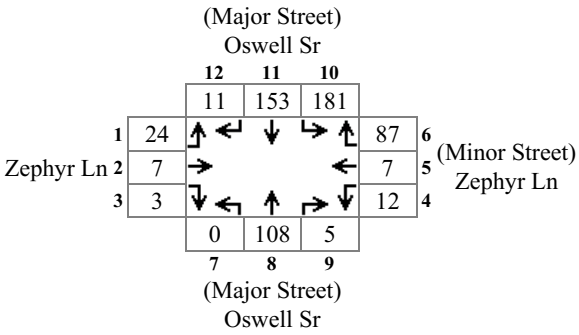
Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Notes

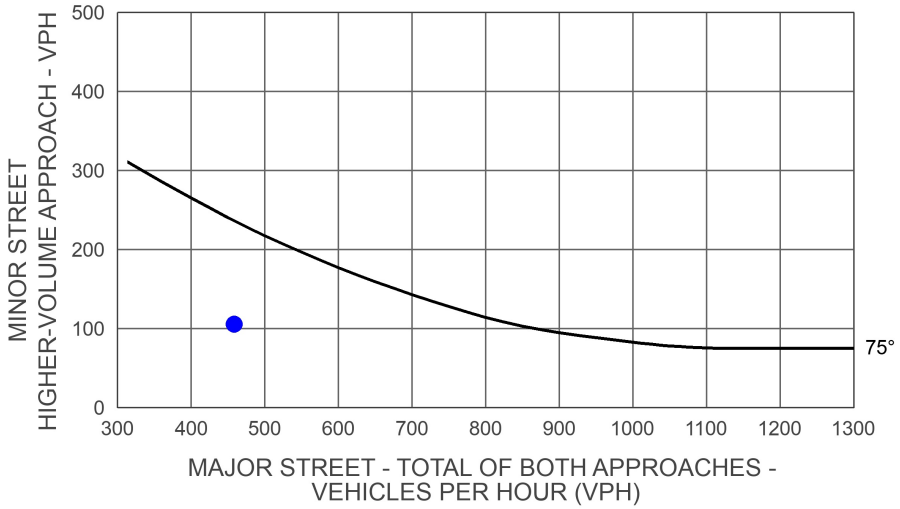
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 4

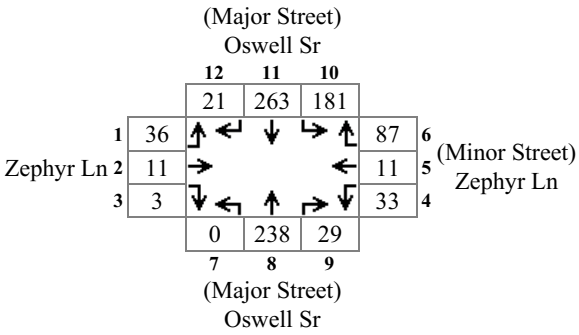


Major Total: 458
Minor High Volume: 106

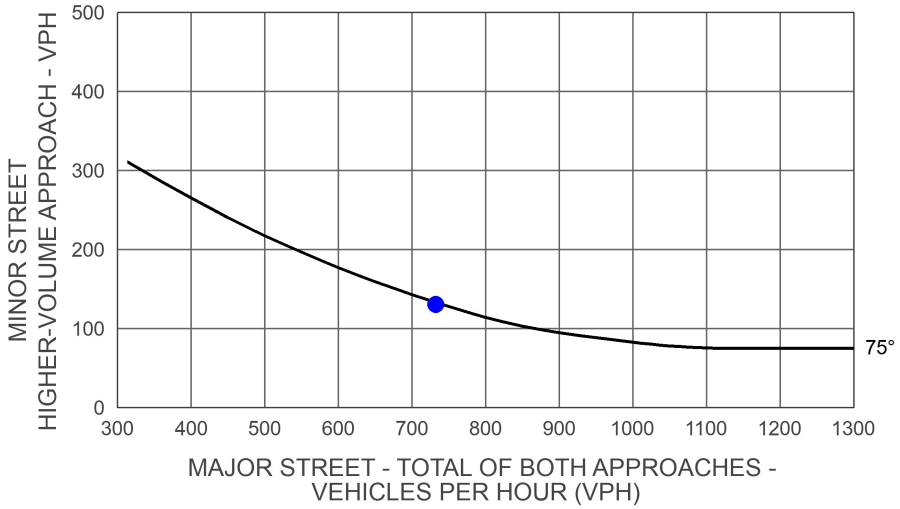


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 4

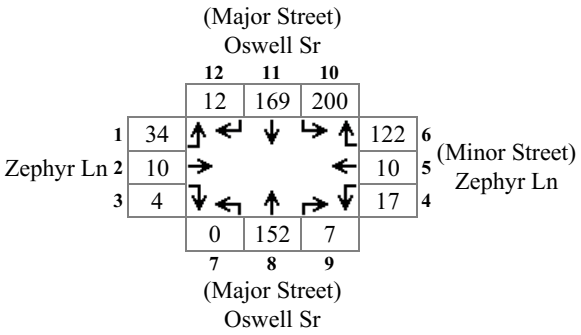


Major Total: 732
Minor High Volume: 131

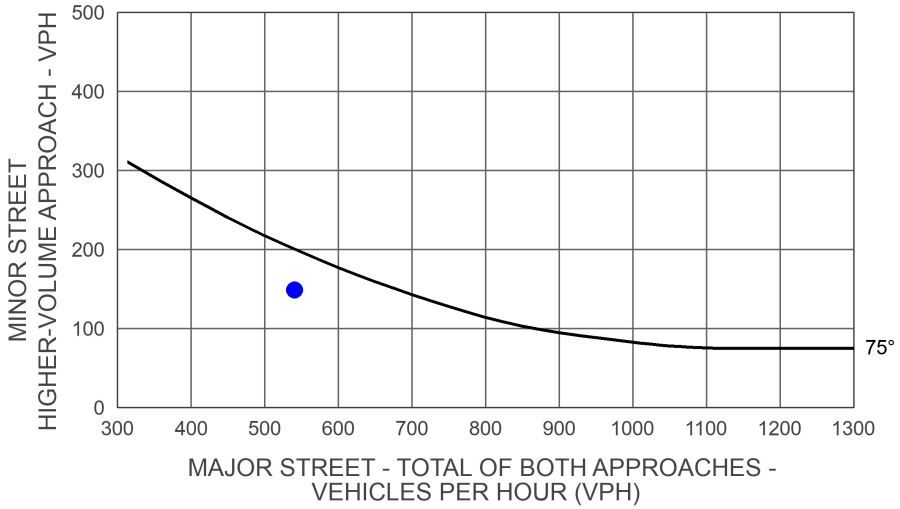


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 4

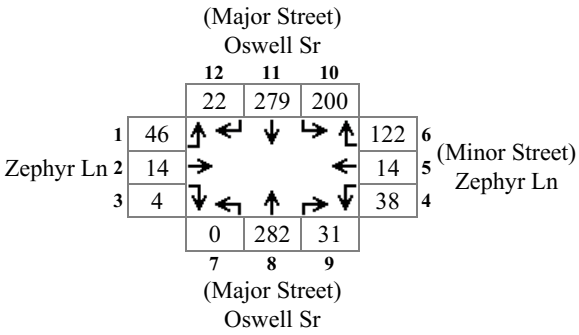


Major Total: 540
Minor High Volume: 149

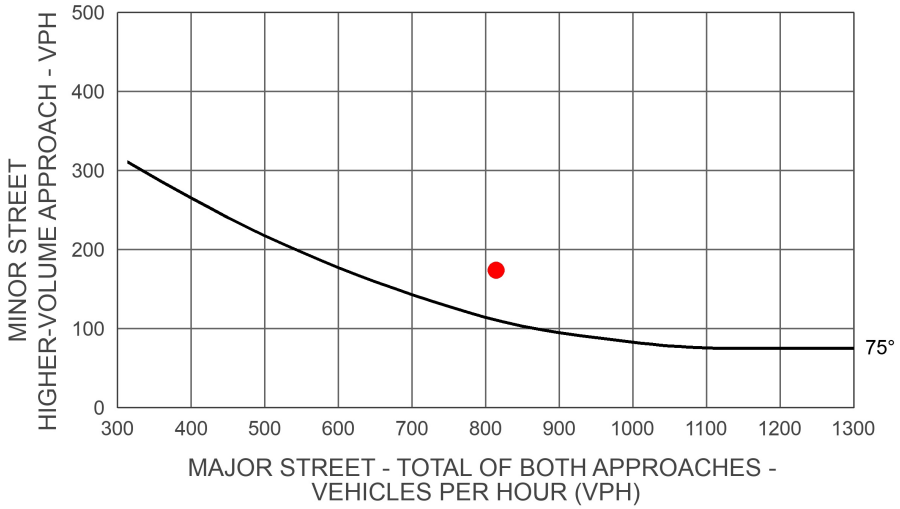


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 4



Major Total: 814
Minor High Volume: 174



Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	30	14	0	0	11	15	164	0	1	148	18	0	126	52	5
Future Vol, veh/h	0	30	14	0	0	11	15	164	0	1	148	18	0	126	52	5
Peak Hour Factor	0.92	0.69	0.69	0.69	0.92	0.77	0.77	0.77	0.92	0.64	0.64	0.64	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	43	20	0	0	14	19	213	0	2	231	28	0	148	61	6
Number of Lanes	0	0	1	0	0	0	1	1	0	0	2	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	10.8	10.8	10.4	13.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	0%	68%	42%	0%	71%	0%
Vol Thru, %	98%	100%	0%	32%	58%	0%	29%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	99	18	44	26	164	178	5
LT Vol	1	0	0	30	11	0	126	0
Through Vol	49	99	0	14	15	0	52	0
RT Vol	0	0	18	0	0	164	0	5
Lane Flow Rate	79	154	28	64	34	213	209	6
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.135	0.264	0.043	0.124	0.061	0.329	0.381	0.009
Departure Headway (Hd)	6.166	6.156	5.447	7.009	6.475	5.558	6.558	5.49
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	581	583	656	510	552	645	549	650
Service Time	3.909	3.899	3.19	4.77	4.222	3.304	4.306	3.237
HCM Lane V/C Ratio	0.136	0.264	0.043	0.125	0.062	0.33	0.381	0.009
HCM Control Delay	9.9	11.1	8.4	10.8	9.6	11	13.3	8.3
HCM Lane LOS	A	B	A	B	A	B	B	A
HCM 95th-tile Q	0.5	1.1	0.1	0.4	0.2	1.4	1.8	0

Intersection	
Intersection Delay, s/veh	35.9
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	48	19	0	0	52	23	164	0	1	334	53	0	126	267	25
Future Vol, veh/h	0	48	19	0	0	52	23	164	0	1	334	53	0	126	267	25
Peak Hour Factor	0.92	0.69	0.69	0.69	0.92	0.77	0.77	0.77	0.92	0.64	0.64	0.64	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	70	28	0	0	68	30	213	0	2	522	83	0	148	314	29
Number of Lanes	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	13.7	15.7	61.2	21.8
HCM LOS	B	C	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	334	53	48	19	0	52	23	164	126	267	25
LT Vol	1	0	0	48	0	0	52	0	0	126	0	0
Through Vol	0	334	0	0	19	0	0	23	0	0	267	0
RT Vol	0	0	53	0	0	0	0	0	164	0	0	25
Lane Flow Rate	2	522	83	70	28	0	68	30	213	148	314	29
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.004	1	0.16	0.182	0.068	0	0.168	0.07	0.459	0.343	0.684	0.058
Departure Headway (Hd)	8.184	7.677	6.966	9.433	8.949	8.949	8.936	8.442	7.752	8.338	7.841	7.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	438	475	515	381	401	0	402	426	466	433	462	503
Service Time	5.922	5.414	4.703	7.165	6.681	6.681	6.66	6.166	5.476	6.064	5.566	4.87
HCM Lane V/C Ratio	0.005	1.099	0.161	0.184	0.07	0	0.169	0.07	0.457	0.342	0.68	0.058
HCM Control Delay	11	69.3	11	14.3	12.3	11.7	13.5	11.8	16.9	15.4	25.9	10.3
HCM Lane LOS	B	F	B	B	B	N	B	B	C	C	D	B
HCM 95th-tile Q	0	13.2	0.6	0.7	0.2	0	0.6	0.2	2.4	1.5	5.1	0.2

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	42	20	0	0	15	21	230	0	1	208	25	0	139	57	6
Future Vol, veh/h	0	42	20	0	0	15	21	230	0	1	208	25	0	139	57	6
Peak Hour Factor	0.92	0.69	0.69	0.69	0.92	0.77	0.77	0.77	0.92	0.64	0.64	0.64	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	61	29	0	0	19	27	299	0	2	325	39	0	164	67	7
Number of Lanes	0	0	1	0	0	0	1	1	0	0	2	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	1
HCM Control Delay	12.7	15	13.1	16.8
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	0%	68%	42%	0%	71%	0%
Vol Thru, %	99%	100%	0%	32%	58%	0%	29%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	139	25	62	36	230	196	6
LT Vol	1	0	0	42	15	0	139	0
Through Vol	69	139	0	20	21	0	57	0
RT Vol	0	0	25	0	0	230	0	6
Lane Flow Rate	110	217	39	90	47	299	231	7
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.211	0.416	0.067	0.199	0.093	0.521	0.481	0.013
Departure Headway (Hd)	6.917	6.91	6.196	7.979	7.199	6.279	7.506	6.427
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	522	578	450	498	574	480	557
Service Time	4.656	4.649	3.935	5.727	4.935	4.015	5.245	4.165
HCM Lane V/C Ratio	0.212	0.416	0.067	0.2	0.094	0.521	0.481	0.013
HCM Control Delay	11.5	14.5	9.4	12.7	10.7	15.7	17	9.3
HCM Lane LOS	B	B	A	B	B	C	C	A
HCM 95th-tile Q	0.8	2	0.2	0.7	0.3	3	2.6	0

Intersection	
Intersection Delay, s/veh	40.2
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	60	25	0	0	56	29	230	0	1	394	60	0	139	272	26
Future Vol, veh/h	0	60	25	0	0	56	29	230	0	1	394	60	0	139	272	26
Peak Hour Factor	0.92	0.69	0.69	0.69	0.92	0.77	0.77	0.77	0.92	0.64	0.64	0.64	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	87	36	0	0	73	38	299	0	2	616	94	0	164	320	31
Number of Lanes	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	15	22.5	64.7	26.4
HCM LOS	B	C	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	100%	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	394	60	60	25	0	56	29	230	139	272	26
LT Vol	1	0	0	60	0	0	56	0	0	139	0	0
Through Vol	0	394	0	0	25	0	0	29	0	0	272	0
RT Vol	0	0	60	0	0	0	0	0	230	0	0	26
Lane Flow Rate	2	616	94	87	36	0	73	38	299	164	320	31
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.004	1	0.2	0.24	0.095	0	0.187	0.092	0.67	0.406	0.749	0.066
Departure Headway (Hd)	8.904	8.393	7.678	9.951	9.469	9.469	9.258	8.765	8.074	8.927	8.429	7.733
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	402	437	467	362	379	0	388	410	448	404	429	464
Service Time	6.652	6.142	5.427	7.692	7.211	7.211	6.988	6.495	5.804	6.659	6.162	5.465
HCM Lane V/C Ratio	0.005	1.41	0.201	0.24	0.095	0	0.188	0.093	0.667	0.406	0.746	0.067
HCM Control Delay	11.7	72.8	12.3	15.8	13.2	12.2	14.1	12.4	25.8	17.6	32.4	11
HCM Lane LOS	B	F	B	C	B	N	B	B	D	C	D	B
HCM 95th-tile Q	0	12.6	0.7	0.9	0.3	0	0.7	0.3	4.8	1.9	6.1	0.2

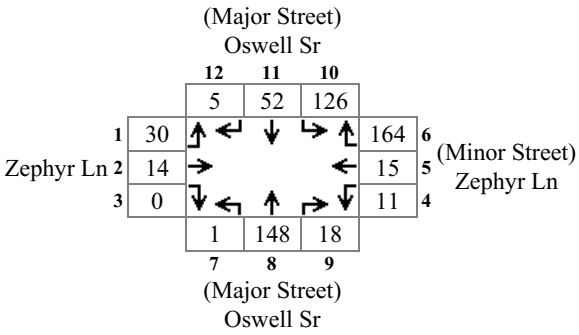
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	25	0	56	29	230	1	394	60	139	272	26
Future Volume (veh/h)	60	25	0	56	29	230	1	394	60	139	272	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	87	36	0	73	38	299	2	616	94	164	320	31
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.69	0.69	0.69	0.77	0.77	0.77	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	936	386	346	1430	589	13	773	318	209	1197	493
Arrive On Green	0.07	0.26	0.00	0.21	0.40	0.40	0.01	0.22	0.22	0.04	0.11	0.11
Sat Flow, veh/h	1634	3539	1458	1634	3539	1458	1634	3539	1458	1634	3539	1458
Grp Volume(v), veh/h	87	36	0	73	38	299	2	616	94	164	320	31
Grp Sat Flow(s),veh/h/ln	1634	1770	1458	1634	1770	1458	1634	1770	1458	1634	1770	1458
Q Serve(g_s), s	4.7	0.7	0.0	3.3	0.6	13.8	0.1	14.8	2.9	8.9	7.5	1.7
Cycle Q Clear(g_c), s	4.7	0.7	0.0	3.3	0.6	13.8	0.1	14.8	2.9	8.9	7.5	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	936	386	346	1430	589	13	773	318	209	1197	493
V/C Ratio(X)	0.74	0.04	0.00	0.21	0.03	0.51	0.16	0.80	0.30	0.79	0.27	0.06
Avail Cap(c_a), veh/h	200	936	386	346	1430	589	82	904	373	312	1404	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	40.9	24.6	0.0	29.3	16.2	20.1	44.4	33.3	10.6	41.9	29.8	27.2
Incr Delay (d2), s/veh	8.7	0.1	0.0	0.3	0.0	3.1	5.7	4.4	0.5	7.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.3	0.0	1.5	0.3	6.0	0.1	7.7	1.2	4.5	3.7	0.7
LnGrp Delay(d),s/veh	49.6	24.7	0.0	29.6	16.2	23.2	50.1	37.6	11.1	49.1	29.9	27.3
LnGrp LOS	D	C		C	B	C	D	D	B	D	C	C
Approach Vol, veh/h		123			410			712			515	
Approach Delay, s/veh		42.3			23.7			34.2			35.9	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	23.7	23.1	27.8	4.7	34.5	10.5	40.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.7	22.5	9.5	23.3	4.0	35.2	10.5	22.3
Max Q Clear Time (g_c+I1), s	10.9	16.8	5.3	2.7	2.1	9.5	6.7	15.8
Green Ext Time (p_c), s	0.2	2.3	0.6	0.1	0.0	4.6	0.1	0.9

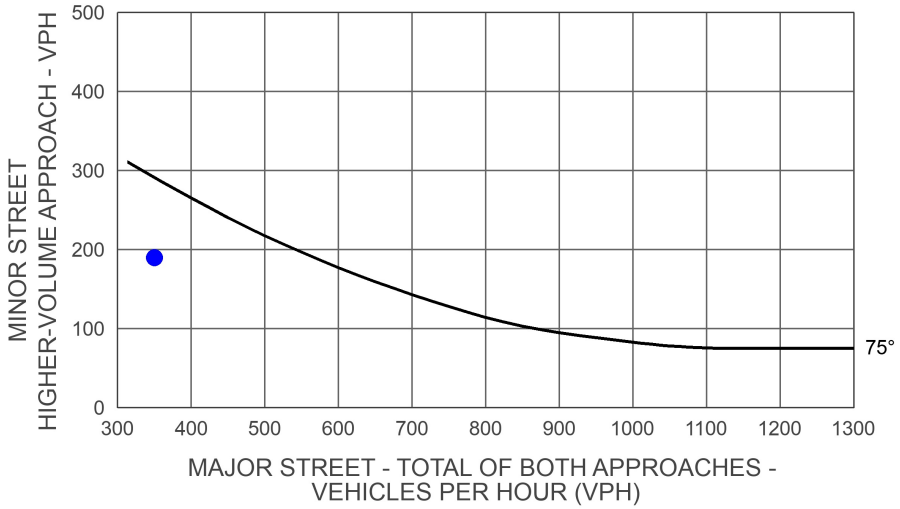
Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 4

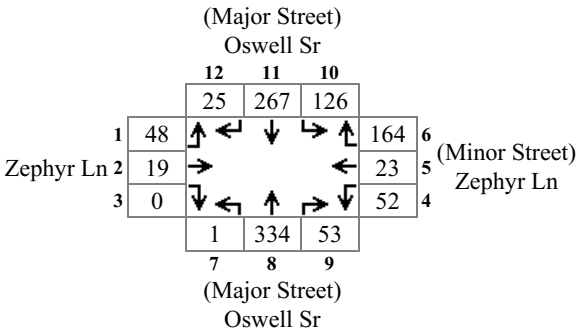


Major Total: 350
Minor High Volume: 190

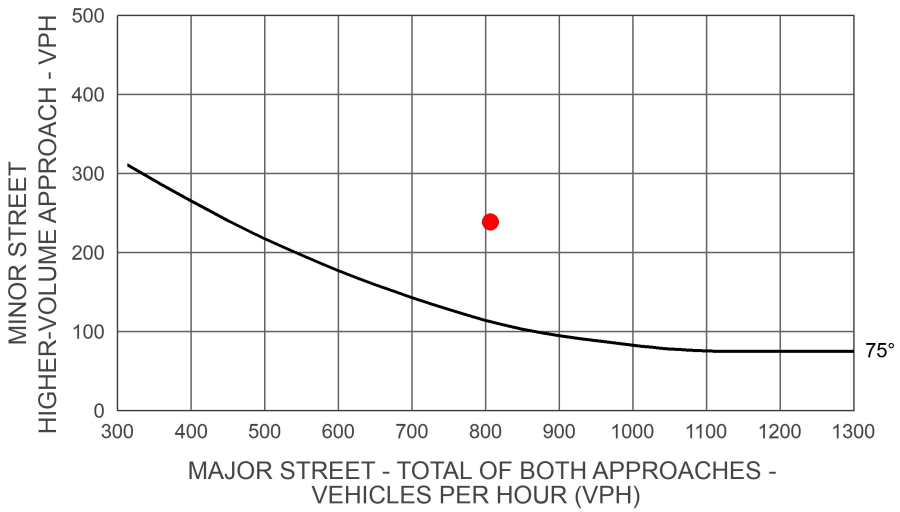


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 4

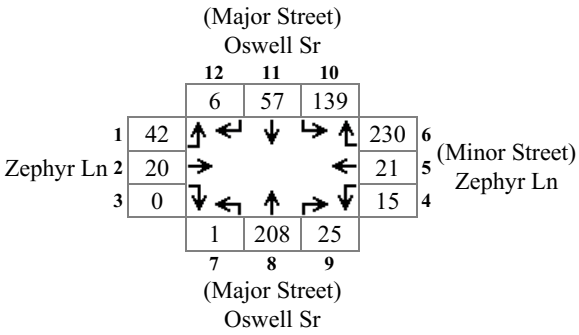


Major Total: 806
Minor High Volume: 239

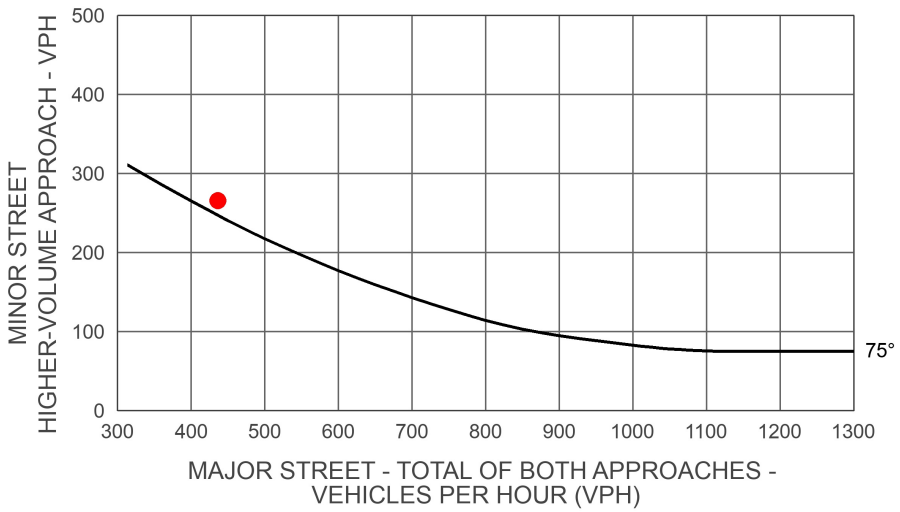


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 4

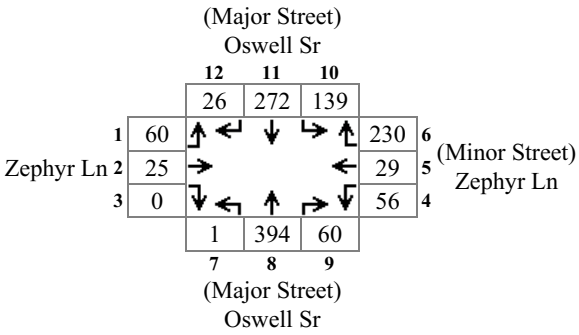


Major Total: 436
Minor High Volume: 266

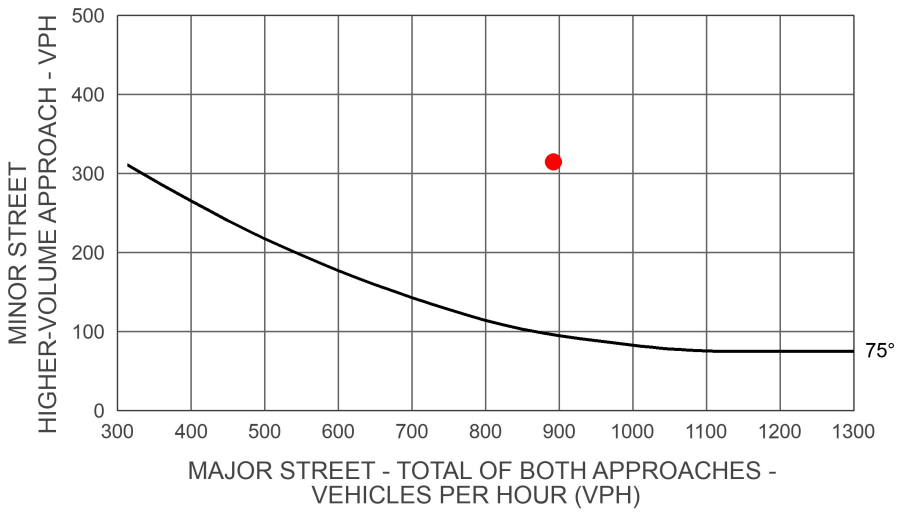


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 4



Major Total: 892
Minor High Volume: 315



Location ID: 1
North/South: Oswell St
East/West: Brundage Ln

Date: 10/12/2022
City: Bakersfield, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:30	26	141	25	18	29	33	13	142	30	6	18	22	503
7:45	32	136	19	18	42	20	17	147	27	12	27	19	516
8:00	31	117	24	25	41	22	13	131	40	12	22	12	490
8:15	15	91	24	22	27	27	11	97	24	10	26	27	401
Total Volume:	104	485	92	83	139	102	54	517	121	40	93	80	1910
Approach %	15%	71%	14%	26%	43%	31%	8%	75%	17%	19%	44%	38%	

Peak Hr Begin:	7:30												
PHV	104	485	92	83	139	102	54	517	121	40	93	80	1910
PHF	0.887			0.920			0.906			0.845			0.925

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:30	19	140	31	15	45	40	32	157	37	18	49	33	616
16:45	17	123	29	19	41	18	38	146	35	16	45	25	552
17:00	13	151	33	20	35	26	49	138	37	21	47	39	609
17:15	35	122	35	22	40	24	38	137	33	21	39	23	569
Total Volume:	84	536	128	76	161	108	157	578	142	76	180	120	2346
Approach %	11%	72%	17%	22%	47%	31%	18%	66%	16%	20%	48%	32%	

Peak Hr Begin:	16:30												
PHV	84	536	128	76	161	108	157	578	142	76	180	120	2346
PHF	0.949			0.863			0.970			0.879			0.952

Location ID: 2
North/South: Oswell St
East/West: SR 58 WB Ramps

Date: 10/12/2022
City: Bakersfield, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:30	129	51	0	19	0	3	0	165	71	0	0	0	438
7:45	122	61	0	24	0	2	0	167	90	0	0	0	466
8:00	93	58	0	27	0	5	0	149	60	0	0	0	392
8:15	92	37	0	16	0	1	0	109	42	0	0	0	297
Total Volume:	436	207	0	86	0	11	0	590	263	0	0	0	1593
Approach %	68%	32%	0%	89%	0%	11%	0%	69%	31%	0%	0%	0%	

Peak Hr Begin:	7:30												
PHV	436	207	0	86	0	11	0	590	263	0	0	0	1593
PHF	0.878			0.758			0.830			0.000			0.855

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:30	112	101	0	44	0	4	0	185	26	0	0	0	472
16:45	87	84	0	34	0	6	0	179	26	0	0	0	416
17:00	115	96	0	30	0	3	0	191	31	0	0	0	466
17:15	93	89	0	30	0	4	0	177	42	0	0	0	435
Total Volume:	407	370	0	138	0	17	0	732	125	0	0	0	1789
Approach %	52%	48%	0%	89%	0%	11%	0%	85%	15%	0%	0%	0%	

Peak Hr Begin:	16:30												
PHV	407	370	0	138	0	17	0	732	125	0	0	0	1789
PHF	0.912			0.807			0.965			0.000			0.948

Location ID: 3
North/South: Oswell St
East/West: SR 58 EB Ramps

Date: 10/12/2022
City: Bakersfield, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:30	0	34	23	0	0	0	9	128	0	29	1	120	344
7:45	0	41	25	0	0	0	9	147	0	34	0	105	361
8:00	0	41	25	0	0	0	5	115	0	24	1	89	300
8:15	0	28	12	0	0	0	8	78	0	24	1	77	228
Total Volume:	0	144	85	0	0	0	31	468	0	111	3	391	1233
Approach %	0%	63%	37%	0%	0%	0%	6%	94%	0%	22%	1%	77%	

Peak Hr Begin:	7:30												
PHV	0	144	85	0	0	0	31	468	0	111	3	391	1233
PHF		0.867			0.000			0.800			0.842		0.854

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:30	0	75	32	0	0	0	2	83	0	56	0	131	379
16:45	0	63	26	0	0	0	5	87	0	62	1	124	368
17:00	0	64	29	0	0	0	5	86	0	58	0	135	377
17:15	0	71	27	0	0	0	1	90	0	59	0	125	373
Total Volume:	0	273	114	0	0	0	13	346	0	235	1	515	1497
Approach %	0%	71%	29%	0%	0%	0%	4%	96%	0%	31%	0%	69%	

Peak Hr Begin:	16:30												
PHV	0	273	114	0	0	0	13	346	0	235	1	515	1497
PHF		0.904			0.000			0.976			0.973		0.987

Location ID: 4
North/South: Oswell St
East/West: Zephyr Ln

Date: 10/12/2022
City: Bakersfield, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
7:30	2	9	34	38	5	1	10	55	0	0	6	10	170
7:45	0	12	42	55	2	5	6	45	1	0	6	6	180
8:00	1	15	27	52	6	4	1	27	0	0	1	7	141
8:15	2	16	23	19	2	1	1	21	0	0	1	7	93
Total Volume:	5	52	126	164	15	11	18	148	1	0	14	30	584
Approach %	3%	28%	69%	86%	8%	6%	11%	89%	1%	0%	32%	68%	

Peak Hr Begin:	7:30												
PHV	5	52	126	164	15	11	18	148	1	0	14	30	584
PHF	0.847			0.766			0.642			0.688			0.811

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Lanes:	R	T	L	R	T	L	R	T	L	R	T	L	
16:30	3	36	44	19	2	4	1	21	0	1	1	9	141
16:45	1	35	35	18	1	2	2	20	0	1	0	4	119
17:00	4	34	48	21	1	5	1	36	0	0	4	5	159
17:15	3	48	54	29	3	1	1	31	0	1	2	6	179
Total Volume:	11	153	181	87	7	12	5	108	0	3	7	24	598
Approach %	3%	44%	52%	82%	7%	11%	4%	96%	0%	9%	21%	71%	

Peak Hr Begin:	16:30												
PHV	11	153	181	87	7	12	5	108	0	3	7	24	598
PHF	0.821			0.803			0.764			0.773			0.835