DRAFT INITIAL STUDY AND
MITIGATED NEGATIVE DECLARATION

FOWLER UNIFIED SCHOOL DISTRICT

MARSHALL ELEMENTARY SCHOOL EXPANSION PROJECT

MAY 2021

DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

MARSHALL ELEMENTARY SCHOOL EXPANSION PROJECT

Prepared for:

Fowler Unified School District
658 East Adams Avenue
Fowler, CA 93625
Contact Person: May Yang, Assistant Superintendent of Business Services
Phone: (559) 834-6084

Consultant:

5080 California Avenue, Suite 220
Bakersfield, CA 93309
Contact: Jaymie Brauer, Principal Planner
Phone: (661) 616-2600

Project #200415

NOTICE OF PUBLIC HEARING AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

This is to advise that the Fowler Unified School District (FUSD) has prepared a Mitigated Negative Declaration for the Project identified below that is scheduled to be held at the Fowler Unified School District – Board of Trustees meeting on Wednesday, **June 16, 2021**.

PLEASE BE ADVISED that the Fowler Unified School District – Board of Trustees will consider adopting the Mitigated Negative Declaration at the Board's meeting to be held on June 16, 2021. Presentations will be made at approximately 6:00 p.m. Action on items on the Board agenda will occur after the presentations. The meeting will be held at the Marshall Elementary School, 142 North Armstrong Avenue, Fowler, CA 93625.

Project Name

Marshall Elementary School Expansion Project

Project Location

142 North Armstrong in Fowler, California.

Project Description

The Fowler Unified School District (FUSD or District, as Lead Agency) is proposing the expansion of the existing Marshall Elementary School on an adjacent three-acre portion of an undeveloped site located on North Armstrong Avenue in the City of Fowler, California (Project). The expansion of the elementary school campus is to serve the existing student population and relocate the District's early learning program. The preschool is a year-round program with hours between 7:30 a.m. and 5:30 p.m., Monday through Friday, and will serve 90 students at build-out. The site will include up to six classrooms, administration offices, parking, and play areas. There will be three modular buildings, with an approximate area totaling almost 16,000 square feet (sq. ft.). The school expansion site will be annexed into the City of Fowler and connect to the City of Fowler's water systems and to the Selma-Kingsburg-Fowler Sanitation District sewer systems. Construction of the Project is anticipated to take approximately 9-12 months.

The document and documents referenced in the Initial Study/Mitigated Negative Declaration are available for review at Fowler Unified School District, 658 E. Adams Avenue, Fowler, CA 93625.

As mandated by the California Environmental Quality Act (CEQA), the public review period for this document was 30 days (CEQA Section 15073[b]). The public review period begins on May 13, 2021 and ended on June 11, 2021. For further information, please contact Jaymie Brauer at (661) 616-2600.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Marshall Elementary School Expansion Project

Lead Agency: Fowler Unified School District
Contact Person: May Yang
Mailing Address: 658 East Adams Avenue
Phone: 559-834-6084
City: Fowler
Zip: 93625
County: Fresno

Project Location: County: Fresno City/Nearest Community: Fowler
Cross Streets: N Armstrong Ave and E Adams Ave Zip Code: 93625
Longitude/Latitude (degrees, minutes and seconds): 36 ° 38 ′ 12 ″ N / 119 ° 40 ′ 28 ″ W Total Acres: 3
Assessor's Parcel No.: 340-130-09 Section: 10 Twp.: 15 S Range: 21 E Base: MDB&M
Within 2 Miles: State Hwy #: 99 Waterways: N/A
Airports: N/A Railways: N/A Schools: Marshall Elementary, Casa Blanca HS, Fowler HS, Freen

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Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☒ Mit Neg Dec
- ☐ Draft EIR
- ☐ Supplement/Subsequent EIR
- (Prior SCH No.) ______
- Other: ______

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other: ______

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☐ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☒ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☒ Other: School Expansion

Development Type:

- ☐ Residential: Units ______ Acres ______
- ☐ Office: Sq.ft. ______ Acres ______ Employees ______
- ☐ Commercial: Sq.ft. ______ Acres ______ Employees ______
- ☐ Industrial: Sq.ft. ______ Acres ______ Employees ______
- ☒ Educational: new construction
- ☐ Recreational: ______
- ☐ Water Facilities: Type ______ MGD ______
- ☐ Transportation: Type ______
- ☐ Mining: Mineral ______
- ☐ Power: Type ______ MW ______
- ☐ Waste Treatment: Type ______ MGD ______
- ☐ Hazardous Waste: Type ______
- ☐ Other: ______

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☒ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☒ Population/Housing Balance
- ☒ Public Services/Facilities
- ☒ Recreation/Parks
- ☒ Schools/Universities
- ☒ Septic Systems
- ☒ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☐ Growth Inducement
- ☒ Land Use
- ☐ Cumulative Effects
- ☐ Other: ______

Present Land Use/Zoning/General Plan Designation:

Vacant/ Limited Agricultural, 20-acre/City of Fowler General Plan: Park/Open Space, Fresno County: Medium-Density Residential

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Project Description: *(please use a separate page if necessary)*

The District is proposing the expansion of the existing Marshall Elementary School to serve the existing student population and relocate the District's early learning program. The preschool is a year-round program with hours between 7:30 a.m. and 5:30 p.m., Monday through Friday, and will serve 90 students at build-out. The site will include up to 6 classrooms, administration offices, parking, and play areas. There will be three modular buildings, with an approximate area totaling almost 16,000 square feet (sq. ft.). The school expansion site will be annexed into the City of Fowler and connect to the City of Fowler's water systems and to the Selma-Kingsburg-Fowler Sanitation District sewer systems.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

- x Air Resources Board
- ___ Boating & Waterways, Department of
- ___ California Emergency Management Agency
- ___ California Highway Patrol
- x Caltrans District # 6
- ___ Caltrans Division of Aeronautics
- ___ Caltrans Planning
- ___ Central Valley Flood Protection Board
- ___ Coachella Valley Mtns. Conservancy
- ___ Coastal Commission
- ___ Colorado River Board
- ___ Conservation, Department of
- ___ Corrections, Department of
- ___ Delta Protection Commission
- X Education, Department of
- ___ Energy Commission
- x Fish & Game Region # 4
- ___ Food & Agriculture, Department of
- ___ Forestry and Fire Protection, Department of
- ___ General Services, Department of
- ___ Health Services, Department of
- ___ Housing & Community Development
- x Native American Heritage Commission
- ___ Office of Historic Preservation
- ___ Office of Public School Construction
- ___ Parks & Recreation, Department of
- ___ Pesticide Regulation, Department of
- ___ Public Utilities Commission
- x Regional WQCB # Central
- ___ Resources Agency
- ___ Resources Recycling and Recovery, Department of
- ___ S.F. Bay Conservation & Development Comm.
- ___ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
- ___ San Joaquin River Conservancy
- ___ Santa Monica Mtns. Conservancy
- ___ State Lands Commission
- ___ SWRCB: Clean Water Grants
- x SWRCB: Water Quality
- ___ SWRCB: Water Rights
- ___ Tahoe Regional Planning Agency
- x Toxic Substances Control, Department of
- x Water Resources, Department of
- x Other: Division of State Architect
- ___ Other: Fresno Local Agency Formation Commission

Local Public Review Period (to be filled in by lead agency)

Starting Date May 13, 2021 Ending Date June 11, 2021

Lead Agency (Complete if applicable):

Consulting Firm: ______
Address: ______
City/State/Zip: ______
Contact: ______
Phone: ______

Applicant: ______
Address: ______
City/State/Zip: ______
Phone: ______

Signature of Lead Agency Representative: /S/ M. Yang **Date:** 5/13/2021

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

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MITIGATED NEGATIVE DECLARATION

As Lead Agency under the California Environmental Quality Act (CEQA), the Fowler Unified School District (District) reviewed the Project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382, "[s]ignificant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Name

Marshall Elementary School Expansion Project

Project Location

142 North Armstrong Avenue in Fowler, California

Project Description

The District is proposing the expansion of the existing Marshall Elementary School to serve the existing student population and relocate the District's early learning program. The preschool is a year-round program with hours between 7:30 a.m. and 5:30 p.m., Monday through Friday, and will serve 90 students at build-out. The site will include up to six classrooms, administration offices, parking, and play areas. There will be three modular buildings, with an approximate area totaling almost 16,000 square feet (sq. ft.). The school expansion site will be annexed into the City of Fowler and connect to the City of Fowler's water systems and to the Selma-Kingsburg-Fowler Sanitation District sewer systems.

The Project site is located north of the existing Marshall Elementary School campus in Fowler, California. Figure 1-1 is a map of the regional location and Figure 1-2 shows the aerial view of the Project site. The proposed Project will occupy an approximate three-acre portion of an undeveloped site (APN 340-130-09) in unincorporated Fresno County. The school expansion site will be annexed into the City of Fowler and connect to the City of Fowler's water systems and to the Selma-Kingsburg-Fowler Sanitation District sewer systems.

The proposed Project will include three new modular buildings, hardcourts, playfield and paved parking and fire access driveways. The three modular buildings will have an approximate area totaling almost 16,000 square feet (sq. ft.). Also, new parking lot improvements are planned in the east portion of the site. Construction is anticipated to take approximately 9–12 months to complete.

Mailing Address and Phone Number of Contact Person

Fowler Unified School District
658 East Adams Avenue
Fowler, CA 93625
Contact Person: May Yang, Assistant Superintendent of Business Services
Phone: (559) 834-6084

Findings

As Lead Agency, the District finds that the Project will not have a significant effect on the environment. The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) *(see Section 3 – Initial Study)* identified one or more potentially significant effects on the environment, but revisions to the Project have been made before the release of this Mitigated Negative Declaration (MND) or mitigation measures would be implemented that reduce all potentially significant impacts to less-than-significant levels. The Lead Agency further finds that there is no substantial evidence that this Project would have a significant effect on the environment.

Mitigation Measures Included in the Project to Avoid Potentially Significant Effects

MM AES-1: All outdoor lighting shall be hooded and directed downward so as to not shine toward adjacent properties and public streets.

MM BIO-1: Prior to ground-disturbance activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 calendar days prior to the onset of construction. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, American badger, Swainson's hawk, western burrowing owl, nesting birds and other special-status species or their sign. The preconstruction survey shall be walked by a maximum distance of 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency.

Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (United States Fish and Wildlife Service, 2011).

In addition, impacts to occupied burrowing owl burrows shall be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: (1) the birds have not begun egg laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

If burrowing owl are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement of occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction activities shall occur at a rate sufficient to detect burrowing owl, if they return.

MM BIO-2: Prior to ground-disturbance activities, or within one week of being deployed at the Project site for newly hired workers, all construction workers at the Project site shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of “take” under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed; and
- A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain onsite for the duration of construction activities.

MM BIO-3: The following measures shall be implemented to reduce potential impacts to Swainson’s hawk: Nesting surveys for the Swainson’s hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley* (Swainson's hawk Technical Advisory Committee, 2011). If potential Swainson’s hawk nests or nesting substrates are located within 0.5 miles of the Project site, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site: one visit during January 1–March 20 to identify potential nest sites, three visits during March 20–April 5, three visits during April 5–April 20, and three visits during June 10–July 30. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground-disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted.

If Swainson's hawks are not found to be present, then no action is warranted. If Swainson's hawks are found to nest within the survey area, active Swainson's hawk nests shall be avoided by 0.5 miles during the nesting period, unless this avoidance buffer is reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson's hawk issues. If a construction area falls within this nesting area, construction must be delayed until the young have fledged (left the nest). The 0.5-mile radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction activities do not disrupt breeding behaviors.

MM BIO-4: A qualified biologist shall conduct a preconstruction survey on the Project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If no burrowing owl or potential den of burrowing owl is identified, then no further action is warranted. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW staff report on burrowing owl mitigation (CDFW, 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through non-invasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

MM BIO-5: If construction is planned outside the nesting period for raptors (other than the western burrowing owl) and migratory birds (February 15 to August 31), no mitigation shall be required. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet.

Avoidance buffers may be reduced if a qualified onsite monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days as construction activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.

MM BIO-6: During all construction-related activities, the following mitigation shall apply:

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.

b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within the Project site.

c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.

d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.

e. No pets, such as dogs or cats, shall be permitted on the Project site to prevent harassment, mortality of kit foxes, or destruction of dens.

f. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4005 and reg4sec@wildlife.ca.gov.

i. All sightings of the San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the USFWS at the address below.

j. Any Project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6544 or (916) 414-6600.

MM 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.

MM 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.

MM GEO-1: Prior to construction, the District shall submit: (1) the approved Stormwater Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

MM GEO-2: The District shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include best management practices to limit onsite and offsite erosion.

MM GEO-3: During any ground-disturbance activities, if paleontological resources are encountered, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.

MM HAZ-1: Prior to operation of the Project, the Project proponent shall prepare a Hazardous Materials Business Plan that identifies the new location of the new school campus and submit it to the appropriate regulatory agency for review and approval. The Project proponent shall provide the Hazardous Materials Business Plan to all contractors working on the Project and shall ensure that one copy is available at the Project site at all times.

SECTION 1 - INTRODUCTION

1.1 - Overview

The District is proposing the expansion of the existing Marshall Elementary School on an adjacent three-acre portion of an undeveloped site located on North Armstrong Avenue in the City of Fowler, California. The proposed site is currently located in unincorporated Fresno County and it will be annexed to the City of Fowler. The expansion of the elementary school campus is to serve the existing student population and relocate the District's early learning program. The Project site is located just north of the existing elementary school located at 142 North Armstrong Avenue in Fowler, California. Figure 1-1 is a map of the regional location, Figure 1-2 shows the aerial location of the Project site, and Figure 1-3 shows the potential hazards.

1.2 - California Environmental Quality Act

The District is the Lead Agency for this Project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 – Initial Study*) provides analysis that examines the potential environmental effects of the construction and operation of the Project. Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared and a determination can be made that no significant environmental effects will occur because revisions to the project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less-than-significant levels. The content of an MND is the same as a Negative Declaration, with the addition of identified mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see *Section 6 – Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that the environmental review for the proposed application can be completed with an MND.

1.3 - Impact Terminology

The following terminology is used to describe the level of significance of impacts.

- A finding of "no impact" is appropriate if the analysis concludes that the project would not affect a topic area in any way.
- An impact is considered "less than significant" if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered "less than significant with mitigation incorporated" if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.

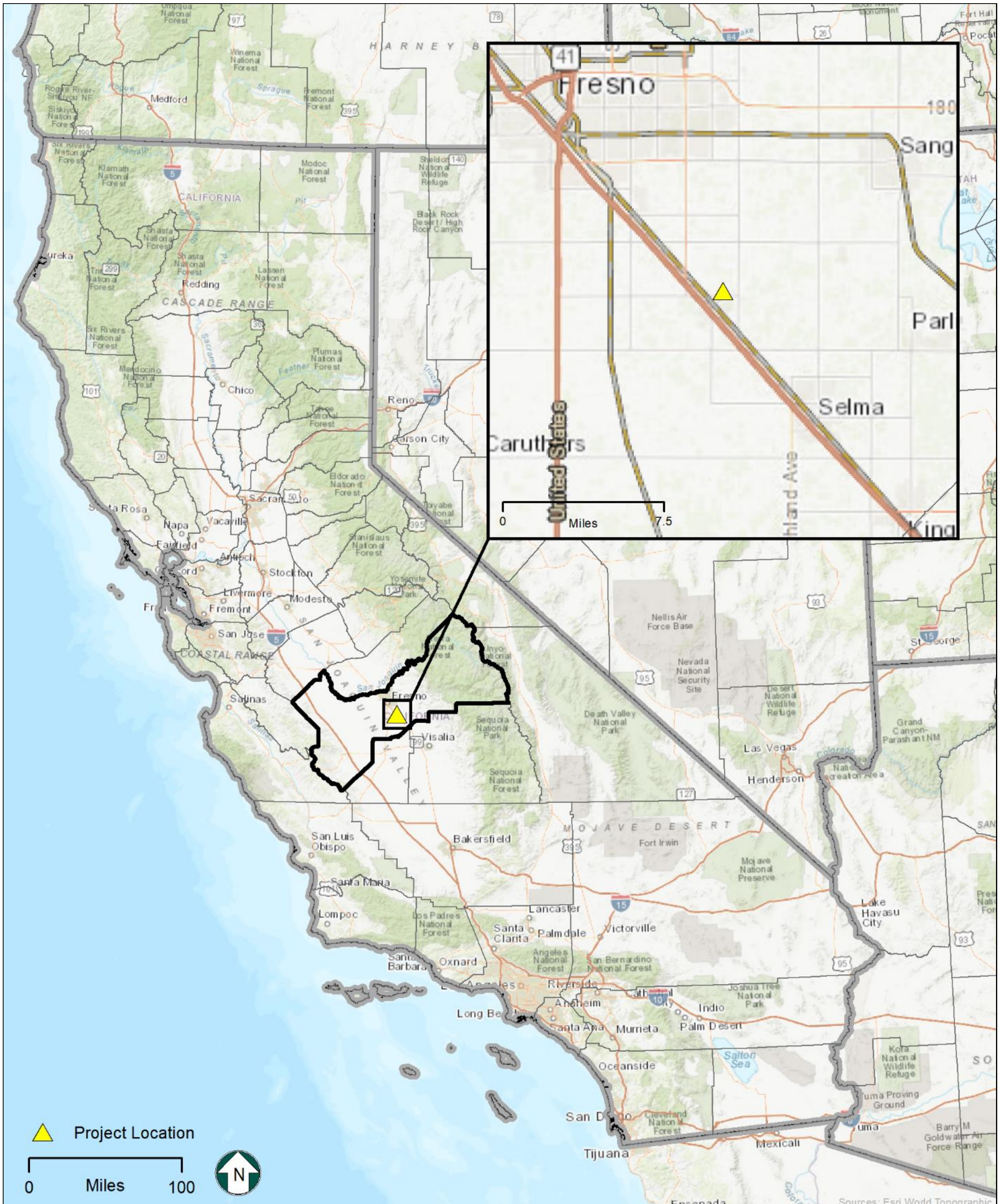

Figure 1-1
Regional Location

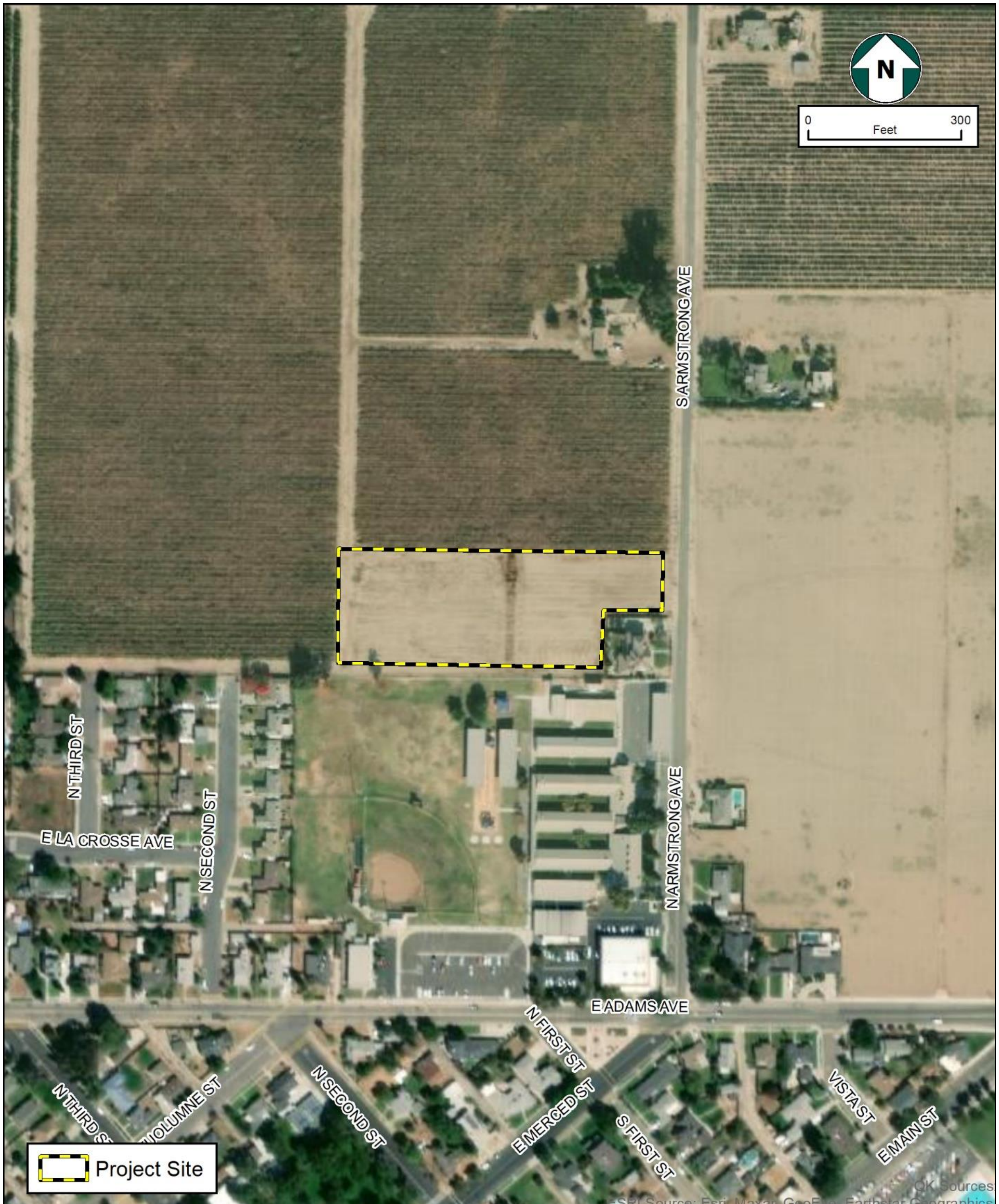

Figure 1-2
Project Site

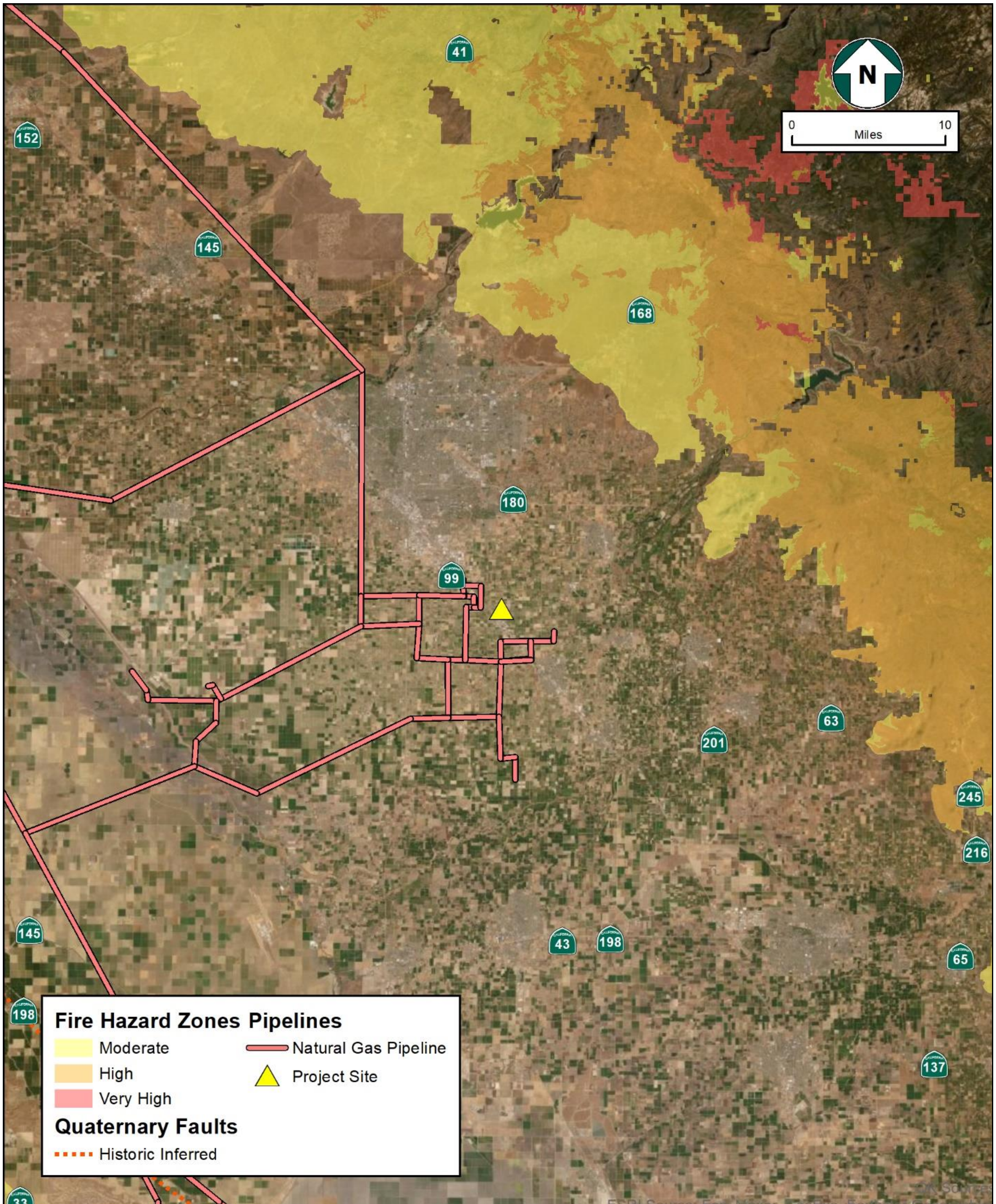

Figure 1-3
Hazards

- An impact is considered "potentially significant" if the analysis concludes that it could have a substantial adverse effect on the environment.

1.4 - Document Organization and Contents

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2– Project Description:* This section describes the Project and provides data on the site's location.
- *Section 3 – Initial Study:* This section contains the evaluation of 21 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed Project would have an impact. One of four findings is made which include: no impact, less-than-significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable for any of the 21 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – List of Preparers:* This section identifies the individuals who prepared the IS/MND.
- *Section 5 – Bibliography:* This section contains a full list of references that were used in the preparation of this IS/MND.
- *Section 6 – Mitigation Monitoring and Reporting Program:* This section contains the Mitigation Monitoring and Reporting Program.

1.5 - Incorporated by Reference

The following documents and/or regulations are incorporated into this IS/MND by reference:

- City of Fowler General Plan
- City of Fowler Zoning Ordinance
- Fresno County General Plan EIR
- Fresno County Zoning Ordinance
- Fresno County Airport Land Use Compatibility Plan
- California Department of Education, Title 5, California Code of Regulation
- California Title 24 Code of Regulations (2019)

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction

The District is proposing the expansion of the existing Marshall Elementary School on an adjacent three-acre portion of an undeveloped site (Project) located on North Armstrong Avenue in Fowler, California. The proposed site is currently located in unincorporated Fresno County and it will be annexed to the City of Fowler. Figure 1-1 is a map of the regional location, Figure 1-2 shows the aerial location of the Project site, and Figure 1-3 shows the potential hazards.

2.2 - Project Location

The Project site is located within Section 10, Township 15 South, Range 21 East, Mount Diablo Base and Meridian (MDB&M), within the Malaga U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The site encompasses an approximate three-acre portion of Assessor's Parcel Number (APN) 340-130-09. The Project site is located on the west side of North Armstrong Avenue in Fowler, California.

2.3 - Project Environment

The site is not currently under agricultural cultivation. However, the entire Project site has had significant historical and ongoing ground disturbance from agricultural practices. The site is bordered by cultivated farmland property to the north and west, the existing elementary school to the south, and an existing residence and agricultural field to the east.

Police and fire service will be served by the City of Fowler and/or the County of Fresno. The City of Fowler water system is proposed to serve the school expansion, and the Selma-Kingsburg-Fowler Sanitation District is proposed to provide sewer services. The proposed delivery of these services will require annexation of the Project site to the City of Fowler and the Selma-Kingsburg-Fowler Sanitation District.

2.4 - Proposed Project

The Project includes the expansion of the elementary school campus to serve the existing student population and relocate the District's early learning program. The preschool is a year-round program with hours between 7:30 a.m. and 5:30 p.m., Monday through Friday, and will serve 90 students at build-out. The Project will not increase the student or faculty population. The site will include up to six classrooms, administration offices, parking, and play areas. Construction is anticipated to take approximately 9–12 months to complete.

The proposed Project will include three modular buildings, with an approximate area totaling almost 16,000 square feet (sq. ft.). The Project will include new asphalt concrete hard-court areas and site improvements around the new classrooms. Also, new parking lot improvements are planned in the east portion of the site. The site would be primarily accessed from North Armstrong Avenue on the eastern Project boundary. The Project site will be annexed into the City of Fowler and connect to the City of Fowler's water systems and to the Selma-Kingsburg-Fowler Sanitation District sewer systems.

No known historic oil activity has occurred on the site. The Project is not located within the boundaries of an oilfield. According to the California Geologic Energy Management Division (CalGEM) (Formerly known as the Division of Oil, Gas and Geothermal Resources [DOGGR]) records and maps, no oil or gas wells were shown to be present on the Project site. The closest oil well is located approximately 2.4 miles to the north of the Project site.

There are 12 kilovolt (kV) electrical distribution lines running along Armstrong Avenue, which is on the eastern boundary of the Project site (PG&E, 2019).

SECTION 3 - INITIAL STUDY

3.1 - Environmental Checklist

1. **Project Title:**

   Marshall Elementary School Expansion Project

2. **Lead Agency Name and Address:**

   Fowler Unified School District
   658 East Adams Avenue
   Fowler, CA 93625

3. **Contact Person and Phone Number:**

   May Yang, Assistant Superintendent of Business Services
   (559) 834-6084

4. **Project Location:**

   142 North Armstrong Avenue, located on the west side of North Armstrong Avenue and north of East Adams Avenue in Fowler, California.

5. **General Plan Designation:**

   City of Fowler General Plan: Park/Open Space

   Fresno County Fowler Community Plan: Medium-Density Residential Use

6. **Zoning:**

   Limited Agricultural, 20-acre minimum parcel size (AL-20)

7. **Description of Project:**

   Please see Section 2.

8. **Surrounding Land Uses and Setting:**

   Agricultural cultivation to the west and north, the existing elementary school to the south and single-family residential and agricultural cultivation to the east.

9. **Other Public Agencies Whose Approval May Be Required:**

   - California Department of Education
   - California Department of Toxic Substances Control
   - California Division of the State Architect
   - Central Valley Regional Water Quality Control Board

- Fresno County Local Agency Formation Commission
- San Joaquin Valley Air Pollution Control District

3.2 - Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology and Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
☐ Noise	☐ Population and Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.3 - Determination

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

May Yang	5/13/2021
Signature	Date
May Yang	FUSD
Printed Name	For

3.4 - Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a

previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a. The significance criteria or threshold, if any, used to evaluate each question; and

   b. The mitigation measure identified, if any, to reduce the impact to less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.1 - AESTHETICS				
Except as provided in Public Resources Code Section 21099, would the Project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Discussion

Impact #3.4.1a – Except as provided in Public Resources Code Section 21099, would the Project have a substantial adverse effect on a scenic vista?

The proposed Project site is located in an area characterized by flat, undeveloped land that has been historically used for agricultural production. No known aesthetic resources exist on the site. The site is not within or in the vicinity of a city, county, or State identified scenic vistas. The Project does not lie near or within a State Designated or Eligible State Scenic Highway (California Department of Transportation, 2011). Furthermore, development of the Project would not block or preclude views to any area containing important or what would be considered visually appealing landforms. Finally, the proposed Project does not include the removal of trees determined to be scenic or of scenic value, the destruction of rock outcroppings, or degradation of any historic building. Therefore, no scenic resources will be affected. The Project will not result in development that is substantially different than surrounding land uses.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.1b - Except as provided in Public Resources Code Section 21099, would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

See Impact #3.4.1a, above.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.1c - Except as provided in Public Resources Code Section 21099, would the Project in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

The Project is in an area that is predominantly rural with a residence located on the southeast corner of the Project site and the existing elementary school to the south. The proposed Project campus and associated structures will be set back from the roadway but will remain visible to traveling motorists. However, changes to the visual quality and character of the Project site will be similar in nature to the nearby residential development and the existing elementary school to the south. The proposed Project would also include landscaping that would soften the visual impact of the school. The Project's appearance would not substantially degrade the visual character of the site. Therefore, the Project would result in a less-than-significant impact to the visual quality of the area.

See also discussion of Impact #3.4.1a, above.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.1d - Except as provided in Public Resources Code Section 21099, would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction of the proposed Project would generally occur during daytime hours, typically from 7:00 a.m. to 6:00 p.m. All lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties. Because lighting used to illuminate work areas would be shielded, focused downward, and turned off by 6:00 p.m., the potential for lighting to affect any residents adversely is minimal. Increased truck traffic and the transport of construction materials to the Project site would temporarily increase glare conditions during construction. However, this increase in glare would be minimal. Construction activity would focus on specific areas on the sites, and any sources of glare would not be stationary for a prolonged period of time. Therefore, construction of the proposed Project would not create a new source of substantial glare that would affect daytime views in the area.

For operations, exterior lighting would comply with the Fresno County Ordinance Code (Sec.15-2015) standards, which include outdoor lighting design to minimize reflective glare and light scatter. The school facility would include standard lighting for the campus. State law requires the District to follow the California Code of Regulations Title 24 (Part 3) regarding indoor light design. In addition, Mitigation Measure MM AES-1 would require the school's outdoor lighting to be hooded and directed downward so as to not shine toward adjacent and public streets. These requirements would substantially reduce potential nuisances from light or glare. With implementation of Mitigation Measure MM AES-1, the proposed Project would not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. Therefore, the proposed Project would have a less-than-significant impact with mitigation.

MITIGATION MEASURE(S)

MM AES-1: All outdoor lighting shall be hooded and directed downward so as to not shine toward adjacent properties and public streets.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.2 - Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion

Impact #3.4.2a – Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The proposed Project would convert approximately three acres of agricultural land to accommodate the development of the proposed Project. In order to determine whether this conversion would result in a significant impact on farmland, several factors must be considered. These factors include the quality of the land being converted, the availability of water to supply farming activities on the land, and the type of use being proposed on the agricultural land. CEQA uses the California Department of Conservation Division of Land Resource Protection's Farmland Mapping Project (FMMP) categories of "Prime Farmland," "Farmland of Statewide Importance," and "Unique Farmland" to define "agricultural land" for the purposes of assessing environmental impacts (PRC Section 21060.1[a]). The Project site is designated as Prime Farmland (CA Department of Conservation, 2016) (Figure 3.4.2-1). "Prime Farmland" is defined as "Land with the best combination of physical and chemical characteristics able to sustain long term production of agricultural crops. The Project site had been previously planted with crops, presumably grape and recently plowed, with little vegetation present. Implementation of the proposed Project would convert approximately three acres of farmland designated as "Prime" to a non-agricultural use. Fresno County has approximately 672,208 acres of farmland designated as Prime (California Department of Conservation, 2019). The conversion of approximately three acres to a non-agricultural use represents 0.00000446 percent of the overall available prime farmland in the County. Based on this analysis, the impact to the conversion is considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.2b – Would the Project conflict with existing zoning for agricultural use or a Williamson Act contract?

The Project site is zoned for agricultural use, however, is not subject to a Williamson Act land use contract (see Figure 3.4.2-2). The City of Fowler General Plan designates the proposed school expansion site as Park/Open Space, while the County's Fowler Community Plan designates the site for reserve Medium-Density Residential use. Schools are a permitted use in all single-family residential areas per the County of Fresno General Plan (County of Fresno, 2019). The Fowler Unified School District expects the site to be annexed by the City of Fowler at the time of development. Additionally, there are no lands adjacent that are currently held under Williamson Act contract.

The Project site has historically been used for agricultural purposes, which is consistent with the existing zoning designation. The property will be annexed into the City where it is already determined to be and would be consistent with City zoning regulations. However, as a special district, the proposed Project does not fall under the jurisdiction of the Fresno County Zoning Ordinance or General Plan, and therefore is not subject to land use regulations.

Therefore, the proposed Project's impacts related to conflicts with existing zoning for agricultural use and/or Williamson Act contracts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.2c – Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?

The Public Resources Code Section 12220(g) and Section 4526 defines "Forest land" as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. There are no forest lands identified on the Project site or within its vicinity; therefore, there would be no conflict with or impacts to zoning for forest land or timber land. The proposed Project would not result in the loss or conversion of forest land to a non-forest use.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2d – Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

See discussion of Impact #3.4.2c, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2e – Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

See discussion of Impacts #3.4.2a, #3.4.2b, and #3.4.2c, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

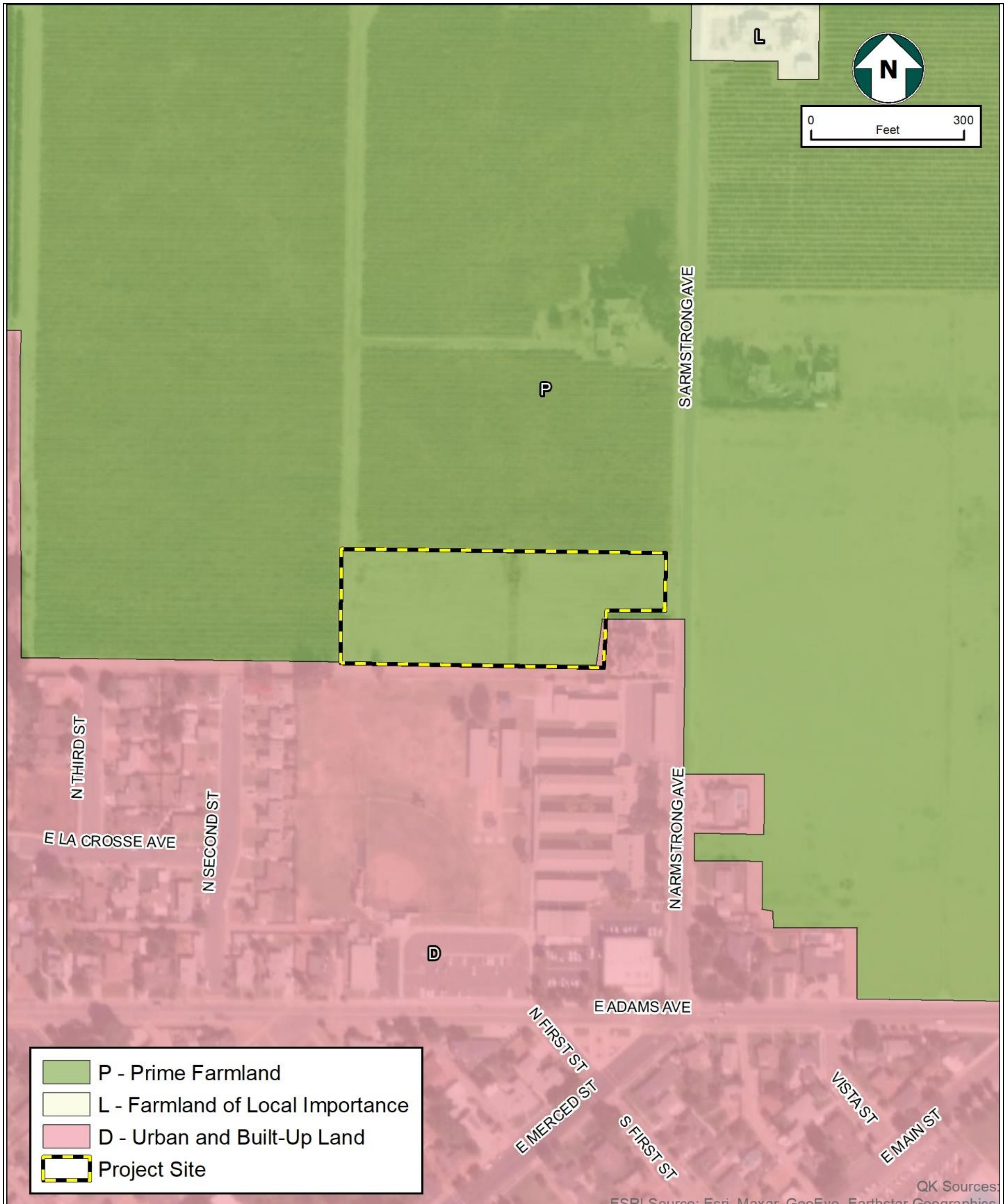

Figure 3.4.2-1
Farmland Mapping and Monitoring Program (FMMP)

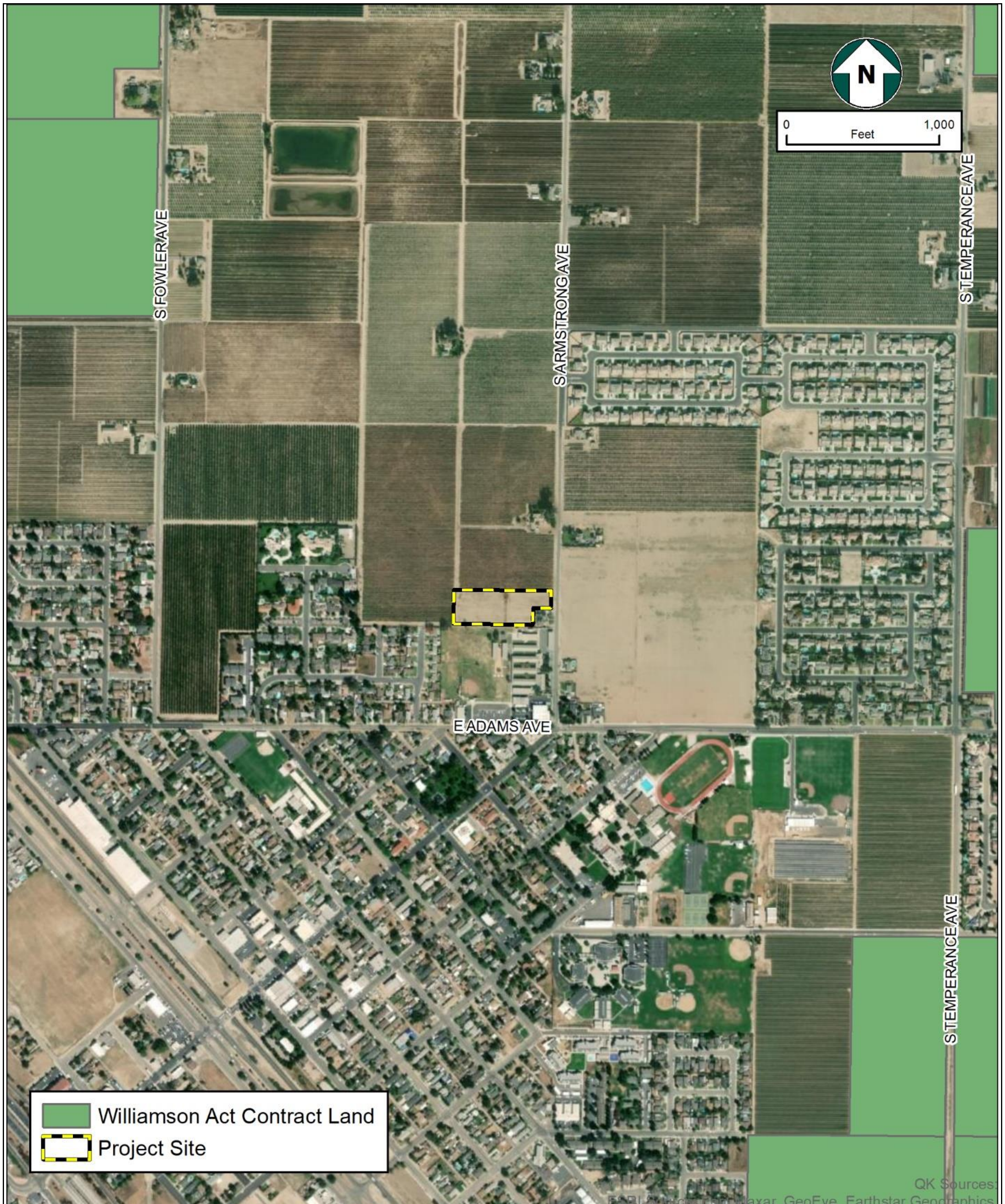

Figure 3.4.2-2
Williamson Act Land Use Contract

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.3 - Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. 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?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

A Small Project Analysis Level Assessment (SPAL) was prepared for the Project (Trinity Consultants, 2021), and is included as Appendix A.

Impact #3.4.3a – Would the Project Conflict with or obstruct implementation of the applicable air quality plan?

The Project is within the San Joaquin Valley Air Basin (SJVAB) and under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Using project type and size categories, the SJVAPCD has pre-quantified emissions and determined a size below which it is reasonable to conclude that a project would not exceed applicable thresholds of significance for criteria pollutants. This Project was determined to qualify as under the Small Project Analysis Level (SPAL).

The Project would construct 16,000 square feet compared to the allowable project size for an elementary school project, which is 156,000 square feet. As indicated in the SJVAPCD *Guide to Mitigating and Assessing Air Quality Impacts* (GAMAQI) projects that fall within the SPAL analysis levels are "deemed to have a less-than-significant impact on air quality due to criteria pollutant emissions and as such are excluded from quantifying criteria pollutant emissions for CEQA purposes. However, to meet the standards of adequacy for disclosure of potential environmental impacts and mitigation, the SJVAPCD recommends that the Lead Agency's environmental document include a narrative that identifies the sources of emissions and include sufficient discussion of SPAL values to support the conclusion that criteria pollutant emissions from the project would have a less-than-significant impact on air quality."

Emissions associated with the construction of the Project would be temporary in nature and are not anticipated to result in the generation of a substantial amount of hazardous air pollutants. Table 3.4.3-1 shows the construction emission levels for the construction of the Project.

Table 3.4.3-1
Construction Emissions

Emission Source	ROG	NOx	CO	SOx	PM10	PM2.5
				Pollutant (tons/year)		
2021 Construction Emissions	0.19	1.74	1.57	0.003	0.14	0.10
2022 Construction Emissions	0.17	0.44	0.48	0.001	0.03	0.02
SJCAPCD Construction Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Based on these anticipated levels, Project construction activities would not exceed construction emission thresholds. Therefore, construction emissions were found to be less than significant.

Table 3.4.3-2 shows the Project's long-term operations emissions generated from energy and area sources emissions.

Table 3.4.3-2
Total Project Operational Emissions

Emission Source	ROG	NOx	CO	SOx	PM10	PM2.5
				Pollutant (tons/year)		
Operational Emissions	0.08	0.02	0.02	0.0	0.002	0.0002
SJCAPCD Construction Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As calculated, the long-term operational emissions associated with the proposed Project would be less than SJVAPCD significance thresholds and would, therefore, not pose a significant impact to criteria air pollutants. As such, impacts of the Project are anticipated to be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.3b – Would the Project 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?

The CEQA Guidelines indicate that a significant impact would occur if the proposed Project would conflict with or obstruct implementation of the applicable air quality plan. The San Joaquin Valley Air Basin (SJVAB) is designated non-attainment of State and federal health-based air quality standards for ozone and particulate matter less than 2.5 microns ($PM_{2.5}$). The SJVAB is designated attainment for federal particulate matter less than 10 microns (PM_{10}) standards and non-attainment of the State PM_{10} threshold. To meet federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- 2008 Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard;
- 2007 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and
- 2008 $PM_{2.5}$ Plan.

Because of the region's federal non-attainment status for ozone and $PM_{2.5}$, and State non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the Project-generated emissions of either the ozone precursor pollutants (reactive organic gases [ROG] or oxides of nitrogen [NO_x]), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the Project uses would be considered to conflict with the attainment plans. In addition, if the Project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

The GAMAQI states that the SJVAPCD's established thresholds of significance for criteria pollutant emissions, which are based on the NSR, require offsets for stationary sources. "Emission reductions achieved through implementation of District offset requirements are a major component of the District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to 'Not conflict or obstruct implementation of the District's air quality plan'" (SJVAPCD 2015).

Project's Contribution to Air Quality Violations

As discussed in Impact #3.4.3c, below, predicted construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the Project would not conflict with emissions inventories contained in regional AQAPs and would not result in a significant contribution to the region's air quality non-attainment status.

Consistency with Assumptions in Air Quality Attainment Plans

The primary way of determining consistency with the AQAP's assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQAPs for the air basin.

As required by California law, city and county general plans contain a land use element that details the types and quantities of land uses that the city or county estimates will be needed for future growth and that designates locations for land uses to regulate growth. The Kern County Council of Governments uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then vehicle miles traveled (VMT), which are then provided to SJVAPCD to estimate future emissions in the AQAPs. Existing and future pollutant emissions computed in the AQAP are based on land uses from area general plans. AQAPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The Project is not anticipated to result in substantial direct or indirect population growth that was not previously anticipated because the student population for the proposed elementary school would come from the existing school district population. Accordingly, it can be concluded the proposed Project's uses are consistent with the growth and vehicle miles traveled projections contained in the AQP. The Project impact is less than significant for this criterion.

Control Measures

The AQAPs contain a number of control measures, including the rules outlined by the SJVAPCD. The AQAP control measures are enforceable requirements. The Project would comply with all of the SJVAPCD's applicable rules and regulations. Therefore, the Project would comply with this criterion.

With the incorporation of the enforceable requirements outlined in the AQAP, the Project is not anticipated to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under any federal or State ambient air quality standards.

The SJVAPCD's Regulation VIII establishes required controls to reduce and minimize fugitive dust emissions. The following SJVAPCD Rules and Regulations apply to the proposed Project (and all projects):

- Rule 4102 - Nuisance;
- Regulation VIII – Fugitive PM10 Prohibitions;
- Rule 8011 - General Requirements;

- Rule 8021 - Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities;
- Rule 8041 - Carryout and Trackout; and
- Rule 8051 - Open Areas.

SJVAPCD's required measures for all projects would also apply:

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

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3c – Would the Project expose sensitive receptors to substantial pollutant concentrations?

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. The closest schools are the existing Marshall Elementary School (the Project site), Casa Blanca High School adjacent to the Project site to the southeast, Fowler High School at 0.10 miles to the south, Freemont Elementary School at 0.17 miles to the southwest, Sutter Middle School at 0.25 miles to the south, and Fowler Pre School at 0.38 miles to the south. The closest hospital is Adventist Health at 6.40 miles southeast. The closest day care is Creative Steps Daycare and Learning Zone 0.60 miles to the east. The nearest nursing home and assisted living facility are Dycora Transitional Health and Harvest at Flower that are both 0.45 miles to south.

The proposed Project, because of its educational nature, is not expected to result in the generation of odors or hazardous air pollutants. However, during construction of the Project, construction activities and equipment may generate emission from construction equipment exhaust. These impacts are localized and temporary in nature and therefore are considered less than significant. The Project would not expose sensitive receptors to substantial concentrations of localized PM_{10}, carbon monoxide, diesel particulate matter, hazardous air pollutants, or naturally occurring asbestos, as discussed below.

Hazardous Pollutants or Odors

The GAMAQI guidelines introduce two types of projects that should be assessed when considering hazardous air pollutants (HAPs) which includes: (1) placing a toxic land use in an area where it may have an adverse health impact on an existing sensitive land use and (2) placing a sensitive land use in an area where an adverse health impact may occur from an existing toxic land use. Some examples of projects that may include HAPs are:

- Agricultural products processing;
- Bulk material handling;
- Chemical blending, mixing, manufacturing, storage, etc.;
- Combustion equipment (boilers, engines, heaters, incinerators, etc.);
- Metals etching, melting, plating, refining, etc.;
- Plastics & fiberglass forming and manufacturing;
- Petroleum production, manufacturing, storage, and distribution; and
- Rock & mineral mining and processing.

The proposed Project is located on a site that is currently undeveloped land. The Project includes the construction of separate modular classrooms for the operation of the early childhood education program totaling 16,000 square feet of new building construction and a new parking lot with 66 planned parking spaces. During the construction period, some odors could result from vehicles and equipment using diesel fuels. However, vehicles and equipment using diesel fuels at the proposed Project site would have to comply with the California Air Resources Board (CARB) guidelines, which limit idling time to five minutes with the Airborne Toxic Control Measure (ATCM). Although construction activities are anticipated to generate fugitive dust, the Project would minimize the generation of fugitive dust by complying with the SJVAPCD's Regulation VIII. Dust-disturbing activities would be limited in scope and duration.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3d – Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

See discussion of Impact #3.4.3, above.

The educational nature of the Project is not expected to result in the generation of odors or hazardous air pollutants. Emissions associated with the construction of the Project would be temporary in nature and are not anticipated to result in the generation of a substantial amount of hazardous air pollutants. Emissions associated with the operation of the Project would result from students arriving to and departing from the school and are not anticipated to be significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.4 - Biological Resources				
Would the Project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

Discussion

A biological survey was conducted to determine whether there are sensitive biological resources that might be adversely affected by the proposed Project. The evaluation is based upon existing site conditions, the potential for sensitive biological resources to occur on and in the vicinity of the Project site, and any respective impacts that could potentially occur.

A review of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2020a), CDFW's special animals list (CDFW, 2020b) California Native Plant Society, the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation project planning tool (U.S. Fish and Wildlife Service), and the United States Fish and Wildlife Service Endangered Species List (USFWS 2020b) was conducted to identify special-status plant and wildlife species with the potential to occur within the Project site and vicinity (the surrounding nine USGS 7.5-minute quadrangles and a 10-mile radius). Information on the potential presence of wetlands and waters was obtained from the National Wetlands Inventory (NWI), National Hydrography Database (NHD), and Federal Emergency Management Agency (FEMA). Information regarding the presence of Critical Habitat in the Project vicinity was obtained from the United States Fish and Wildlife Service's Critical Habitat Mapper database. The results of the database inquiries were subsequently reviewed to evaluate the potential for occurrence of special-status species and other sensitive biological resources known to occur on or near the Project site prior to conducting the biological survey.

A biological survey of the entire Project site and a 250-foot buffer area (Biological Survey Area [BSA]) where feasible, was conducted on December 16, 2020, by a qualified biologist. The purpose of the survey was to determine the locations and extent of sensitive-plant communities and habitats, determine the potential for occurrence of special-status plant and animal species, and identify other sensitive biological resources within the BSA. Meandering pedestrian transects were walked through all habitat types present on the site. Protocol surveys for specific special-status wildlife species were not conducted because it was determined by the biologist that such surveys were not warranted due to the disturbed condition of the Project site. Photographs were taken to document existing landscape of the Project site and adjacent land uses. Detailed notes on observed plant and wildlife species and site conditions were taken.

General Site Conditions

The entire Project site has had significant historical and ongoing ground disturbance from agricultural practices and livestock grazing. Wildlife species inhabiting the BSA include those typically found in moderately- to heavily-disturbed habitats associated with agricultural development zones of Fresno County and the central San Joaquin Valley (Table 3.4.4-1). The Project site had been previously planted with crops, presumably grape (Vitis sp.) and recently plowed, with little vegetation present. Multiple California ground squirrel (*Otospermophilus beecheyi*) and pocket gopher (*Thomomys* sp.) burrows were present on the Project site. There was no wetland, riparian, or other sensitive habitat recorded during the time of the survey. There was no special-status plants or wildlife present on the Project site and habitat conditions on the site were not appropriate to support any of the potentially occurring species.

Table 3.4.4-1
List of Plant and Wildlife Species Observed within the Survey Area

Scientific name	Common name
Plants	
Amsinckia sp.	fiddleneck
Amaranthus albus	tumbleweed
Bromus madritensis ssp. rubens	red brome
Chenopodium sp.	goosefoot
Cynodon dactylon	Bermuda grass
Erigeron canadensis	Canada horseweed
Malva parviflora	cheeseweed mallow
Sisymbrium irio	London rocket
Wildlife	
Aimophila ruficeps	rufous-crowned sparrow
Buteo jamaicensis	red-tailed hawk
Canis lupus familiaris	domestic dog*
Charadrius vociferus	killdeer
Corvus brachyrhynchos	American crow
Mimus polyglottos	northern mockingbird
Otospermophilus beecheyi	California ground squirrel*
Sciurus sp.	arboreal squirrel*
Streptopelia decaocto	Eurasian collared-dove
Thomomys sp.	pocket gopher*
Zonotrichia leucophrys	white-crowned sparrow

*Indicates that only sign (scat, tracks, prey remains, dens) were observed.

This section describes the results of the database searches, and using conditions present on the Project site as determined by the onsite examination, provides an analysis of Project impacts on each of the six biological evaluation criteria. Each of the evaluation criteria are discussed below and mitigation measures are provided as warranted to, when implemented, reduce impacts to below significant levels.

Impact #3.4.4a – Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The literature search indicated that there is a potential for several sensitive natural communities and special-status species to be present on the Project site. Each of these resources were evaluated for their potential to occur on the site based upon known records and site conditions on the site verified by the biological survey. No sensitive natural community or special-status plant species occur on or near the Project site and four wildlife species have a potential to occur. There is a potential for nesting migratory birds and nesting raptors to be present on the site or within 500 feet of the site.

Sensitive Natural Communities and Special-Status Species

SENSITIVE NATURAL COMMUNITIES AND SPECIAL-STATUS PLANTS

Two sensitive natural communities, Northern Claypan Vernal Pool and Northern Hardpan Vernal Pool, and 16 special-status plant species were identified as having potential to occur. There were no sensitive natural communities and five plant species with records of occurring within a 10-mile buffer of the Project site. These plant species include California jewelflower (*Caulanthus californicus*), California satintail (*Imperata brevifolia*), Greene's tuctoria (*Tuctoria greenei*), Madera leptosiphon (*Leptosiphon serrulatus*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*). The Project site and vicinity has been highly disturbed for decades by ongoing agriculture production and nearby residential development, and it does not provide habitat for any sensitive natural community or special-status plant species. No vernal pool habitat and no special-status plant species were identified during the biological survey.

SPECIAL-STATUS WILDLIFE

There were 37 special-status wildlife species that were identified as having a potential to occur. There were 13 special-status wildlife species found within a 10-mile buffer of the Project site. Of the 37 species, 33 were eliminated from occurring on the site because of a lack of suitable habitat that would support the species. The remaining four species have potential to occur within the Project site and vicinity. These four species are discussed below.

Swainson's Hawk

The most recent CNDDB recorded occurrence (EONDX 106840) of Swainson's hawk was from 2016 approximately 4.7 miles northwest of the Project site. Swainson's hawks are known to forage in old fields and open agricultural fields, such as hay and alfalfa. The surrounding area has been historically used for irrigated agricultural production, such as grape vineyards and citrus orchards. No stick nests that could support nesting of this species was present within 500 feet of the Project site, but suitable nesting substrates were present in the tree canopy of surrounding native and ornamental trees and in the immediate vicinity. There are multiple small mammal burrows onsite sufficient to support substantial prey for this species. No Swainson's hawks or sign of the species was observed during the survey but they could use the Project site for foraging and could establish nests in the vicinity of the Project site.

Western Burrowing owl

Historically, the western burrowing owl has been recorded within 10 miles of the Project site. The most recent CNDDB recorded occurrence (EONDX 103146) of a burrowing owl is approximately 9.7 miles northeast of the Project site. There is potential for the burrowing owl to reside or forage on the Project site and in open fields in the vicinity of the Project site. No burrowing owl or sign was observed during the survey, but there were many California ground squirrel burrows present, which are often used as burrows by the western burrowing owl. Burrowing owls are winter and summer residents in the San Joaquin Valley, and it is possible that the species could be present on the site at any time.

San Joaquin Kit Fox

There is one recorded CNDDB occurrence of a San Joaquin kit fox observation within 10 miles of the Project. This occurrence (EONDX 70606) was recorded in the 1980s and is approximately 7.1 miles northeast of the Project site. It is possible for the San Joaquin kit fox to reside or forage on the Project site and in open fields in the vicinity of the Project. The San Joaquin kit fox could potentially inhabit the site at any time or individuals could potentially be present from time to time as transient foragers.

American Badger

The most recent CNDDB record occurrence (EONDX 56616) of American badger was recorded in 1987 in south Clovis, over 10 miles from the BSA, and no potential burrows or signs were observed during the onsite biological survey. The American badger has potential to occur in the vicinity of the Project site and could be present from time to time as a transient forager.

Nesting Migratory Birds and Nesting Raptors.

Nesting migratory birds and nesting raptors could be present on the site and within the buffer surrounding the site at any time during the nesting season (generally accepted as being from February 1 through September 15). Appropriate nesting substrates consist mostly of trees and large shrubs, although there are some ground nesting species that could nest anywhere on the site. Any activity on the site immediately prior to or during the nesting season could reduce the potential for ground nesting species to occur.

CONCLUSION

The Project site and surrounding area has been disturbed for years by ongoing agriculture crop cultivation and residential development. The Project site and vicinity does not provide suitable habitat for any sensitive natural community or special-status plant species and no mitigation measures to protect, avoid, or minimize impacts to these biological resources are warranted.

There is potential for four special-status wildlife species to be present and subject to impact by Project activities. There is also potential for nesting migratory birds and nesting raptors to be present on and near the Project site. Compliance with Mitigation Measures MM BIO-1 through MM BIO-6 would protect, avoid, and minimize impacts to special-status wildlife species and nesting migratory birds and nesting raptors. When implemented, these measures would reduce impacts to these species to below significant levels.

MITIGATION MEASURE(S)

MM BIO-1: Prior to ground-disturbance activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 calendar days prior to the onset of construction. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, American badger, Swainson's hawk, western burrowing owl, nesting birds and other special-status species or their sign. The preconstruction survey shall be walked by a maximum distance of 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency.

Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (United States Fish and Wildlife Service, 2011).

In addition, impacts to occupied burrowing owl burrows shall be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: (1) the birds have not begun egg laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

If burrowing owl are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement of occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction activities shall occur at a rate sufficient to detect burrowing owl, if they return.

MM BIO-2: Prior to ground-disturbance activities, or within one week of being deployed at the Project site for newly hired workers, all construction workers at the Project site shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of "take" under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed; and
- A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain onsite for the duration of construction activities.

MM BIO-3: The following measures shall be implemented to reduce potential impacts to Swainson's hawk: Nesting surveys for the Swainson's hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's hawk Technical Advisory Committee, 2011). If potential Swainson's hawk nests or nesting substrates are located within 0.5 miles of the Project site, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site: one visit during January 1–March 20 to identify potential nest sites, three visits during March 20–April 5, three visits during April 5–April 20, and three visits during June 10–July 30. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground-disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted.

If Swainson's hawks are not found to be present, then no action is warranted. If Swainson's hawks are found to nest within the survey area, active Swainson's hawk nests shall be avoided by 0.5 miles during the nesting period, unless this avoidance buffer is reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson's hawk issues. If a construction area falls within this nesting area, construction must be delayed until the young have fledged (left the nest). The 0.5-mile radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction activities do not disrupt breeding behaviors.

MM BIO-4: A qualified biologist shall conduct a preconstruction survey on the Project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If no burrowing owl or potential den of burrowing owl is identified, then no further action is warranted. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW staff report on burrowing owl mitigation (CDFW, 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through non-invasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

MM BIO-5: If construction is planned outside the nesting period for raptors (other than the western burrowing owl) and migratory birds (February 15 to August 31), no mitigation shall be required. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified onsite monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days as construction activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.

MM BIO-6: During all construction-related activities, the following mitigation shall apply:

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.

b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within the Project site.

c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.

d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.

e. No pets, such as dogs or cats, shall be permitted on the Project site to prevent harassment, mortality of kit foxes, or destruction of dens.

f. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4005 and reg4sec@wildlife.ca.gov.

i. All sightings of the San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the USFWS at the address below.

j. Any Project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6544 or (916) 414-6600.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.4b – Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Project site is highly disturbed, and it does not contain any sensitive natural community. The Project would not result in impacts to any sensitive natural community. The Project site covers an area of approximately 2.97 acres of an undeveloped site and consists of a recently plowed agricultural field. The Project site is surrounded by disturbed cultivated land, schools, and residential development.

Riparian habitat is defined as lands that are influenced by a river, specifically the land area that encompasses the river channel and its current or potential floodplain. The Project is not located within a river or an area that encompasses a river or potential floodplain. The proposed Project would have no impact to riparian habitat.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.4c – Would the Project have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The United States Army Corps of Engineers (USACE) has regulatory authority over the Clean Water Act (CWA), as provided for by the EPA. The USACE has established specific criteria for the determination of wetlands based upon the presence of wetland hydrology, hydric soils, and hydrophilic vegetation. Wetlands, streams, reservoirs, sloughs, and ponds typically meet the criteria for federal jurisdiction under Section 404 of the CWA and State regulatory authority under the Porter-Cologne Water Quality Control Act. Streams and ponds typically meet the criteria for State regulatory authority under Section 1602 of the California Fish and Game Code. There are no features on the Project site that would meet the criteria for either federal jurisdiction or State regulatory authority.

There are no federally protected wetlands or vernal pools that occur within the Project site. There also are no State regulated wetlands or waters present on the Project site. There would be no impact to federally protected wetlands or waterways or State wetlands or waters.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.4d – Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife migratory corridors are linear stretches of land that connects two open pieces of habitat that would otherwise be unconnected. These routes provide shelter and sufficient food resources to support wildlife species during migratory movements. Movement corridors generally consist of riparian, woodlands, or forested habitats that span contiguous acres of undisturbed habitat and are important elements of resident species' home ranges.

The proposed Project does not occur within any terrestrial migration route, significant wildlife corridor, or wildlife linkage area as identified in the *Recovery Plan for Upland Species in the San Joaquin Valley* (US Fish and Wildlife Service, 1998) or by the California Essential Habitat Connectivity Project (Spencer, W.D., et al, 2010). The survey conducted for the Project did not provide evidence of a wildlife nursery or important migratory habitat being present on the Project site.

The Project would not substantially affect migrating birds or other wildlife. The Project will not restrict, eliminate, or significantly alter a wildlife movement corridor, wildlife core area, or Essential Habitat Connectivity area, either during construction or after the Project has been constructed. Project construction will not substantially interfere with wildlife movements or reduce breeding opportunities.

The land surrounding the Project is developed with residences or is in agricultural production. These land uses are not well suited for use as wildlife movements. The proposed Project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. The Project would have no impacts to wildlife movements, no impacts to wildlife movement corridors, and no impacts to a nursery site.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.4e – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

There are no adopted local policies or ordinances protecting biological resources that would apply to this Project site. Therefore, implementation of the proposed Project would have no conflict related to an adopted local policies or ordinances protecting biological resources.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.4f – Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?

The Project site is not located within any natural community conservation plan area or any other local, regional, or State habitat conservation plan.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.5 - CULTURAL RESOURCES				
Would the Project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

This section is based on a cultural resource record search (RS # 20-454) conducted at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System at the California State University, Bakersfield, and the technical memo (Quad Knopf, Inc, 2021) is included in this document as Appendix B. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the Project.

The Native American Heritage Commission (NAHC) was also contacted, and a Sacred Lands File search was conducted and the results were negative. A copy of the NAHC response and the list of local tribal groups that was included is also included in Appendix B of this document.

Impact #3.4.5a – Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

As defined by CEQA Guidelines Section 15064.5, "historical resources" are:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Public Resource Code Section 5024.1, Title 14 California Code of Regulations, Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code, or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must

treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

- Any object, building, structure, site, area, place, record, or manuscript which a Lead Agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the Lead Agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Public Resources Code Section 5024.1, Title 14 CCR, Section 4852) including the following:
  - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
  - Is associated with the lives of persons important in our past;
  - Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
  - Has yielded, or may be likely to yield, information important in prehistory or history.

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

Two cultural resource studies have been conducted within a half mile of the property. One historic cultural property, the Fowler Vineyard – Matsuoka Property (P-10-002864), has been identified within a half mile of the proposed Project. However, the Project will not impact this resource. The records search indicated that the subject property has never been surveyed for cultural resources and it is not known if any exist there.

Although there is no obvious evidence of historical or archaeological resources on the Project site, there is the potential during construction for the discovery of cultural resources. 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 resources. It would be an unlikely event the disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact under CEQA. However, implementation of MM CUL-1 would reduce potential impacts to cultural resources to less-than-significant levels.

MITIGATION MEASURE(S)

MM 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.

LEVEL OF SIGNIFICANCE

Impact would be ***less than significant with mitigation incorporated***.

Impact #3.4.5b – Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

On January 15, 2021, letters were mailed to each of the Native American tribes within the geographic area as identified by the NAHC (see Appendix B). The letters included a Project description and location maps. To date, one response was received from the Table Mountain Rancheria that indicated that they decline participation and that they would like to be notified in the unlikely event that cultural resources are identified.

See also discussion of Impact #3.4.5a, above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.5c – Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Although unlikely, subsurface construction activities, such as trenching and grading, associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. Although considered unlikely, subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites. The records searches did not indicate the presence of human remains, burials, or cemeteries within the Project site. No human remains have been discovered at the Project site, and no burials or cemeteries are known to occur within the area of the site. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Implementation of the below mitigation measure would ensure that the proposed Project would not directly or indirectly destroy previously unknown human remains. It is unlikely that the proposed Project would disturb any known human remains, including those interred outside of formal cemeteries. However, with implementation of MM CUL-2, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

MM 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.

LEVEL OF SIGNIFICANCE

Impact would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.6 - ENERGY				
Would the Project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion

Impact #3.4.6a – Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Energy demand during the construction phase would result from the transportation of materials, construction equipment, and employee vehicle trips. Construction equipment includes excavators, graders, off-highway trucks, rubber-tired dozers, scrapers, tractors, loaders, backhoes, forklifts, cement and mortar mixers and cranes. The Project would comply with the SJVAPCD requirements regarding the use of fuel-efficient vehicles and equipment, to the extent feasible. The Project will not use natural gas during the construction phase. Compliance with standard regional and local regulations, the Project would minimize fuel consumption during construction.

There are no unusual Project characteristics that would cause construction equipment to be less energy efficient compared with other similar construction sites in other parts of the State. Thus, construction-related fuel consumption of the Project would not result in inefficient, wasteful, or unnecessary energy use.

Energy demand during the operational phase would result from ongoing school activities, the use of typical appliances, school equipment, and maintenance equipment. It is also possible that energy consumption would decrease somewhat, as the buildings constructed for the expansion would meet current building codes for energy efficiencies. In addition, the use of energy-efficient appliances, lighting, low-flow toilets, faucets etc., would also help reduce energy consumption and water demand.

It is anticipated that the modes of transportation used to the Project site would remain the same as those used for the current elementary, as it is not anticipated that the population of students and faculty would increase. Therefore, the total fuel consumption for the Project would not increase based on current existing bus routes, parent drop-offs, and pick-ups. Construction and operationally related fuel consumption at the Project would not result in inefficient, wasteful, or unnecessary energy use. The Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.6b – Would the Project Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

See Impact #3.4.6a, above, The Project must comply with Title 24, Chapter 4 of the California Building Standards Commission for all school buildings and Part 6, of the California Energy Code (CEC) (California Building Standards Commission, 2019). Additionally, the Project must comply with Section 100 of the CEC for information and applications of CEC adoptions (California Building Standards Commission, 2019). Finally, the Project must comply with the California Code of Regulations (CCR), Title 20 with adoptions of the California Energy Commission (California Building Standards Commission, 2019).

Energy saving strategies will be implemented where feasible to reduce the Project's energy consumption during the construction and post-construction phases. Strategies being implemented include those recommended by the California Air Resources Board (CARB) that may reduce the Project's construction energy consumption, including diesel anti-idling measures, light-duty vehicle technology, usage of alternative fuels, such as biodiesel blends and ethanol, and heavy-duty vehicle design measures to reduce energy consumption. The continued use of solar-generated energy, along with the energy efficiency components outlined above, will assist California in meeting greenhouse gas (GHG) emissions reduction goal by 2030, as required by the California Global Warming Solutions Act (AB 32) (amended by SB 32 in 2016). Impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant.***

3.4.7 - Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Discussion

The following analysis is based primarily on the *Geologic-Seismic Hazards Evaluation Report* (Technicon Engineering Services, Inc., 2019) and *Geotechnical Engineering Investigation* (Moore Twining Associates, Inc., 2019), prepared for this Project, and other available data.

Impact #3.4.7a(i) – Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The proposed Project site is in a region traditionally characterized by low seismic activity (Technicon Engineering Services, Inc., 2019). The proposed construction and operation of the Project would increase the potential exposure of persons working on the Project site to seismic events including risk of loss, injury, and death related to earthquakes and related hazards.

The Project site is not located with an Alquist-Priolo earthquake zone, and no active faults are located on or near the Project site. The Project site is not located within an Alquist-Priolo earthquake zone; however, the site is within the vicinity of several active faults. The nearest active fault is the Great Valley fault, approximately 43 miles to the southwest. The nearest Seismic Source Type A fault is the San Andreas fault, located approximately 66 miles from the site (Technicon Engineering Services, Inc., 2019).

In addition, pursuant to the California Educational Code Sections 17212 and 17212.5, construction of school buildings has to comply with safety standards that prohibit schools to be located on an active earthquake fault or fault trace. The proposed Project would comply with the most recent California Building Standards Code which is implemented by the Division of the State Architect (DSA) and provides criteria for the seismic design of buildings.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impact would be ***less than significant***.

Impact #3.4.7a(ii) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The proposed Project site is in a region traditionally characterized by low seismic activity (Technicon Engineering Services, Inc., 2019); however, moderate to severe ground shaking associated with earthquakes on the nearby faults can be expected within the Project area and throughout Fresno County. In the event of an earthquake on one of the nearby faults, it is likely that the Project site would experience ground shaking and expose people and structures associated with the Project. The California Geologic Survey (CGS) Map of California shows that the nearest active faults include the Great Valley fault approximately 70 kilometers (km), the San Andreas fault approximately 106 km and the Kern Canyon fault approximately 112 km. A major seismic event on the previously mentioned faults or other nearby faults may cause ground shaking at the site. Additionally, based on the deterministic ground acceleration, the San Andreas fault, located west of the Project site, is considered the governing fault (Technicon Engineering Services, Inc., 2019).

While such shaking would be less severe from an earthquake that originates at a greater distance from the Project site, the effects could potentially be damaging to school buildings and supporting infrastructure. The Project is required to design all school development and associated infrastructure to withstand substantial ground shaking in accordance with applicable State law IBC CBC, Title 5 and Title 24 earthquake construction standards, including those relating to soil characteristics. Adherence to all applicable local and State regulations would avoid any potential impacts to structures resulting from liquefaction at the Project site. Therefore, there would be a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.7a(iii) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction could result in local areas during a strong earthquake or seismic ground shaking where unconsolidated sediments and a high-water table coincide. The results indicate factors of safety against liquefaction as low as 1.25 in the poorly graded sand with silt stratum encountered between 30 and 46 feet BSG. This factor of safety indicates the potential for liquefaction in these deeper soils is moderate. However, considering the depths of these soils, and the fact that groundwater depths are trending much deeper than 10 feet over the last 30 years, the potential for liquefaction to impact the support of the proposed improvements is considered low (Moore Twining Associates, Inc., 2019).

Therefore, the Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure including liquefaction. Structures constructed as part of the Project would be required by State law to be constructed in accordance with all applicable IBC CBC, Title 5 and Title 24 construction standards. Adherence to all applicable regulations would reduce or avoid any potential impacts to structures resulting from liquefaction at the Project site and impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.7a(iv) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The site and surrounding area are flat with no significant topological features. There is no potential for rock fall and landslides to impact the site in the event of a major earthquake, as the area has no dramatic elevation changes. Based on the predicted maximum horizontal accelerations at the Project site and the soil types, minor subsurface settlement may occur onsite during a major earthquake, and this is considered less than significant. The property is flat and there is a low potential for landslides. The site would not be subject to liquefaction impacts due to the depth of groundwater below ground surface (Moore Twining Associates, Inc., 2019).

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.7b – Would the Project result in substantial soil erosion or the loss of topsoil?

Construction activities associated with the proposed Project would disrupt surface vegetation and soils and would expose these disturbed areas to erosion by wind and water. National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of one acre or more. A SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement best management practices (BMPs) that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sandbags, retention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. Mitigation Measure MM GEO-1 requires the approval of a SWPPP to comply with the NPDES General Construction Permit from the Central Valley Regional Water Quality Control Board (RWQCB).

In the long-term and after construction activities have been completed on the Project site, the ground surface will have impermeable surfaces as well as permeable surfaces. The impermeable surfaces would include roadways, driveways, parking lots, and building sites. The permeable surfaces would include the ball fields and landscape areas that would stabilize the permeable areas. Overall, development of the Project would not result in conditions where substantial surface soils would be exposed to wind and water erosion. Mitigation Measure MM GEO-2 requires the District to limit grading to the minimum area necessary for construction and operation of the Project.

The Project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant with incorporation of mitigation measures.

MITIGATION MEASURE(S)

MM GEO-1: Prior to construction, the District shall submit: (1) the approved Stormwater Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

MM GEO-2: The District shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include best management practices to limit onsite and offsite erosion.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.7c – Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

The Project site and surrounding area is flat and is not located in an unstable geologic unit or on soil that is considered unstable. There is no evidence of landslides on the Project site. The United States Department of Agriculture Natural Resources Conservation Service indicates that Hanford Sandy Loam underlies the Project site (see Figure 3.4.7-1). This soil is characterized by the following attributes: 0-2 percent slopes, well drained, very low runoff, moderately rapid permeability and moderate water capacity. As indicated in the Geological Hazard Study, groundwater levels in the Project vicinity range between 45-80 feet below ground surface (bgs) (Moore Twining Associates, Inc., 2019). Liquefaction potential appears to be very low.

Additionally, due to the predominantly sandy soils encountered at the Project site and review of Landslide Hazards and Areas of Subsidence maps, it was determined that the Project site is outside of any known subsidence zones; therefore, regional subsidence is not likely to occur (Technicon Engineering Services, Inc., 2019).

As indicated in previous responses, the site and surrounding area is flat, which do not provide the conditions required for significant onsite land sliding. Additionally, the site is not located near any areas with sufficient slope which could result in offsite landslides. Moreover, the Project will be designed by an engineer to resist spreading, subsidence, liquefaction or collapse.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.7d – Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Based on an expansive index test performed on a soil sample collected from the near surface soil of the site, it was determined that it is unlikely expansive soils would be encountered. The Project is located within an area where the lowest amount of hydrocompaction has occurred (Technicon Engineering Services, Inc., 2019).

The Project would comply with all applicable requirements of accordance with applicable State law IBC CBC and Title 5 and Title 24 that provides criteria for the appropriate design of buildings. The proposed Project would not be located on any identified expansive soils, as defined in the California Building Code. Therefore, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.7e – Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

The proposed Project will not use a septic system; sewer services will be provided by the Selma-Kingsburg-Fowler Sanitation District. Once annexed into the City of Fowler, the Project will connect to the existing sewer line/system serving the existing elementary school. Therefore, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.7f – Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Project does not intend to use undisturbed land; the property has been historically farmed and is highly disturbed. There does not appear to be any unique geological features or known fossil-bearing sediments on the vicinity of the Project site (County of Fresno, 2000). Additionally, available data indicates the area has latest Holocene-age (2,000-150 BP) to late Holocene-age (4,000 -2,000 BP) depositional landforms, which indicates a low potential to uncover fossil remains (Meyer, Jack et al, 2010). However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Therefore, this would be a potentially significant impact. However, MM GEO-3 requires that if unknown paleontological resources are discovered during construction activities, work within a 25-foot buffer would cease until a qualified paleontologist determined the appropriate course of action. With implementation of MM GEO-3, the Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

MM GEO-3: During any ground-disturbance activities, if paleontological resources are encountered, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.

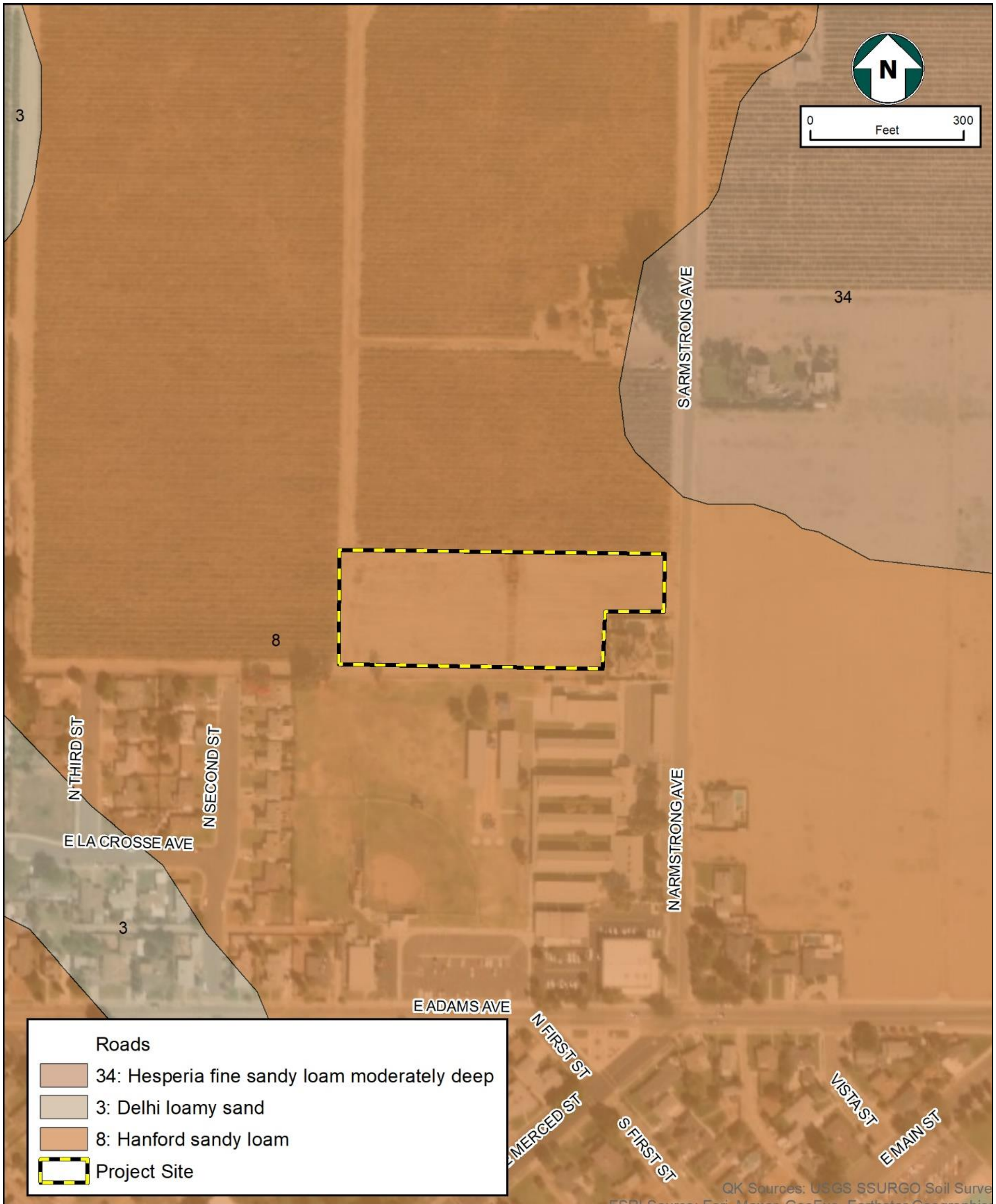

Figure 3.4.7-1
Soil Types

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.8 - GREENHOUSE GAS EMISSIONS				
Would the Project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Impact #3.4.8a – Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Although construction and operation of the proposed Project would result in emissions of GHGs, the Project does not exceed the SPAL established by the SJVAPCD. Therefore, the Project is anticipated to have a less-than-significant impact on the environment.

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 Appendix A). The proposed Project's operational CO_2e emissions were estimated using CalEEMod. These emissions are summarized in Table 3.4.8-1.

Table 3.4.8-1
Estimated Annual Greenhouse Gas Emissions

	CO2 Emissions metric tons	CH4 Emissions metric tons	N2O Emissions metric tons	CO2e Emissions metric tons
2021 Project Operations	63.12	0.27	0.001	70.11
2005 BAU	342.46	0.35	0.001	351.60
BAU less Project emissions				80.1%

The current inventory and forecast for GHG emissions in the California Air Resources Board's 2008 Climate Change Scoping Plan supports the 2011 IPPC estimates. The 2008 Climate Change Scoping Plan also indicates that GHG emissions will increase to 596.41 million metric tons of CO_2e by 2020. It is widely understood that climate change is a "global" issue and, GHG emissions are a cumulative problem and can only be evaluated as such.

The amount of CO_2 that would be generated by the Project is so small in relation to the California CO_2 equivalent estimates for 2020 (596 million metric tons CO_2e) that it's not possible for the contribution of the Project to be cumulatively considerable. Additionally, the Project's GHG emissions are less than the 2005 business as usual emissions for the Project by 281.49 metric tons CO_2e, which is an 80.1 percent reduction.

Therefore, the Project would not generate a cumulatively considerable GHG impact nor would it conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The Project will also not conflict with any elements of the California Air Resources Board's 2008 Climate Change Scoping Plan. Therefore, this potential impact is less than significant.

See also Impact #3.4.3a.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.8b – Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

See discussion to Impact #3.4.8, above. Additionally, the Project will not exceed the SPAL thresholds established by the SJVAPCD. Therefore, the Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.9 - HAZARDS AND HAZARDOUS MATERIALS				
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☒
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion

This section is based on the *Geologic-Seismic Hazards Evaluation Report* (Technicon Engineering Services, Inc., 2019), the *PG&E Correspondence for Power Lines* (PG&E, 2019), and the *Preliminary Environmental Assessment (PEA)* (Technicon Engineering Services, Inc., 2019) prepared for the Project. These studies are included in Appendix C of this document.

Impact #3.4.9a – Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Fresno County Department of Public Health, Environmental Health Division is the Certified Unified Program Agency (CUPA) for the County. The CUPA unifies and consolidates the various requirements for businesses handling hazardous materials, generating or treating hazardous wastes. The Business Plan consists of the following items: Hazardous Materials Business Plan Certification Form, Business Activities Page, Business Owner/Operator Identification Page, Hazardous Materials Inventory Pages(s), Site Map Form, Emergency Response Plans and Procedures, and Employee Training Program.

Construction of the Project would involve the transport and use of minor quantities of hazardous materials such as fuels, oils, lubricants, hydraulic fluids, paints and solvents. The types and quantities of hazardous materials to be used and stored onsite would not be of a significant amount to create a reasonably foreseeable upset or accident condition. The handling and transport of all hazardous materials onsite would be performed in accordance with all applicable federal, State, and local laws and regulations.

During Project operation, minor amounts of custodial chemicals would be used for cleaning purposes. The presence of such materials could present risk if not managed properly. The presence and use of these materials, which can be classified as hazardous materials, create the potential for accidental spillage and exposure of workers to these substances. The District has procedures in place for the transport, use, and storage of hazardous materials which comply with the CDE Title 5. Hazardous and non-hazardous wastes would likely be transported to and from the Project site during the construction phase of the proposed Project. Construction would involve the use of some hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products, although these materials are commonly used during construction activities and would not be disposed of on the Project site. Any hazardous waste or debris that is generated during construction of the proposed Project would be collected and transported away from the site and disposed of at an approved offsite landfill or other such facility. In addition, sanitary waste generated during construction would be managed through the use of portable toilets, which would be located at reasonably accessible onsite locations. Hazardous materials such as paint, bleach, water treatment chemicals, gasoline, oil, etc., may be used at the proposed school. These materials are stored in appropriate storage locations and containers in the manner specified by the manufacturer and disposed of in accordance with local, federal, and State regulations. Additionally, and in accordance with applicable federal and State Health and Safety Codes, and Fresno County regulations, the Project proponent would be required to prepare and submit a revised Hazardous Materials Business Plan to include the new school site to the appropriate regulatory agency. Therefore, with implementation of Mitigation Measure MM HAZ-1, no significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous waste during construction or operation of the new school campus would occur.

Technicon Engineering Services, Inc. collected eight discrete samples from the three-acre Project site. The soil samples were collected from the approximate center of each sample plot location at the surface (0 to 6 inches, below the vegetation layer). Soil samples were collected from the beds and furrows of the vineyard to sufficiently capture high pesticide use areas. The eight soil samples from the field area were analyzed for the presence and concentration of organochlorine pesticides (OCPs) and CAM 17 metals (Technicon Engineering Services, Inc., 2019). DTSC approved the results of this sampling event and concurred that no further environmental investigation of the Project site is required.

No crude oil pipeline is located within the Project site. A visual site reconnaissance indicated existing overhead 12kV power lines along Armstrong Avenue and east of the existing Marshall Elementary School. At 12kV, the power line is not classified as a high voltage line. Additionally, no underground power lines are present within or along the borders of the site. No setbacks from these power lines are required since they carry power <50 kV.

With mitigation, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Based on analysis above, Mitigation Measure MM HAZ-1 has been proposed to mitigate potential impacts. With this mitigation, the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials nor create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts would be less than significant with mitigation incorporated.

Mitigation Measure(s)

MM HAZ-1: Prior to operation of the Project, the Project proponent shall prepare a Hazardous Materials Business Plan that identifies the new location of the new school campus and submit it to the appropriate regulatory agency for review and approval. The Project proponent shall provide the Hazardous Materials Business Plan to all contractors working on the Project and shall ensure that one copy is available at the Project site at all times.

Level of Significance

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.9b – Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

See Impact #3.4.8a, above.

Mitigation Measure(s)

Implementation of Mitigation Measure MM HAZ-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.9c – Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

See Impact #3.4.8a, above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measure MM HAZ-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.9d – Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

An online search was conducted of Cortese List to identify locations on or near the Project site. The Department of Toxic Substances Control (DTSC) website indicated that there are no hazardous or toxic sites in the vicinity (within one mile) of the Project site (Cal EPA, n.d.). The State Water Resources Control Board website indicated that there are no permitted underground storage tanks, leaking underground storage tanks, or any other cleanup sites on or in the vicinity (within one mile) of the Project site (California Water Resources Board, n.d.).

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment. The Project site is not within the immediate vicinity of a hazardous materials site and would not impact a listed site. Literature review of available federal, State, and local database information systems was performed for the purpose of identifying known recognized environmental conditions present on the site and the nearby properties that have the potential to adversely impact the site. There is no data identifying any facilities within one-quarter mile of the site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials, substances, or wastes that might affect the proposed school expansion. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.9e – Would the Project for a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?

The proposed Project is not within the boundary of the Fresno Airport land use compatibility zones, and there are no public airports within two miles of the Project site (Fresno Council of Governments, 2018). The closest public airport is the Selma Airport, located approximately 10 miles southwest of the Project. Therefore, the Project would not result in a safety hazard as result of proximity to a public or private use airport and would have no impact.

LEVEL OF SIGNIFICANCE

Impacts would be ***no impact.***

Impact #3.4.9f – Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The proposed Project is required to adhere to the standards set forth in the Uniform Fire Code, which identifies the design standards for emergency access during both the Project's construction and operational phases. The Project would also comply with the appropriate local and State requirements regarding emergency response plans and access. The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. The proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the Project would have a less-than-significant impact with the incorporation of mitigation.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.9g – Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The proposed Project is surrounded by a mix of agricultural and residential land uses and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, as there are no wildlands in the vicinity. According to available data, (see Figure 1-3), the Project site is not located within a hazard zone classified as Very High, High or Moderate for wildland fires (Cal Fire, 2006). Construction and operation of the Project is not expected to increase the risk of wildfires on or adjacent to the Project site. The Project will also be required to comply with all applicable standards as required by the State Fire Marshall, CDE Title 5 and Title 24 regulations, as well as local fire codes.

The proposed Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Therefore, the impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

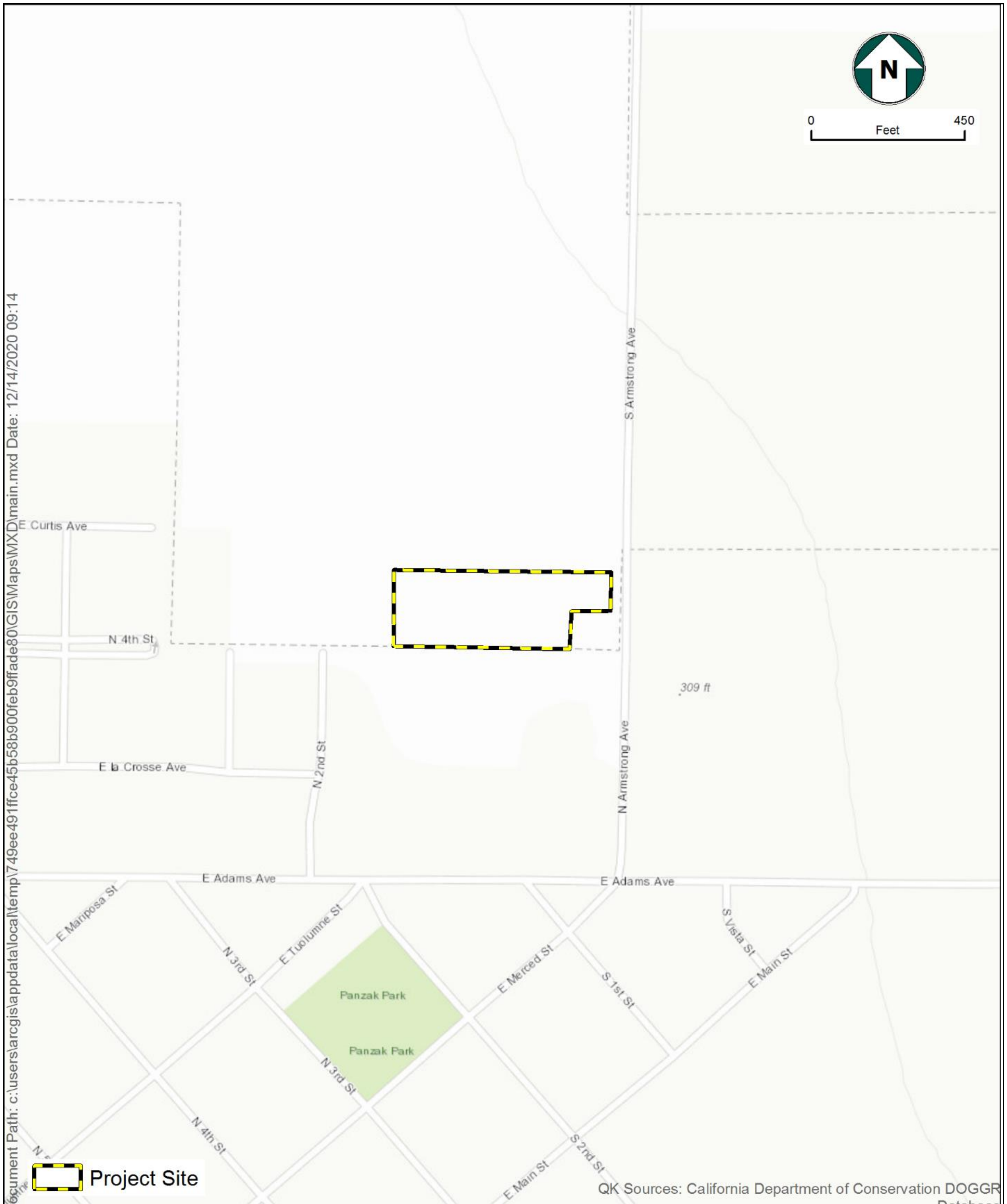

Figure 3.4.9-1
Oil / Gas Wells and Field Boundaries

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.10 - Hydrology and Water Quality

Would the Project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would?	☐	☒	☐	☐
i. Result in substantial erosion or siltation on or offsite;	☐	☒	☐	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;	☐	☒	☐	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☒	☐	☐
iv. Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

Impact #3.4.10a – Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction of the Project would involve excavation, soil stockpiling, mass and fine grading, the installation of supporting drainage facilities, and associated infrastructure. During site grading and construction activities, large areas of bare soil could be exposed to erosive forces for long periods of time. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters.

Additionally, accidental spills or disposal of potentially harmful materials used during construction could possibly wash into and pollute surface water runoff. Materials that could potentially contaminate the construction area, or spill or leak, include lead-based paint flakes, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. A SWPPP for construction-related activities would include, but not be limited to, the following types of BMPs to minimize the potential for pollution related to material spills:

- Vehicles and equipment will be cleaned;
- Vehicle and equipment fueling, and maintenance requirements will be established; and
- A spill containment and clean-up plan will be in place prior to and during construction activities.

In order to reduce potential impacts to water quality during construction activities, Mitigation Measure MM GEO-1 requires the Project proponent to file a Notice of Intent (NOI) to comply with the NPDES General Construction Permit and prepare a SWPPP. The Project SWPPP would include BMPs targeted at minimizing and controlling construction and post-construction runoff and erosion to the maximum extent practicable. Mitigation Measure MM GEO-2 requires the District to limit grading to the minimum area necessary for construction of the Project. Additionally, as noted in Section 3.4.9, *Hazards and Hazardous Materials*, Mitigation Measure MM HAZ-1 requires that all hazardous wastes be stored and properly managed in accordance with the approved Hazardous Waste Exclusion Plan and Hazardous Materials Business Plan.

Once constructed, it is unlikely that operational activities would impact surface water quality. The Project would continue to comply with all local regulations related to water quality. The Project site will be graded in compliance with City requirements, and impacts to water quality would be considered less than significant.

In order to reduce potential soil erosion that might be an impact to water quality during construction, Mitigation Measures MM GEO-1, MM GEO-2, and MM HAZ-1 would be required. With mitigation, the proposed Project would not violate any water quality standards or waste discharge requirements. Therefore, the Project would have a less-than-significant impact with incorporation of mitigation.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM GEO-1, MM GEO-2, and MM HAZ-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10b – Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

The Project site is located within the Fresno County Subbasin within the San Joaquin Valley-Kings Groundwater Basin (Basin Number 5-022.08, DWR Bulletin 118), which is identified as being critically over drafted (California Department of Water Resources, 2020). The City of Fowler is a member of the South Kings Groundwater Sustainability Agency (SKGSA) Groundwater Management Act (SGMA) requirements and the newly formed Groundwater Sustainability Agencies. SGMA consists of three legislative bills and the legislation provides a framework for a long-term sustainable groundwater management across California. The SKGSA has adopted a Groundwater Sustainability Plan (South Kings Groundwater Sustainability Agency, 2019) that includes goals to ensure that by year 2040, the basin is managed in a sustainable manner to maintain reliable water supply for current and future uses.

The water purveyor for the Project will be the City of Fowler Water Department, who currently provides water to the existing elementary school. The water at the City of Fowler is supplied by six well sites located throughout the City (City of Fowler, 2021). The proposed Project is not proposing to expand the student or faculty population beyond what is existing. The use of fixtures such as low flow toilets, faucets and drip irrigation, where feasible, will also reduce water demand. Therefore, the Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.10c(i) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or offsite?

The rate and amount of surface runoff is determined by multiple factors, including the following: topography, the amount and intensity of precipitation, the amount of evaporation that occurs in the watershed ,and the amount of precipitation and water that infiltrates to the groundwater. The proposed Project would alter the existing drainage pattern of the site, which would have the potential to result in erosion, siltation, or flooding on or offsite. The disturbance of soils onsite during construction could cause erosion, resulting in temporary construction impacts. In addition, the placement of permanent structures onsite could affect drainage in the long-term. Impacts from construction and operation are discussed below.

As discussed in Impact #3.4.10a, above, potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. Construction-related erosion and sedimentation impacts, as a result of soil disturbance, would be less than significant after implementation of Mitigation Measure MM GEO-1, which requires approval of a SWPPP and BMPs required by the NPDES, as well as MM GEO-2 that requires minimizing grading during construction. No drainages or other water bodies are present on the Project site, and therefore, the proposed Project would not change the course of any such drainages, Additionally, as noted in Section 3.4.9, *Hazards and Hazardous Materials*, Mitigation Measure MM HAZ-1 requires that all hazardous wastes be stored and properly managed in accordance with revision of the approved Hazardous Materials Business Plan.

Once constructed, there would be areas of impervious surface that might cause stormwater runoff during rain events. However, the site will be graded in compliance with City requirements, and impacts from stormwater would be considered less than significant.

With mitigation, the Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or offsite. Therefore, the Project would have a less-than-significant impact with incorporation of mitigation.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HAZ-1, MM GEO-1, and MM GEO-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10c(ii) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite?

See also Impact #3.4.9c, above.

The Project site is relatively flat, and grading would be minimal. The topography of the site would not appreciably change because of grading activities. The site does not contain any blue-line water features, including streams or rivers. The Project would develop significant areas of impervious surfaces that could significantly reduce the rate of percolation at the site or concentrate and accelerate surface runoff in comparison to the baseline condition. In addition, there are areas of the Project that would be undeveloped (i.e., play areas and portions of the recreational field), and stormwater would generally allow water to percolate to ground.

Mitigation Measure MM HAZ-1 would require the Project proponent to revise their Hazardous Materials Business Plan, which would minimize this impact by ensuring safe handling of hazardous materials onsite and provide for cleanup in the event of an accidental release. MM GEO-1 and MM GEO-2 requires the development of a SWPPP and the use of BMPs, and limit the amount of grading where feasible to reduce impacts to water quality during construction, respectively. Once constructed, the Project will handle stormwater as required by City. The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial drainage patterns or cause substantial surface runoff that would result in flooding on or offsite. Therefore, the Project would have a less-than-significant impact with the incorporation of mitigation.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM GEO-1, GEO-2 and MM HAZ-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10c(iii) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Please see response #3.4.10a through c(ii), above. The Project would comply with all applicable State and City codes and regulations. The Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

No streams or rivers exist within the Project's vicinity that would result in substantial erosion or siltation on or offsite. With implementation of MM HAZ-1, MM GEO-1 and MM GEO-2 as noted above, the Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, nor provide additional sources of polluted runoff.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HAZ-1, MM GEO-1 and MM GEO-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10c(iv) – Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

As discussed above in Impact #3.4.10a through c(iii), construction and operations activities could potentially degrade water quality through the occurrence of erosion or siltation at the Project site. Additionally, accidental release of potentially harmful materials, such as engine oil, diesel fuel, or other substances used in operation of the facilities, could potentially degrade water quality onsite.

Construction of the Project would include soil-disturbing activities that could result in erosion and siltation, as well as the use of harmful and potentially hazardous materials required to operate vehicles and equipment. The transport of disturbed soils or the accidental release of potentially hazardous materials could result in water quality degradation. The District would be required to request coverage under the NPDES Construction General Permit. A SWPPP would be prepared to specify BMPs to prevent construction pollutants as required by MM GEO-1. Mitigation Measure MM GEO-2 requires the District to limit grading to the minimum area necessary for construction and operation of the Project. Additionally, as noted in Section 3.4.9, *Hazards and Hazardous Materials*, Mitigation Measure MM HAZ-1 requires that all hazardous wastes be stored and properly managed in accordance with the approved Hazardous Waste Exclusion Plan and Hazardous Materials Business Plan. The proposed Project would not otherwise substantially degrade water quality. Therefore, the Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM HAZ-1, MM GEO-1, and MM GEO-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10d – Would the Project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?

The Project site is not located near the ocean or a steep topographic feature (i.e., mountain, hill, bluff, etc.). Therefore, there is no potential for the site to be inundated by tsunami or mudflow. Additionally, there is no body of water within the vicinity of the Project site. There is no potential for inundation of the Project site by seiche.

As shown by Federal Emergency Management Agency (FEMA), the school property is not located within a 100-year flood zone (see Figure 3.4.10-1). The potential for flooding at the site appears to be very low. The proposed Project site is located within a FEMA Flood Hazard Zone X: Area of Minimal Flood Hazard.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impacts.***

Impact #3.4.10e – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The GSP for the South Kings Groundwater Basin includes measurable thresholds to ensure goals are met.

As discussed in Impact #3.4.10b, the water demand from this Project would not result in a significant impact due to depleted groundwater resources or interference with groundwater recharge. The Project would not expand water demand beyond what the existing school uses, and in fact, may reduce water usage by the use of more efficient appliances such as low flow toilets and faucets.

As the Project site has adequately analyzed in the Fresno County General Plan, it has been determined that the use is consistent with the SKGSA and SGMA. The proposed Project will not substantially deplete aquifer supplies or interfere substantially with groundwater recharge or significantly alter local groundwater supplies, nor deplete the water supply or significantly increase water demand that would conflict with the GSP. Therefore, no additional requirements or implementation measures are applicable.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

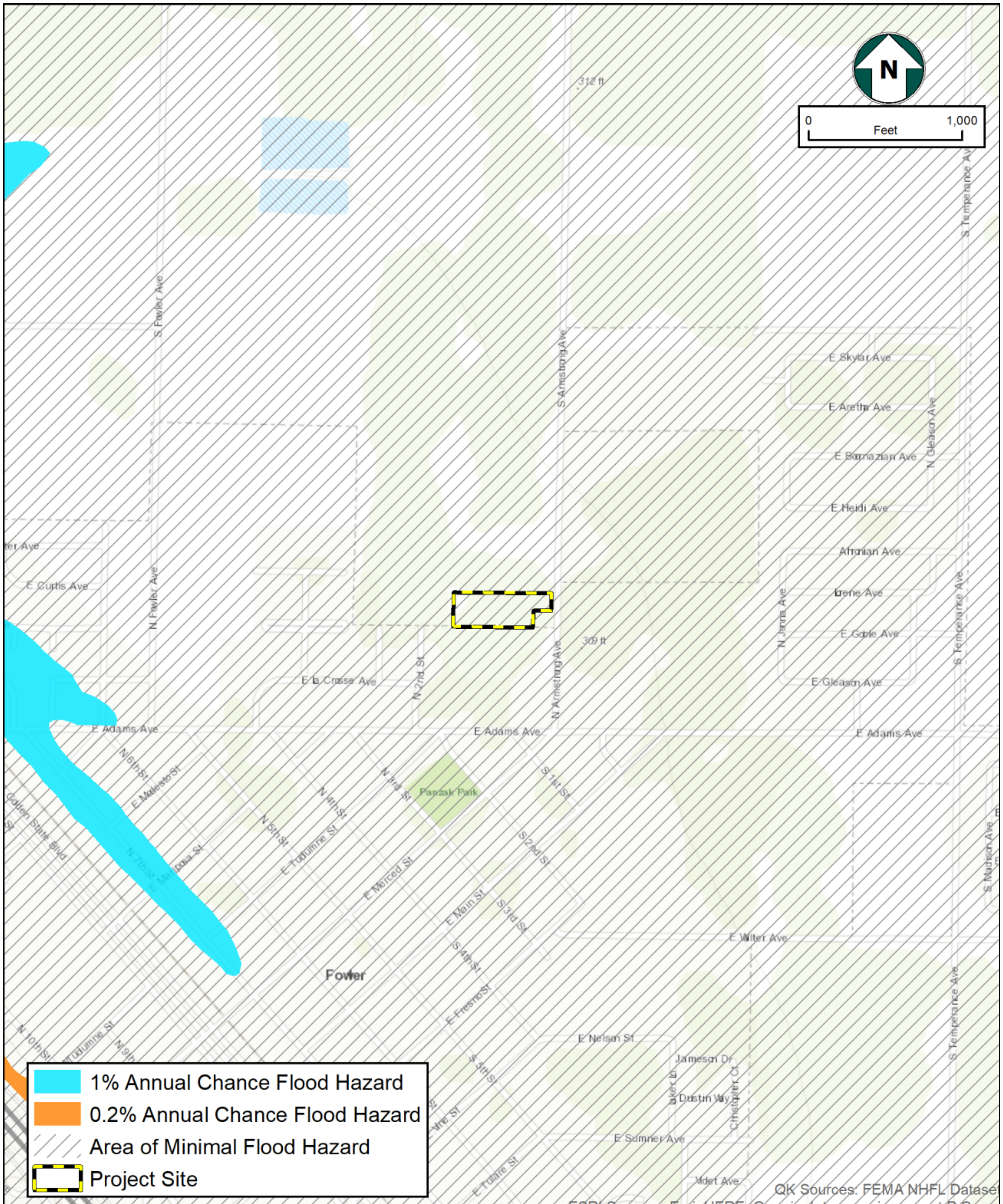

Figure 3.4.10-1
FEMA Flood Hazards

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.11 - LAND USE AND PLANNING				
Would the Project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion

Impact #3.4.11a – Would the Project physically divide an established community?

The proposed Project site is presently undeveloped land and is surrounded by agricultural land to the north and west, the existing elementary school on the south and a residence and agricultural uses to the east. The boundary of incorporated City of Fowler is adjacent to the south side of the Project site. The Project intends to be annexed into the City in the near future. The proposed Project would not physically divide an established community. Therefore, the Project will have a no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.11b – Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

As noted previously, the City of Fowler's General Plan designates the proposed school expansion site as Park/Open Space, while the County's Fowler Community Plan designates the site for reserve Medium-Density Residential use. Schools are a permitted use in all single-family residential areas per the County of Fresno General Plan. The Fowler Unified School District expects the site to be annexed by the City of Fowler at the time of development (County of Fresno, 2019). The proposed school site and immediate surrounding area are within the City of Fowler's sphere of influence and are designated for residential land use in the County's Fowler Community Plan and are subject to countywide goals, objectives, and standards. The City of Fowler's General Plan designates the site as Park/Open Space. Fresno County General Plan Policy PF-I.1, related to the locating of school facilities, states that the County shall encourage school districts to provide quality educational facilities to accommodate projected student growth in locations consistent with Land Use Policies in the General Plan. Policy PF-I.7 states that the County shall include schools among those public facilities and services that are considered an essential part of the development service facilities that should be in place as development occurs and shall work with residential developers and school districts to ensure that needed school facilities are available to serve new residential development. This proposal is consistent with this policy.

Additionally, Government Code Section 53091 does not require a school district to comply with county land use designations and therefore, the District is not seeking a General Plan Amendment or zone change for the subject site. The Project is not anticipated to result in substantial direct or indirect population growth. The proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.12 - MINERAL RESOURCES				
Would the Project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☒	☐
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

Discussion

Impact #3.4.12a – Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No current mineral extraction activities exist on the Project site nor are any mineral extraction activities included in the Project design. As illustrated in Figure 3.4.9-1, the Project site is not located in an oilfield, and there are no known wells located on the site. The closest oil well is located approximately 2.4 miles to the north of the Project site (California Department of Conservasion, 2021). The Project is also not identified as being in a Mineral Resources Zone (MRZ) nor is it indicated to have known mineral resources of value to the region or State (California Department of Conserviation, 2021). The proposed Project would not result in the loss of availability of mineral resources as the Project does not propose the extraction of mineral resources. Additionally, the proposed Project would not restrict the ability of mineral rights' holders, in the area, to exercise their legal rights to access surrounding sites for the exploration and/or extraction of underlying oil research or other natural resources.

The proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.12b – Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

As noted in Section 3.4.11, *Land Use and Planning*, the proposed Project is not designated as a mineral recovery area or MRZ by the FCGP. The Project would not alter any existing plans that protect mineral resources. As a result, the proposed Project would not interfere with mining operations and would not result in the loss of land designated for mineral and petroleum.

The proposed Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.13 - NOISE

Would the Project result in:

a.	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b.	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c.	For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☒	☐

Discussion

Impact #3.4.13a – Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The Fresno County General Plan has noise policies within the Health and Safety Element (Fresno County, 2000). It discusses the noise environment in the County Planning Area and establishes policies regarding land uses that may generate noise and sensitive land uses that may be affected by noise generated elsewhere. Schools are identified as a sensitive land use. The primary function of the Noise Element is to incorporate noise considerations into the land use decision-making process.

Construction-related noise levels and activities will be temporary and intermittent. Construction activities are anticipated to take approximately 9-12 months. The proposed Project will generate noise from the following construction equipment: crane, bulldozer, grader, bob cat, trencher, cement truck, water truck, trash truck, equipment delivery truck, and construction crew vehicles. No pile driving is proposed for this Project. Additionally, traffic and the various other noises generally associated with construction activities will be temporary and only take place during daylight hours. In addition, the construction-related noise will be intermittent and cease once the proposed Project is completed. Consequently, sensitive receptors located at the school site will not be exposed to noise levels that violate applicable noise standards. Impacts to sensitive receptors onsite are considered less than significant.

Once constructed, the Project would not significantly increase traffic on local roadways and will not generate other types of noise. Activities that would take place within the new facilities would be similar to noise currently generated around the school site.

As indicated above, the Project's noise impacts are anticipated to generate noise levels below standards established and comply with local codes and regulations. Any permanent increase in ambient noise levels in the Project vicinity and temporary or periodic increases in ambient noise levels in the Project vicinity would not be considered significant.

MITIGATION MEASURE(S)

No mitigation required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.13b – Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activities in general can have the potential to create groundborne vibrations. However, based on the soil types found in the general Project vicinity, it is unlikely that any blasting or pile driving would be required in connection with construction of the school expansion. Therefore, the potential for groundborne vibrations to occur as part of the construction of the Project is considered minimal.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 inch/second) appears to be conservative even for sustained pile driving. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. The typical vibration produced by construction equipment is illustrated in Table 3.4.13-1.

Construction will be of short duration and will not require jackhammers or pile driving. Therefore, the potential for groundborne vibrations impacts during the construction of the Project is considered less than significant. Once operational, the Project would not have any activities that would create groundborne vibrations. The proposed Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Table 3.4.13-1
Typical Vibration Levels for Construction Equipment

Equipment	Reference peak particle velocity at 25 feet (inches/second)[1]	Approximate peak particle velocity at 100 feet (inches/second)[2]
Large bulldozer	0.089	0.011
Loaded trucks	0.076	0.010
Small bulldozer	0.003	0.0004
Vibratory compactor/roller	0.210	0.026

Notes:
1 – Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006. Table 12-2.
2 – Calculated using the following formula:
$PPV_{equip} = PPVref \times (25/D)1.5$
where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA Transit Noise and Vibration Impact Assessment Guidelines
D = the distance from the equipment to the receiver

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.13c – For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

See Impact #3.4.9e.

The proposed Project is not located within the vicinity of an airport land use plan or within two miles of a public or private airport. The proposed Project would not expose people residing in or working in the proposed Project area to excessive noise levels related to public or private airports. There would be no impact associated with the proposed Project relating to excessive noise from a public or private airport. Therefore, the proposed Project would have less-than-significant impacts.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.14 - POPULATION AND HOUSING				
Would the Project:				
a. Induce substantial population unplanned growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

Impact #3.4.14a – Would the Project induce substantial population unplanned growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Project includes the expansion of the existing Marshall Elementary School campus to allow for the operation of the early childhood education program. The proposed expansion will not increase the student population or faculty population.

The proposed Project would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). Therefore, impacts of the Project would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.14b – Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed Project site is undeveloped, therefore, would not displace any existing housing or people nor would implementation of the Project require construction or replacement of housing. There is an existing property developed with a single-family residence that borders the southeast portion of the site. The residence will remain after the preschool is constructed.

In addition, it is anticipated that construction workers would come from the surrounding area and would not require new housing. The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.15 - PUBLIC SERVICES

Would the Project:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Discussion

Impact #3.4.15a(i) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services - Fire Protection?

The proposed Project would have to comply with the California Department of Education Title 5, California Code of Regulations Section 14001, which requires that all schools are designed to meet federal, State, and local statutory requirements for structure, fire, and public safety, and shall be conveniently located for public services, including but not limited to fire protection, police protection, public transit and trash disposal whenever feasible.

Unincorporated portions of the Planning Area are within the jurisdiction of the Fresno County Fire Protection District. However, as the proposed Project site is expected to be annexed into the City of Fowler, fire protection services will be provided by the City of Fowler Fire Department. This fire department is an all-volunteer department providing essential services such as fire suppression and prevention, and emergency and non-emergency medical services. The fire department received assistance from the California Department of Forestry (City of Fowler, 2020). Additionally, in the event that the Fowler Fire Department cannot adequately respond to an emergency, the Fresno County Fire Protection District will be able to respond.

The closest fire station to the Project site is located 0.5 miles southwest of the Project site. Additionally, for any additional fire suppression support for the proposed Project site would come from Fresno County Fire Station #82 located on 9700 East American.

An approved water supply system capable of supplying required fire flow for fire protection purposes is to be provided to all portions of the school campus where buildings are to be located. The establishment of gallons-per-minute requirements for fire flow shall be based on the *Guide for Determination of Required Fire Flow*, published by the State Insurance Service Office and Fresno County's adopted Fire Code.

Fire hydrants would also be located and installed per the County of Fresno standards. The District would install the required infrastructure to meet water supply demands for municipal fire protection services. These design standards coupled with existing fire protection infrastructure would provide for proper fire suppression services onsite. By meeting these standards and incorporating needed design features in the Project design, no additional fire protection services would be required. Therefore, the Project would not increase the need for such services beyond the baseline condition.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.15a(ii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Police Protection?

The Fresno County Sheriff's Office (FCSO) provides law enforcement services to the unincorporated areas of the County. FCSO would provide primary public protection to the Project site and surrounding areas.

The Project will not directly cause an increase in the student or faculty population that would require more police protection services, and it is unlikely that the expansion of the existing elementary school campus could result in additional police service calls. However, the District would continue to implement current security measures used in the existing elementary school. Therefore, impacts to police protection services are considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.15a(iii) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Schools?

As stated previously, the expansion of the existing elementary school campus would allow the separate operation of the early learning program. The proposed expansion will not increase the overall student and faculty population. Therefore, the proposed Project has no impacts on school services.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.15a(iv) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Parks?

The nearest park facilities are Panzak Park located approximately 0.2 miles southwest of the proposed Project site and Donny Wright Park located approximately 1.2 miles southwest of the proposed Project. The proposed Project includes onsite playground and recreational areas as appropriate for the students and is not anticipated to result in a significantly greater usage of the parks in the Project vicinity. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.15a(v) – Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – Other Public Facilities?

The proposed Project is to serve the existing student population and relocate the District's early learning program to a separate area. The proposed Project will not increase the student or faculty population. Therefore, the Project would not induce the appreciable use of other public facilities such as libraries, courts, and other Fresno County services.

The proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause a significant environmental impact. Therefore, no impacts are expected.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.16 - RECREATION				
Would the Project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

Impact #3.4.16a – Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed Project would not increase the population of Fowler, as there is no increase in capacity at the school. As such, it is unlikely that the Project would increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration would occur or be accelerated or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. Therefore, the Project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.16b – Would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See Impact #3.4.15a(iv) and Impact #3.4.16a, above.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.17 - TRANSPORTATION				
Would the Project:				
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

Impact #3.4.17a – Would the Project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Because the proposed Project is smaller in size and scope, traffic during construction of the proposed Project would be minimal and of short duration. Once the proposed Project has been constructed, traffic would be similar to the existing school, although there would be an improvement in traffic flow with the separation of the early learning classrooms from the rest of the elementary school. No additional traffic is expected with implementation of the proposed modified Project since there will be no increase in student or faculty population.

Transit

The Project site and surrounding area is zoned for residential uses. The General Plan does not include transit stops in the Project area. The closest bus stop is on South 7th Street and East Merced Street. Similar to the existing school, the proposed Project would not conflict with the existing transit system.

Bike

The General Plan does not include bike lanes in the Project area. There are no existing bike lanes in close proximity to the proposed Project.

Roadways

The proposed Project does not require or propose the construction of a new street and will be served by the same streets serving the existing school.

Vehicle Miles Traveled (VMT) Evaluation

The new CEQA Guidelines Section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shifts the focus driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

To date, the City has not yet formally adopted its transportation significance thresholds or its transportation impact analysis procedures. The proposed Project would not create or attract any more trips per day than what is currently generated; therefore, it is not expected for the Project to have a potentially significant level of VMT. Therefore, impacts related to CEQA Guidelines Section 15064.3 subdivision (b) would be less than significant.

The early learning program will be utilized by the existing student population and is not expected to increase the number of miles driven or increase the volume of traffic in the area. All parking would be onsite.

Therefore, the proposed Project will not conflict with a program, plan, ordinance or policy addressing the circulation system. Therefore, the proposed Project would have less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.17b – Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

See Impacts #3.4.17a and b, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.17c – Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project will be designed to current standards and safety regulations. No new roadways are proposed. The early learning facility will be accessed off of the existing South Armstrong Avenue and allow for safe movement of vehicles during student drop off and pick-up times.

Vehicles will be provided with a clear view of the roadway without obstructions. Landscaping associated with the entry driveways could impede such views if improperly installed. Specific circulation patterns and roadway designs will incorporate all applicable safety measures to ensure that hazardous design features or inadequate emergency access to the site or other areas surrounding the Project area would not occur.

Therefore, with the incorporated design features and all applicable rules and regulations, the proposed Project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.17d – Would the Project result in inadequate emergency access?

See the discussion in Impact #3.4.9f.

State and city fire codes and regulations establish standards by which emergency access may be determined. The proposed Project would have to provide adequate unobstructed space for fire trucks to turn around. The proposed Project site would have adequate internal circulation capacity including entrance and exit routes to provide adequate unobstructed space for the fire trucks and other emergency vehicles to gain access and to turn around.

The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. The proposed Project would not interfere with the District's established Emergency Response Plan.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.18 - TRIBAL CULTURAL RESOURCES				
Would the Project:				
a. Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
ii. A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

Impact #3.4.18a(i) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

See the discussion presented in Section 3.4.5 - *Cultural Resources,* Impacts #3.4.5a through #3.4.5c.

On December 15, 2020, the Native American Heritage Commission (NAHC) was asked to conduct a search of its Sacred Lands File to identify previously recorded sacred sites or cultural resources of special importance to tribes and provide contact information for local Native American representatives who may have information about the Project area. The NAHC responded on January 14, 2021, with negative findings and attached a list of Native American tribes and individuals culturally affiliated with the Project area.

On January 15, 2021, letters were mailed to each of the Native American tribes within the geographic area (see Appendix B). The letters included a brief Project description and location maps. To date, one response was received from the Table Mountain Rancheria declining participation for consultation at this time and to be notified in the unlikely event that cultural resources are identified. No other letters from tribal groups were received.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-2, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.18a(ii) – Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe?

See discussion for Impacts #3.4.5a through#3.4.5c and Impact #3.4.18a, above.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.19 - Utilities and Service Systems				
Would the Project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

Impact #3.4.19a – Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?

The Project is within the City of Fowler's sphere of influence area and will be annexed into the City boundaries prior to construction, which supplies potable water to this area for residential and commercial. The current system is comprised of six wells throughout the City. The proposed Project will connect to the existing water lines currently serving the existing Marshall Elementary School. As noted elsewhere, the proposed Project does not include an increase in students or faculty beyond current levels. There would be no increase in water usage in the new classrooms, and water use may decrease with the use of more efficient equipment. No other increase in public utility services is anticipated.

The proposed Project will connect to the sewer lines serving the existing Marshall Elementary School. Electric power will be supplied by Pacific Gas and Electricity (PG&E). No new telecommunication lines or facilities are proposed to be built within the Project. Sanitation/garbage collection will continue to be provided by Waste Management, which serves the City of Fowler.

The proposed modified Project will connect to existing sewer connection, currently serving the existing elementary school. Wastewater is managed by the Selma-Kingsbury-Fowler County Sanitation District, which provides wastewater services to the City of Fowler and other surrounding jurisdictions. The sewer lines would connect to the City of Fowler's existing sanitary sewer system and is not expected to increase the amount of sewage significantly.

For these reasons, the proposed modified Project would not need to relocate or construct a new or expanded water, wastewater treatment or stormwater drainage. The proposed modified Project would not result in additional impacts greater than analyzed in the adopted IS/MND. Therefore, the proposed modified Project would have no impact. Based on the foregoing, no new or revised mitigation measures are required.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.19b – Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?

The Project site is located within the Fresno County Subbasin within the San Joaquin Valley-Kings Groundwater Basin (Basin Number 5-022.08, DWR Bulletin 118), which is identified as being critically over drafted (California Department of Water Resources, 2020). As discussed in Impact #3.4.10e, the South Kings Groundwater Basin GSP has goals set in order to ensure the areas within the basin contain sufficient water supplies through 2040. The Project will not impede with any of the GSP goals.

The Project would be served by water provided by the City of Fowler and water lines would be constructed to supply water to the school. As discussed in response to Impact #3.4.19a, above, there is adequate water supply for the Project. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less-than-significant impact***.

Impact #3.4.19c – Would the Project result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

See Impact #3.4.19a and b, above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less-than-significant impact***.

Impact #3.4.19d – Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Implementation of the proposed Project would result in the generation of solid waste on the Project site, which would increase the demand for solid waste disposal. Solid waste removed from the site would be transported to the American Avenue disposal site located approximately 29 miles west of the proposed Project site. The American Avenue disposal site is estimated to be able to continue operation until 2031 when it will be full and will have to be closed (City of Fresno, 2021). The landfill has sufficient capacity to accommodate the proposed Project.

The Project, in compliance with federal, State, and local statutes and regulations related to solid waste, would dispose of all waste generated onsite at an approved solid waste facility (American Avenue Landfill). The Project does not and would not conflict with federal, State, or local regulations related to solid waste. The proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs in compliance with federal, State, and local statutes and regulations related to solid waste. Therefore, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.19e – Would the Project comply with federal, State, and local statutes and regulations related to solid waste?

See discussion for Impact #3.4.19d, above.

The 1989 California Integrated Waste Management Act (AB 939) requires Fresno County to attain specific waste diversion goals. The Local Government Construction and Demolition (C&D) Guide of 2002 (SB 1374) amended this act to include construction and demolition material.

As stated above, the American Avenue landfill has available capacity to accommodate solid waste generated by the proposed Project. Therefore, the proposed Project would not be expected to significantly impact Fresno County landfills. The proposed Project would be required to comply with all federal, State, and local statues and regulations related to solid waste. Therefore, implementation of the proposed Project would result in less-than-significant impacts in this regard.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.20 - WILDFIRE				
Would the Project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Discussion

Impact #3.4.20a – Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

As previously noted in Impact #3.4.9g, the proposed Project site is not located in or near SRA or lands classified as being a very high hazard severity zones. The construction of an elementary school would not impair implementation of the Kern County Emergency Operations Plan or other applicable emergency response plan or evacuation plan. The Project will also be required to comply with all applicable standards as required by the State Fire Marshall, CDE Title 5 and Title 24 regulations, as well as local fire codes. Once operational, the school would also develop and implement an emergency response plan in case of fire or other emergency situation. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation needed.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20b – Would the Project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

As discussed in Impact #3.4.20a, above, the proposed Project site is not located in or near SRA or lands classified as very high hazard severity zones. Additionally, the proposed Project site is flat and does not exacerbate the risk of exposure of Project occupants to wildfire. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation needed.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20c – Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

See Impacts # 3.4.9a and g, #3.4.20a and b. As discussed, the proposed Project site is not located in or near State Responsibility Areas or lands classified as very high hazard severity zones. Additionally, the Project is not located within 350 feet of high voltage transmission lines. The Project would not require the installation or maintenance of infrastructure that would exacerbate fire risk or result in environmental impacts. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation needed.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20d – Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

See Impacts # 3.4.9a and g, #3.4.20a, b, and c, above. The topography of the site is relatively flat, and the Project is not within a FEMA-designated floodplain. Additionally, MM GEO-1 requires the preparation of a SWPPP to mitigate the site drainage changes during the construction of the proposed Project. Therefore, no flooding is anticipated as a result of runoff, post-fire slope instability, or drainage changes, and impacts would be less than significant.

MITIGATION MEASURE(S)

Implementation of MM GEO-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.21 - Mandatory Findings of Significance				
a. Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c. Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

Impact #3.4.21a – Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

As evaluated in this IS/MND, the proposed Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory. With implementation of the mitigation measures recommended in this document, the proposed Project would not have the potential to degrade the quality of the environment, significantly impact biological resources, or eliminate important examples of the major periods of California history or prehistory. Therefore, the Project would have a less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM AES-1, MM BIO-1 through MM BIO-6; MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

The Project would have a ***less-than-significant impact with mitigation incorporated***.

Impact #3.4.21b - Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)?

As described in the impact analyses in Sections 3.4.1 through 3.4.20 of this IS/MND, any potentially significant impacts of the proposed Project would be reduced to a less-than-significant level following incorporation of the mitigation measures listed in Section 6, *Mitigation Monitoring and Reporting Plan*. Projects completed in the past have also implemented mitigation as necessary. Accordingly, the proposed Project would not otherwise combine with impacts of related development to add considerably to any cumulative impacts in the region. With mitigation, the proposed Project would not have impacts that are individually limited but cumulatively considerable. Therefore, the Project would have a less-than-cumulatively-considerable impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures MM AES-1, MM BIO-1 through MM BIO-6; MM CUL-1 and MM CUL-2, c.

LEVEL OF SIGNIFICANCE

The Project would have a ***less-than-significant impact with mitigation incorporated***.

Impact #3.4.21c - Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

All of the Project's impacts, both direct and indirect, that are attributable to the Project were identified and mitigated. As shown in Section 6, *Mitigation Monitoring and Reporting Plan*, the District has agreed to implement mitigation measures that will substantially reduce or eliminate impacts of the Project. Therefore, the proposed Project would not either directly or indirectly cause substantial adverse effects on human beings because all potentially adverse direct impacts of the proposed Project are identified as having no impact, less-than-significant impact, or less-than-significant impact with mitigation incorporated.

Mitigation Measure(s)

Implementation of Mitigation Measures MM AES-1, MM BIO-1 through MM BIO-6; MM CUL-1 and MM CUL-2, MM GEO-1 MM GEO-2 and MM GEO-3 and MM HAZ-1.

Level of Significance

The Project would have a ***less-than-significant impact with mitigation incorporated***.

SECTION 4 - LIST OF PREPARERS

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SECTION 6 - MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Implementation	MONITORING
AESTHETICS			
3.4.1	**MM-AES-1:** All outdoor lighting shall be hooded and directed downward so as to not shine toward adjacent properties and public streets.	FUSD/Project Contractor	Project Inspector
BIOLOGICAL RESOURCES			
3.4.4	**MM BIO-1:** Prior to ground disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 calendar days prior to the onset of construction. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, American badger, Swainson's hawk, western burrowing owl, nesting birds and other special-status species or their sign. The pre-construction survey shall be walked by a maximum distance of 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency. Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or*	FUSD/Project Contractor	Project Inspector

During Ground Disturbance (United States Fish and Wildlife Service, 2011).

In addition, impacts to occupied burrowing owl burrows shall be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

If burrowing owl are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement of occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction activities shall occur at a rate sufficient to detect burrowing owl, if they return.

	MM BIO-2: Prior to ground disturbance activities, or within one week of being deployed at the Project site for newly hired workers, all construction workers at the Project site shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist. The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of "take" under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction personnel. The program shall include: • An acknowledgement form signed by each worker indicating that environmental training has been completed. • A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain on site for the duration of construction activities.	FUSD/Project Contractor	Project Inspector
	MM BIO-3: The following measures shall be implemented to reduce potential impacts to Swainson's hawk: Nesting surveys	FUSD/Project Contractor	Project Inspector

for the Swainson's hawks shall be conducted in accordance with the protocol outlined in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's hawk Technical Advisory Committee, 2011). If potential Swainson's hawk nests or nesting substrates are located within 0.5 mile of the Project site, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site: one visit during January 1-March 20 to identify potential nest sites, three visits during March 20-April 5, three visits during April 5-April 20, and three visits during June 10-July 30. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted.

If Swainson's hawks are not found to be present, then no action is warranted. If Swainson's hawks are found to nest within the survey area, active Swainson's hawk nests shall be avoided by 0.5 mile during the nesting period, unless this avoidance buffer is reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson's hawk issues. If a construction area falls within this nesting area, construction must be delayed until the young have fledged (left the nest). The 0.5-mile radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area

	is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction activities do not disrupt breeding behaviors.		
	MM BIO-4: A qualified biologist shall conduct a pre-construction survey on the Project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If no burrowing owl or potential den of burrowing owl is identified, then no further action is warranted. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW staff report on burrowing owl mitigation (CDFW , 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through noninvasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.	FUSD/Project Contractor	Project Inspector
	MM BIO-5: If construction is planned outside the nesting period for raptors (other than the western burrowing owl) and	FUSD/Project Contractor	Project Inspector

	migratory birds (February 15 to August 31), no mitigation shall be required. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified on-site monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days as construction activities are occurring throughout the nesting season. No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.		
	MM BIO-6: During all construction-related activities, the following mitigation shall apply: a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed	FUSD/Project Contractor	Project Inspector

of in securely closed containers. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.

b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within the Project site.

c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.

d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

e. No pets, such as dogs or cats, shall be permitted on the Project sites to prevent harassment, mortality of kit foxes, or destruction of dens.

f. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4005 and reg4sec@wildlife.ca.gov.

	i. All sightings of the San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below. j. Any Project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6544 or (916) 414-6600.		
CULTURAL RESOURCES			
3.4.5	**MM 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	FUSD/Project Contractor	Project Inspector

	additional studies may include avoidance, testing, and evaluation or data recovery excavation.		
	MM 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.	FUSD/Project Contractor	Project Inspector
GEOLOGY AND SOILS			
3.4.7	**MM GEO-1:** Prior to construction, the District shall submit 1) the approved Storm Water Pollution Prevention Plan (SWPPP) and 2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:	FUSD/Project Contractor	Project Inspector

	• Stockpiling and disposing of demolition debris, concrete, and soil properly; • Protecting existing storm drain inlets and stabilizing disturbed areas; • Implementing erosion controls; • Properly managing construction materials; and • Managing waste, aggressively controlling litter, and implementing sediment controls.		
	MM GEO-2: The District shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include best management practices to limit onsite and offsite erosion.	FUSD/Project Contractor	Project Inspector
	MM GEO-3: During any ground disturbance activities, if paleontological resources are encountered, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources. If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource,		

	additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.		
HAZARDS AND HAZARDOUES MATERIALS			
3.4.9	**MM HAZ-1:** Prior to operation of the Project, the Project proponent shall prepare a Hazardous Materials Business Plan that identifies the new location of the school expansion and submit it to the appropriate regulatory agency for review and approval. The Project proponent shall provide the hazardous materials business plan to all contractors working on the Project and shall ensure that one copy is available at the Project site at all times.	FUSD/Project Contractor	Project Inspector

APPENDIX A
SMALL PROJECT ANALYSIS LEVEL

SMALL PROJECT ANALYSIS LEVEL ASSESSMENT

Marshall Elementary School Expansion Project
Fowler, CA

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March 2021

Project 210505.0092

Trinity Consultants

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1. EXECUTIVE SUMMARY

1.1 Executive Summary

Trinity Consultants has completed a limited air quality assessment for the Marshall Elementary School Expansion Project in Fowler, California. The Project includes the construction of separate modular classrooms for the operation of the early childhood education program totaling 16,000 square feet of new building construction and a new parking lot with 66 planned parking spaces. The proposed expansion will not increase the overall student or faculty population.

This limited air quality assessment uses the San Joaquin Valley Air Pollution Control District's (SJVAPCD) screening tool, Small Project Analysis Level (SPAL) (SJVAPCD 2020). This SPAL assessment was prepared pursuant to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015), 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 guidelines 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.

2. PROJECT INFORMATION

2.1 Introduction

The Project site is located in the City of Fowler encompassing approximately three acres of an undeveloped parcel directly adjacent on the north side of the existing Marshall Elementary School on Assessors Parcel Number (APN) 340-130-09. The Project includes the construction of separate modular classrooms for the operation of the early childhood education program totaling 16,000 square feet of new building construction and a new parking lot with 66 planned parking spaces. The proposed expansion will not increase the overall student or faculty population.

The Project was assessed as if it would be developed in one phase. This assessment examines the projected gross impacts 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 within the City of Fowler, northwest of the intersection of E Adams Avenue and N Armstrong Ave. **Figure 2-1** depicts the Project location.

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"[1].

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*
Elementary School	1,880 students
Elementary School	156,000 square feet
Junior High School	1,440 students
Junior High School	168,800 square feet
High School	1,160 students
High School	153,600 square feet
Junior College (2 year)	1,720 students
Junior College (2 year)	74,400 square feet
University/College	1,120 students
Library	38,400 square feet
Place of Worship	141,000 square feet
Day Care Center	40,000 square feet
Proposed Project – Elementary School	16,000 square feet
Proposed Project – Elementary School	0 additional students
SPAL Exceeded?	**No**
*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 would construct 16,000 square feet compared to the allowable project size for an Elementary School project, which is 156,000 square feet. SPAL Table 5 also has vehicle increase requirements, however, this Project will not generate additional vehicle trips. Therefore, this Project will not exceed the SPAL vehicle limits for a "Elementary School" educational project. Based on the above information, this Project qualifies for a limited air quality analysis applying the SPAL guidance to determine air quality impacts.

[1] 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 (SJVAPCD 2015). 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** (SJVAPCD 2015). 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
NO_X	10	10	10
ROG	10	10	10
SO_X	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 2016.3.2 (California Air Pollution Control Officers Association (CAPCOA) 2016). 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 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 construction of separate modular classrooms for the operation of the early childhood education program totaling 16,000 square feet of new building construction and a new parking lot with 66 planned parking spaces at Marshall Elementary School (see Appendix 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, Project construction activities would not exceed construction emissions 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	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	(tons/year)					
2021 Construction Emissions	0.19	1.74	1.57	0.003	0.14	0.10
2022 Construction Emissions	0.17	0.44	0.48	0.001	0.03	0.02
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 energy and area sources emissions. The following changes to default values were incorporated during the CalEEMod analysis:

- A zero vehicle trip rate was used since the Project is only a physical expansion and would not result in an increase of students, staff, or faculty, and therefore would not result in an increase in vehicle trips.

Table 5-2. Total Project Operational Emissions

Emissions Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	(tons/year)					
Operational Emissions	0.08	0.02	0.02	0.000	0.002	0.0002
SJVAPCD Operational Emissions Thresholds – non-permitted sources	10	10	100	27	15	15
Is Threshold Exceeded Before Mitigation?	**No**	**No**	**No**	**No**	**No**	**No**

As calculated (see **Appendix 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 Appendix 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

	CO_2 Emissions metric tons	CH_4 Emissions metric tons	N_2O Emissions metric tons	CO_2e Emissions metric tons
2021 Project Operations	63.12	0.27	0.001	70.11
2005 BAU	342.46	0.35	0.001	351.60
BAU less Project emissions				80.1%

The current inventory and forecast for GHG emissions in the California Air Resources Board's 2008 Climate Change Scoping Plan supports the 2011 IPPC estimates. The 2008 Climate Change Scoping Plan also indicates that GHG emissions will increase to 596.41 million metric tons of CO_2e by 2020. It is widely understood that climate change is a "global" issue and, as such, GHG emissions are a cumulative problem and can only be evaluated as such.

The amount of CO_2 that would be generated by the Project is so small in relation to the California CO_2 equivalent estimates for 2020 (596 million metric tons CO_2e) that it's not possible for the contribution of the project to be cumulatively considerable. Additionally, the Project's GHG emissions are less than the 2005 business as usual emissions for the Project by 281.49 metric tons CO_2e, which is an 80.1% reduction. Therefore, the Project would not generate a cumulatively considerable GHG impact nor would it conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. The Project will also not conflict with any elements of the California Air Resources Board's 2008 Climate Change Scoping Plan. Therefore, this potential impact is less than significant.

5.4 Potential Impact on Sensitive Receptors

The proposed Project is located northwest of the intersection of E Adams Avenue and N Armstrong Ave within the City of Fowler. 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. The closest schools are Marshall Elementary School (the Project site), Casa Blanca High School adjacent to the Project site, Fowler High School at 0.10 miles to the south, Freemont Elementary School at 0.17 miles to the southwest, Sutter Middle School at 0.25 miles to the south, and Fowler Pre School at 0.38 miles to the south. The closest hospital is Adventist Health at 6.40 miles southeast. The closest day care is Creative Steps Daycare and Learning Zone 0.60 miles to the east. The nearest nursing home and assisted living facility are Dycora Transitional Health and Harvest at Flower which are both 0.45 miles to south. 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.

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 an educational expansion located at Marshall 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. 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 (2015, p 96-97), 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:

- ► 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.

The proposed Project is an expansion to an elementary school and is not expected to generate any TAC emissions. The Project would therefore not generate a health risk impact due to TAC emissions. Its potential health risk impacts would therefore be considered less than significant, and no further health risk assessment is required.

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

California Environmental Quality Act (CEQA). 2021. (Public Resources Code 21000 - 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

---------. 2021. CEQA, Appendix G – Environmental Checklist Form, Final Text.

California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model tm (CalEEMod), version 2016.3.2.

----------. 2016. “Air Toxic Hot Spots” Facility Prioritization Guidelines, Revised 2016.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2020. Small Project Analysis Level (SPAL) Memorandum. November 13, 2020. https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF

-----------. 2015. Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). March 19, 2015. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf

-----------. 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17, 2009.

APPENDIX A. CALEEMOD EMISSIONS ESTIMATES OUTPUT FILES

Marshall Elementary School Expansion

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	16.00	1000sqft	3.00	16,000.00	0
Parking Lot	66.00	Space	0.59	26,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Acreage

Construction Phase - Estimates COnstruction Schedule

Vehicle Trips - No Increased Vehicle Trips for this Project

Construction Off-road Equipment Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	210.00
tblConstructionPhase	PhaseEndDate	5/17/2022	4/19/2022
tblConstructionPhase	PhaseEndDate	3/28/2022	2/28/2022
tblConstructionPhase	PhaseEndDate	4/21/2022	3/24/2022
tblConstructionPhase	PhaseStartDate	4/22/2022	3/25/2022
tblConstructionPhase	PhaseStartDate	3/29/2022	3/1/2022
tblLandUse	LotAcreage	0.37	3.00
tblVehicleTrips	WD_TR	15.43	0.00

2.0 Emissions Summary

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					
2021	0.1878	1.7437	1.5681	2.7700e-003	0.0883	0.0910	0.1793	0.0429	0.0854	0.1283	0.0000	241.1810	241.1810	0.0555	0.0000	242.5678
2022	0.1657	0.4351	0.4773	8.3000e-004	5.6300e-003	0.0218	0.0274	1.5200e-003	0.0205	0.0220	0.0000	72.1056	72.1056	0.0167	0.0000	72.5229
Maximum	**0.1878**	**1.7437**	**1.5681**	**2.7700e-003**	**0.0883**	**0.0910**	**0.1793**	**0.0429**	**0.0854**	**0.1283**	**0.0000**	**241.1810**	**241.1810**	**0.0555**	**0.0000**	**242.5678**

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					
2021	0.1878	1.7437	1.5681	2.7700e-003	0.0448	0.0910	0.1358	0.0195	0.0854	0.1049	0.0000	241.1807	241.1807	0.0555	0.0000	242.5675
2022	0.1657	0.4351	0.4773	8.3000e-004	5.6300e-003	0.0218	0.0274	1.5200e-003	0.0205	0.0220	0.0000	72.1055	72.1055	0.0167	0.0000	72.5229
Maximum	**0.1878**	**1.7437**	**1.5681**	**2.7700e-003**	**0.0448**	**0.0910**	**0.1358**	**0.0195**	**0.0854**	**0.1049**	**0.0000**	**241.1807**	**241.1807**	**0.0555**	**0.0000**	**242.5675**

	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**	**46.35**	**0.00**	**21.06**	**52.61**	**0.00**	**15.55**	**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	**3-25-2021**	**6-24-2021**	0.5531	0.5531
2	**6-25-2021**	**9-24-2021**	0.6655	0.6655
3	**9-25-2021**	**12-24-2021**	0.6586	0.6586
4	**12-25-2021**	**3-24-2022**	0.5260	0.5260
5	**3-25-2022**	**6-24-2022**	0.1357	0.1357
		Highest	0.6655	0.6655

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	0.0759	1.0000e-005	7.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4700e-003	1.4700e-003	0.0000	0.0000	1.5600e-003
Energy	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	56.8026	56.8026	2.0100e-003	7.2000e-004	57.0686
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	4.2222	0.0000	4.2222	0.2495	0.0000	10.4604
Water						0.0000	0.0000		0.0000	0.0000	0.1472	1.9450	2.0922	0.0152	3.8000e-004	2.5842
Total	**0.0781**	**0.0197**	**0.0173**	**1.2000e-004**	**0.0000**	**1.5000e-003**	**1.5000e-003**	**0.0000**	**1.5000e-003**	**1.5000e-003**	**4.3694**	**58.7491**	**63.1185**	**0.2668**	**1.1000e-003**	**70.1147**

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	0.0759	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4400e-003	1.4400e-003	0.0000	0.0000	1.5400e-003
Energy	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	56.8026	56.8026	2.0100e-003	7.2000e-004	57.0686
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	4.2222	0.0000	4.2222	0.2495	0.0000	10.4604
Water						0.0000	0.0000		0.0000	0.0000	0.1472	1.9450	2.0922	0.0152	3.8000e-004	2.5842
Total	**0.0781**	**0.0197**	**0.0173**	**1.2000e-004**	**0.0000**	**1.5000e-003**	**1.5000e-003**	**0.0000**	**1.5000e-003**	**1.5000e-003**	**4.3694**	**58.7491**	**63.1185**	**0.2668**	**1.1000e-003**	**70.1147**

	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**	**0.06**	**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	4/22/2021	4/28/2021	5	5	
2	Grading	Grading	4/29/2021	5/10/2021	5	8	
3	Building Construction	Building Construction	5/11/2021	2/28/2022	5	210	
4	Paving	Paving	3/1/2022	3/24/2022	5	18	
5	Architectural Coating	Architectural Coating	3/25/2022	4/19/2022	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.59

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 24,000; Non-Residential Outdoor: 8,000; Striped Parking Area: 1,584 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

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

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	18.00	7.00	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	4.00	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 - 2021

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003	0.0000	8.3589	8.3589	2.7000e-003	0.0000	8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0452**	**5.1100e-003**	**0.0503**	**0.0248**	**4.7000e-003**	**0.0295**	**0.0000**	**8.3589**	**8.3589**	**2.7000e-003**	**0.0000**	**8.4265**

3.2 Site Preparation - 2021

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	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3007	0.3007	1.0000e-005	0.0000	0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3007**	**0.3007**	**1.0000e-005**	**0.0000**	**0.3009**

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					0.0176	0.0000	0.0176	9.6800e-003	0.0000	9.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1012	0.0529	1.0000e-004		5.1100e-003	5.1100e-003		4.7000e-003	4.7000e-003	0.0000	8.3589	8.3589	2.7000e-003	0.0000	8.4265
Total	**9.7200e-003**	**0.1012**	**0.0529**	**1.0000e-004**	**0.0176**	**5.1100e-003**	**0.0227**	**9.6800e-003**	**4.7000e-003**	**0.0144**	**0.0000**	**8.3589**	**8.3589**	**2.7000e-003**	**0.0000**	**8.4265**

3.2 Site Preparation - 2021

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	1.1000e-004	1.1300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3007	0.3007	1.0000e-005	0.0000	0.3009
Total	**1.8000e-004**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3007**	**0.3007**	**1.0000e-005**	**0.0000**	**0.3009**

3.3 Grading - 2021

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003	0.0000	10.4215	10.4215	3.3700e-003	0.0000	10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0262**	**4.6400e-003**	**0.0309**	**0.0135**	**4.2700e-003**	**0.0177**	**0.0000**	**10.4215**	**10.4215**	**3.3700e-003**	**0.0000**	**10.5057**

3.3 Grading - 2021

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	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4009	0.4009	1.0000e-005	0.0000	0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4009**	**0.4009**	**1.0000e-005**	**0.0000**	**0.4012**

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					0.0102	0.0000	0.0102	5.2500e-003	0.0000	5.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.0990	0.0634	1.2000e-004		4.6400e-003	4.6400e-003		4.2700e-003	4.2700e-003	0.0000	10.4215	10.4215	3.3700e-003	0.0000	10.5057
Total	**9.1600e-003**	**0.0990**	**0.0634**	**1.2000e-004**	**0.0102**	**4.6400e-003**	**0.0149**	**5.2500e-003**	**4.2700e-003**	**9.5200e-003**	**0.0000**	**10.4215**	**10.4215**	**3.3700e-003**	**0.0000**	**10.5057**

3.3 Grading - 2021

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	2.4000e-004	1.5000e-004	1.5100e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4009	0.4009	1.0000e-005	0.0000	0.4012
Total	**2.4000e-004**	**1.5000e-004**	**1.5100e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4009**	**0.4009**	**1.0000e-005**	**0.0000**	**0.4012**

3.4 Building Construction - 2021

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	0.1606	1.4730	1.4006	2.2700e-003		0.0810	0.0810		0.0762	0.0762	0.0000	195.7335	195.7335	0.0472	0.0000	196.9141
Total	**0.1606**	**1.4730**	**1.4006**	**2.2700e-003**		**0.0810**	**0.0810**		**0.0762**	**0.0762**	**0.0000**	**195.7335**	**195.7335**	**0.0472**	**0.0000**	**196.9141**

3.4 Building Construction - 2021

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	1.7900e-003	0.0666	0.0101	1.7000e-004	3.9200e-003	1.8000e-004	4.1000e-003	1.1300e-003	1.7000e-004	1.3000e-003	0.0000	15.8017	15.8017	1.9100e-003	0.0000	15.8494
Worker	6.0700e-003	3.7100e-003	0.0384	1.1000e-004	0.0122	8.0000e-005	0.0122	3.2300e-003	7.0000e-005	3.3000e-003	0.0000	10.1637	10.1637	2.5000e-004	0.0000	10.1700
Total	**7.8600e-003**	**0.0703**	**0.0485**	**2.8000e-004**	**0.0161**	**2.6000e-004**	**0.0163**	**4.3600e-003**	**2.4000e-004**	**4.6000e-003**	**0.0000**	**25.9654**	**25.9654**	**2.1600e-003**	**0.0000**	**26.0194**

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	0.1606	1.4730	1.4006	2.2700e-003		0.0810	0.0810		0.0762	0.0762	0.0000	195.7333	195.7333	0.0472	0.0000	196.9138
Total	**0.1606**	**1.4730**	**1.4006**	**2.2700e-003**		**0.0810**	**0.0810**		**0.0762**	**0.0762**	**0.0000**	**195.7333**	**195.7333**	**0.0472**	**0.0000**	**196.9138**

3.4 Building Construction - 2021

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	1.7900e-003	0.0666	0.0101	1.7000e-004	3.9200e-003	1.8000e-004	4.1000e-003	1.1300e-003	1.7000e-004	1.3000e-003	0.0000	15.8017	15.8017	1.9100e-003	0.0000	15.8494
Worker	6.0700e-003	3.7100e-003	0.0384	1.1000e-004	0.0122	8.0000e-005	0.0122	3.2300e-003	7.0000e-005	3.3000e-003	0.0000	10.1637	10.1637	2.5000e-004	0.0000	10.1700
Total	**7.8600e-003**	**0.0703**	**0.0485**	**2.8000e-004**	**0.0161**	**2.6000e-004**	**0.0163**	**4.3600e-003**	**2.4000e-004**	**4.6000e-003**	**0.0000**	**25.9654**	**25.9654**	**2.1600e-003**	**0.0000**	**26.0194**

3.4 Building Construction - 2022

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	0.0350	0.3201	0.3355	5.5000e-004		0.0166	0.0166		0.0156	0.0156	0.0000	47.5037	47.5037	0.0114	0.0000	47.7882
Total	**0.0350**	**0.3201**	**0.3355**	**5.5000e-004**		**0.0166**	**0.0166**		**0.0156**	**0.0156**	**0.0000**	**47.5037**	**47.5037**	**0.0114**	**0.0000**	**47.7882**

3.4 Building Construction - 2022

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	4.0000e-004	0.0153	2.2800e-003	4.0000e-005	9.5000e-004	4.0000e-005	9.9000e-004	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	3.7970	3.7970	4.5000e-004	0.0000	3.8082
Worker	1.3700e-003	8.0000e-004	8.4800e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.3772	2.3772	5.0000e-005	0.0000	2.3786
Total	**1.7700e-003**	**0.0161**	**0.0108**	**7.0000e-005**	**3.9000e-003**	**6.0000e-005**	**3.9600e-003**	**1.0500e-003**	**6.0000e-005**	**1.1100e-003**	**0.0000**	**6.1741**	**6.1741**	**5.0000e-004**	**0.0000**	**6.1867**

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	0.0350	0.3201	0.3355	5.5000e-004		0.0166	0.0166		0.0156	0.0156	0.0000	47.5036	47.5036	0.0114	0.0000	47.7881
Total	**0.0350**	**0.3201**	**0.3355**	**5.5000e-004**		**0.0166**	**0.0166**		**0.0156**	**0.0156**	**0.0000**	**47.5036**	**47.5036**	**0.0114**	**0.0000**	**47.7881**

3.4 Building Construction - 2022

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	4.0000e-004	0.0153	2.2800e-003	4.0000e-005	9.5000e-004	4.0000e-005	9.9000e-004	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	3.7970	3.7970	4.5000e-004	0.0000	3.8082
Worker	1.3700e-003	8.0000e-004	8.4800e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.3772	2.3772	5.0000e-005	0.0000	2.3786
Total	**1.7700e-003**	**0.0161**	**0.0108**	**7.0000e-005**	**3.9000e-003**	**6.0000e-005**	**3.9600e-003**	**1.0500e-003**	**6.0000e-005**	**1.1100e-003**	**0.0000**	**6.1741**	**6.1741**	**5.0000e-004**	**0.0000**	**6.1867**

3.5 Paving - 2022

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	8.7900e-003	0.0857	0.1098	1.7000e-004		4.3900e-003	4.3900e-003		4.0500e-003	4.0500e-003	0.0000	14.7383	14.7383	4.6300e-003	0.0000	14.8540
Paving	7.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5600e-003**	**0.0857**	**0.1098**	**1.7000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**14.7383**	**14.7383**	**4.6300e-003**	**0.0000**	**14.8540**

3.5 Paving - 2022

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	6.7000e-004	3.9000e-004	4.1400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1596	1.1596	3.0000e-005	0.0000	1.1603
Total	**6.7000e-004**	**3.9000e-004**	**4.1400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1596**	**1.1596**	**3.0000e-005**	**0.0000**	**1.1603**

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	8.7900e-003	0.0857	0.1098	1.7000e-004		4.3900e-003	4.3900e-003		4.0500e-003	4.0500e-003	0.0000	14.7383	14.7383	4.6300e-003	0.0000	14.8540
Paving	7.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5600e-003**	**0.0857**	**0.1098**	**1.7000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**14.7383**	**14.7383**	**4.6300e-003**	**0.0000**	**14.8540**

3.5 Paving - 2022

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	6.7000e-004	3.9000e-004	4.1400e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1596	1.1596	3.0000e-005	0.0000	1.1603
Total	**6.7000e-004**	**3.9000e-004**	**4.1400e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1596**	**1.1596**	**3.0000e-005**	**0.0000**	**1.1603**

3.6 Architectural Coating - 2022

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	0.1168					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0127	0.0163	3.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004	0.0000	2.2979	2.2979	1.5000e-004	0.0000	2.3017
Total	**0.1186**	**0.0127**	**0.0163**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.5000e-004**	**0.0000**	**2.3017**

3.6 Architectural Coating - 2022

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	8.0000e-005	8.3000e-004	0.0000	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2319	0.2319	1.0000e-005	0.0000	0.2321
Total	**1.3000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**2.9000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2319**	**0.2319**	**1.0000e-005**	**0.0000**	**0.2321**

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	0.1168					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8400e-003	0.0127	0.0163	3.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004	0.0000	2.2979	2.2979	1.5000e-004	0.0000	2.3017
Total	**0.1186**	**0.0127**	**0.0163**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**7.4000e-004**	**7.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.5000e-004**	**0.0000**	**2.3017**

3.6 Architectural Coating - 2022

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	8.0000e-005	8.3000e-004	0.0000	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2319	0.2319	1.0000e-005	0.0000	0.2321
Total	**1.3000e-004**	**8.0000e-005**	**8.3000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**2.9000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2319**	**0.2319**	**1.0000e-005**	**0.0000**	**0.2321**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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	0.496766	0.030510	0.170483	0.111467	0.014688	0.004287	0.033704	0.127678	0.002360	0.001460	0.004966	0.001070	0.000562
Parking Lot	0.496766	0.030510	0.170483	0.111467	0.014688	0.004287	0.033704	0.127678	0.002360	0.001460	0.004966	0.001070	0.000562

5.0 Energy Detail

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	35.3632	35.3632	1.6000e-003	3.3000e-004	35.5018
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	35.3632	35.3632	1.6000e-003	3.3000e-004	35.5018
NaturalGas Mitigated	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
NaturalGas Unmitigated	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669

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	401760	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
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		**2.1700e-003**	**0.0197**	**0.0165**	**1.2000e-004**		**1.5000e-003**	**1.5000e-003**		**1.5000e-003**	**1.5000e-003**	**0.0000**	**21.4394**	**21.4394**	**4.1000e-004**	**3.9000e-004**	**21.5669**

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	401760	2.1700e-003	0.0197	0.0165	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
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		**2.1700e-003**	**0.0197**	**0.0165**	**1.2000e-004**		**1.5000e-003**	**1.5000e-003**		**1.5000e-003**	**1.5000e-003**	**0.0000**	**21.4394**	**21.4394**	**4.1000e-004**	**3.9000e-004**	**21.5669**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	112320	32.6752	1.4800e-003	3.1000e-004	32.8032
Parking Lot	9240	2.6880	1.2000e-004	3.0000e-005	2.6986
Total		**35.3632**	**1.6000e-003**	**3.4000e-004**	**35.5018**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	112320	32.6752	1.4800e-003	3.1000e-004	32.8032
Parking Lot	9240	2.6880	1.2000e-004	3.0000e-005	2.6986
Total		**35.3632**	**1.6000e-003**	**3.4000e-004**	**35.5018**

6.0 Area Detail

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	0.0759	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4400e-003	1.4400e-003	0.0000	0.0000	1.5400e-003
Unmitigated	0.0759	1.0000e-005	7.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4700e-003	1.4700e-003	0.0000	0.0000	1.5600e-003

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	0.0117					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-005	1.0000e-005	7.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4700e-003	1.4700e-003	0.0000	0.0000	1.5600e-003
Total	**0.0759**	**1.0000e-005**	**7.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4700e-003**	**1.4700e-003**	**0.0000**	**0.0000**	**1.5600e-003**

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	0.0117					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0642					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-005	1.0000e-005	7.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4400e-003	1.4400e-003	0.0000	0.0000	1.5400e-003
Total	**0.0759**	**1.0000e-005**	**7.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4400e-003**	**1.4400e-003**	**0.0000**	**0.0000**	**1.5400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.0922	0.0152	3.8000e-004	2.5842
Unmitigated	2.0922	0.0152	3.8000e-004	2.5842

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.463951 / 1.19302	2.0922	0.0152	3.8000e-004	2.5842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.0922**	**0.0152**	**3.8000e-004**	**2.5842**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.463951 / 1.19302	2.0922	0.0152	3.8000e-004	2.5842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.0922**	**0.0152**	**3.8000e-004**	**2.5842**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.2222	0.2495	0.0000	10.4604
Unmitigated	4.2222	0.2495	0.0000	10.4604

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	20.8	4.2222	0.2495	0.0000	10.4604
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.2222**	**0.2495**	**0.0000**	**10.4604**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	20.8	4.2222	0.2495	0.0000	10.4604
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.2222**	**0.2495**	**0.0000**	**10.4604**

9.0 Operational Offroad

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

Marshall Elementary School Expansion BAU

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	16.00	1000sqft	3.00	16,000.00	0
Parking Lot	66.00	Space	0.59	26,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Acreage

Construction Phase - BAU - Operational Run Only

Vehicle Trips -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	PhaseEndDate	2/28/2005	4/12/2004
tblLandUse	LotAcreage	0.37	3.00

2.0 Emissions Summary

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					
2004											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
2004											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003
Energy											0.0000	56.8026	56.8026	2.0100e-003	7.2000e-004	57.0686
Mobile											0.0000	279.3449	279.3449	0.0857	0.0000	281.4879
Waste											4.2222	0.0000	4.2222	0.2495	0.0000	10.4604
Water											0.1472	1.9450	2.0922	0.0152	3.8000e-004	2.5842
Total											**4.3694**	**338.0941**	**342.4635**	**0.3525**	**1.1000e-003**	**351.6027**

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											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003
Energy											0.0000	56.8026	56.8026	2.0100e-003	7.2000e-004	57.0686
Mobile											0.0000	279.3449	279.3449	0.0857	0.0000	281.4879
Waste											4.2222	0.0000	4.2222	0.2495	0.0000	10.4604
Water											0.1472	1.9450	2.0922	0.0152	3.8000e-004	2.5842
Total											**4.3694**	**338.0941**	**342.4635**	**0.3525**	**1.1000e-003**	**351.6027**

	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	Building Construction	Building Construction	4/13/2004	4/12/2004	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.59

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	1	8.00	46	0.45

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
Building Construction	9	18.00	7.00	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 Building Construction - 2004

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	0.0000	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
Total	**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**

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	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
Total	**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**

3.2 Building Construction - 2004

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	0.0000	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
Total	**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**

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	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
Total	**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**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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											0.0000	279.3449	279.3449	0.0857	0.0000	281.4879
Unmitigated											0.0000	279.3449	279.3449	0.0857	0.0000	281.4879

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	246.88	0.00	0.00	388,825	388,825
Parking Lot	0.00	0.00	0.00		
Total	246.88	0.00	0.00	388,825	388,825

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	0.415876	0.061183	0.150996	0.176036	0.035163	0.006973	0.031964	0.109874	0.002099	0.001787	0.005269	0.001212	0.001569
Parking Lot	0.415876	0.061183	0.150996	0.176036	0.035163	0.006973	0.031964	0.109874	0.002099	0.001787	0.005269	0.001212	0.001569

5.0 Energy Detail

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	35.3632	35.3632	1.6000e-003	3.3000e-004	35.5018
Electricity Unmitigated											0.0000	35.3632	35.3632	1.6000e-003	3.3000e-004	35.5018
NaturalGas Mitigated											0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
NaturalGas Unmitigated											0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669

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	401760											0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**21.4394**	**21.4394**	**4.1000e-004**	**3.9000e-004**	**21.5669**

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	401760											0.0000	21.4394	21.4394	4.1000e-004	3.9000e-004	21.5669
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**21.4394**	**21.4394**	**4.1000e-004**	**3.9000e-004**	**21.5669**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	112320	32.6752	1.4800e-003	3.1000e-004	32.8032
Parking Lot	9240	2.6880	1.2000e-004	3.0000e-005	2.6986
Total		**35.3632**	**1.6000e-003**	**3.4000e-004**	**35.5018**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	112320	32.6752	1.4800e-003	3.1000e-004	32.8032
Parking Lot	9240	2.6880	1.2000e-004	3.0000e-005	2.6986
Total		**35.3632**	**1.6000e-003**	**3.4000e-004**	**35.5018**

6.0 Area Detail

6.1 Mitigation Measures Area

	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											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003
Unmitigated											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003
Total											**0.0000**	**1.4700e-003**	**1.4700e-003**	**1.0000e-005**	**0.0000**	**1.6400e-003**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.4700e-003	1.4700e-003	1.0000e-005	0.0000	1.6400e-003
Total											**0.0000**	**1.4700e-003**	**1.4700e-003**	**1.0000e-005**	**0.0000**	**1.6400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.0922	0.0152	3.8000e-004	2.5842
Unmitigated	2.0922	0.0152	3.8000e-004	2.5842

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.463951 / 1.19302	2.0922	0.0152	3.8000e-004	2.5842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.0922**	**0.0152**	**3.8000e-004**	**2.5842**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.463951 / 1.19302	2.0922	0.0152	3.8000e-004	2.5842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.0922**	**0.0152**	**3.8000e-004**	**2.5842**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.2222	0.2495	0.0000	10.4604
Unmitigated	4.2222	0.2495	0.0000	10.4604

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	20.8	4.2222	0.2495	0.0000	10.4604
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.2222**	**0.2495**	**0.0000**	**10.4604**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	20.8	4.2222	0.2495	0.0000	10.4604
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.2222**	**0.2495**	**0.0000**	**10.4604**

9.0 Operational Offroad

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
CULTURAL RESOURCES MEMO

TECHNICAL MEMORANDUM

Date: January 7, 2021

Project: Cultural resources records search- Marshall Elementary School Expansion Project, City of Fowler, Fresno County, CA (200415)

To: Jaymie Brauer, Principal Planner

From: Robert Parr, MS, RPA, Senior Archaeologist

Subject: Cultural Resources Records Search Results (RS#20- 454)

Background

This cultural resource records search (RS #20-454) was conducted at the Southern San Joaquin Valley Information Center (IC), CSU Bakersfield for the above referenced Project in Fresno County, California, to determine whether any known cultural resources were located on or near the proposed Project that might be impacted by Project development and activities.

Location

The Project is located just north of the existing elementary school located at 142 North Armstrong Avenue and is within Section 10, T15S R21E, MDB&M and in the Malaga USGS quadrangle (Figures-3).

Project Description

The Fowler Unified School District is proposing to construct an Early Education Center. The proposed expansion is expected to include approximately three classrooms with 40 to 50 students. The proposed expansion will include four groups of new modular building, hardcourts, playfield and paved parking and fire access driveways. The new modular building groups total 16,000 square feet within the western portion of the campus. The construction of the school expansion would not increase the overall student population but provide for additional educational opportunities.

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 subject property had never been surveyed for cultural resources and it is not known if any exist there.

Two cultural resource studies have been conducted within a half mile of the property (Bissonnette 1992; Arrington et al. 2006). One historic cultural property, the Fowler Vineyard – Matsuoka Property (P-10-002864), has been identified within a half mile of the proposed Project. However, the Project will not impact this resource.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated January 14, 2021 indicates negative results (see Attachment B).

Conclusions

Based on the results of cultural records search findings and the lack of 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 developed and previously disturbed roadways and road easements. 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. 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.

(s) Robert E. Parr, MS, RPA
Senior Archaeologist

Attachment A- Figures
Attachment B- Sacred Lands File Response by the Native American Heritage Commission

References

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

Bissonnette, Linda Dick
1992 Cultural Resources Assessment for the Fowler Unified School District Middle School, East Walter Avenue, Fowler, Fresno County. (FR-00288)

Arrington, Cindy, Bryon Bass, Joan Brown, Chris Corey, and Kevin Hunt
2006 Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California. Project. (FR-02287)

Attachment A-
Project Figures

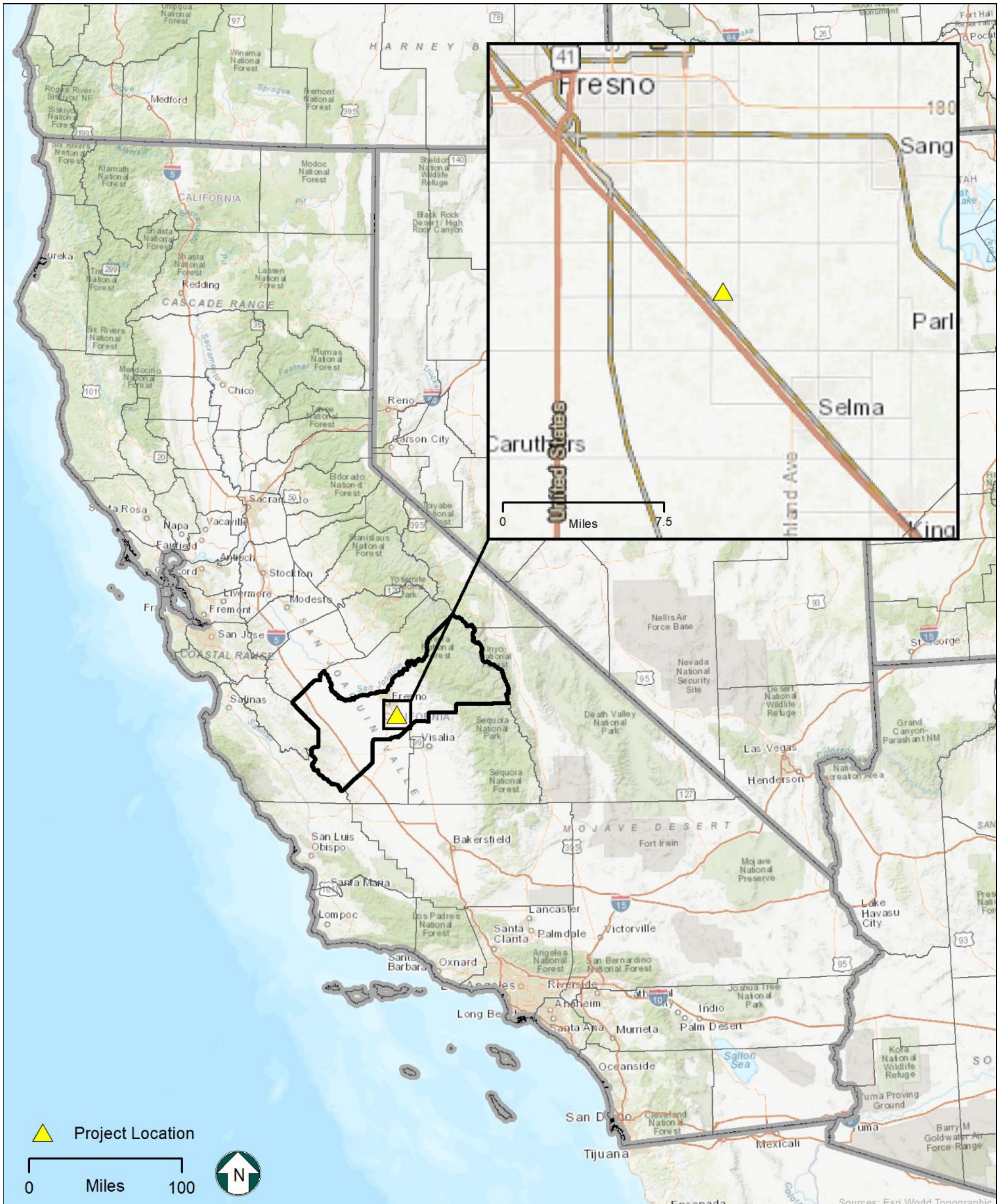

Figure -1
Regional Location

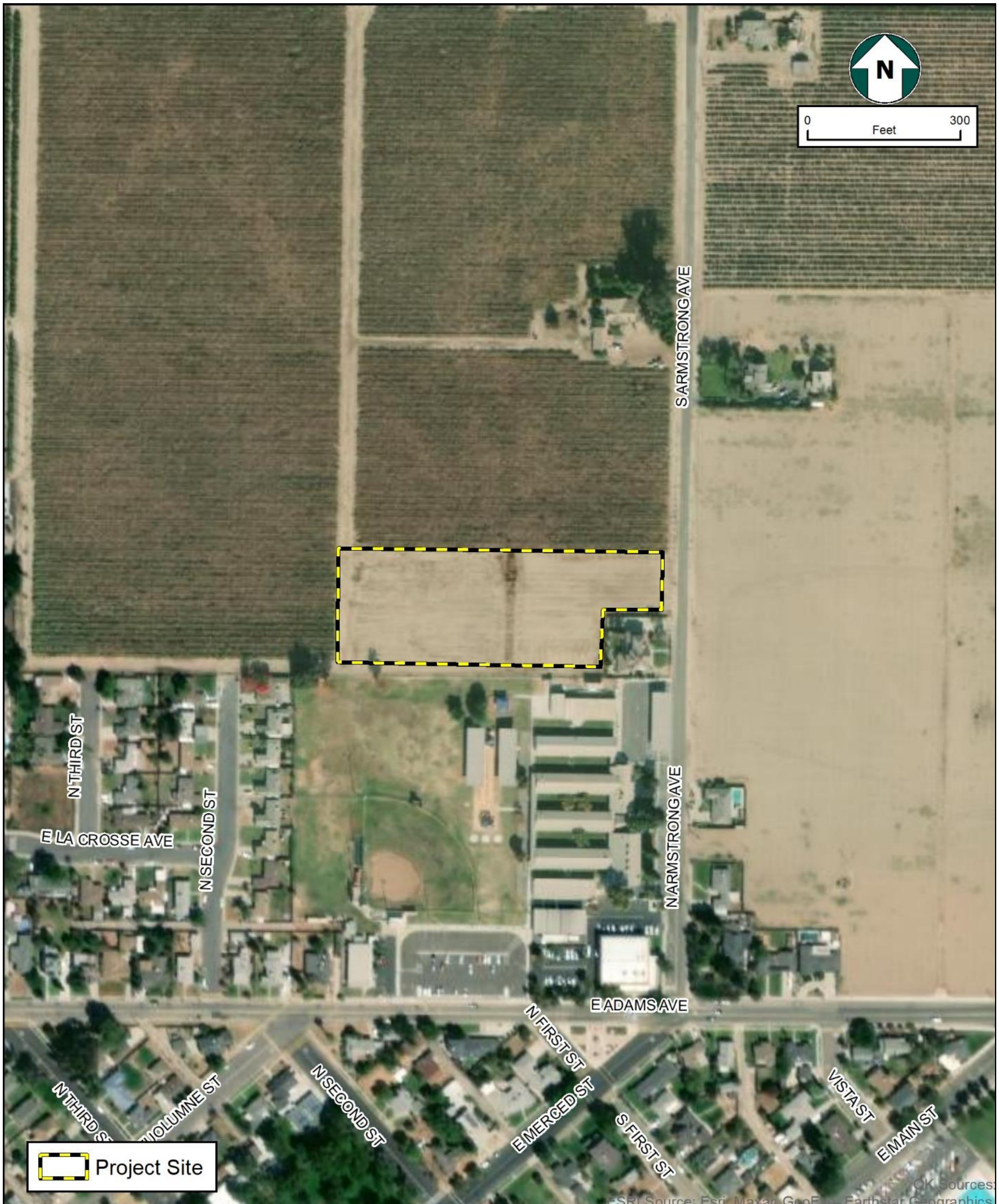

Figure - 2
Project Area

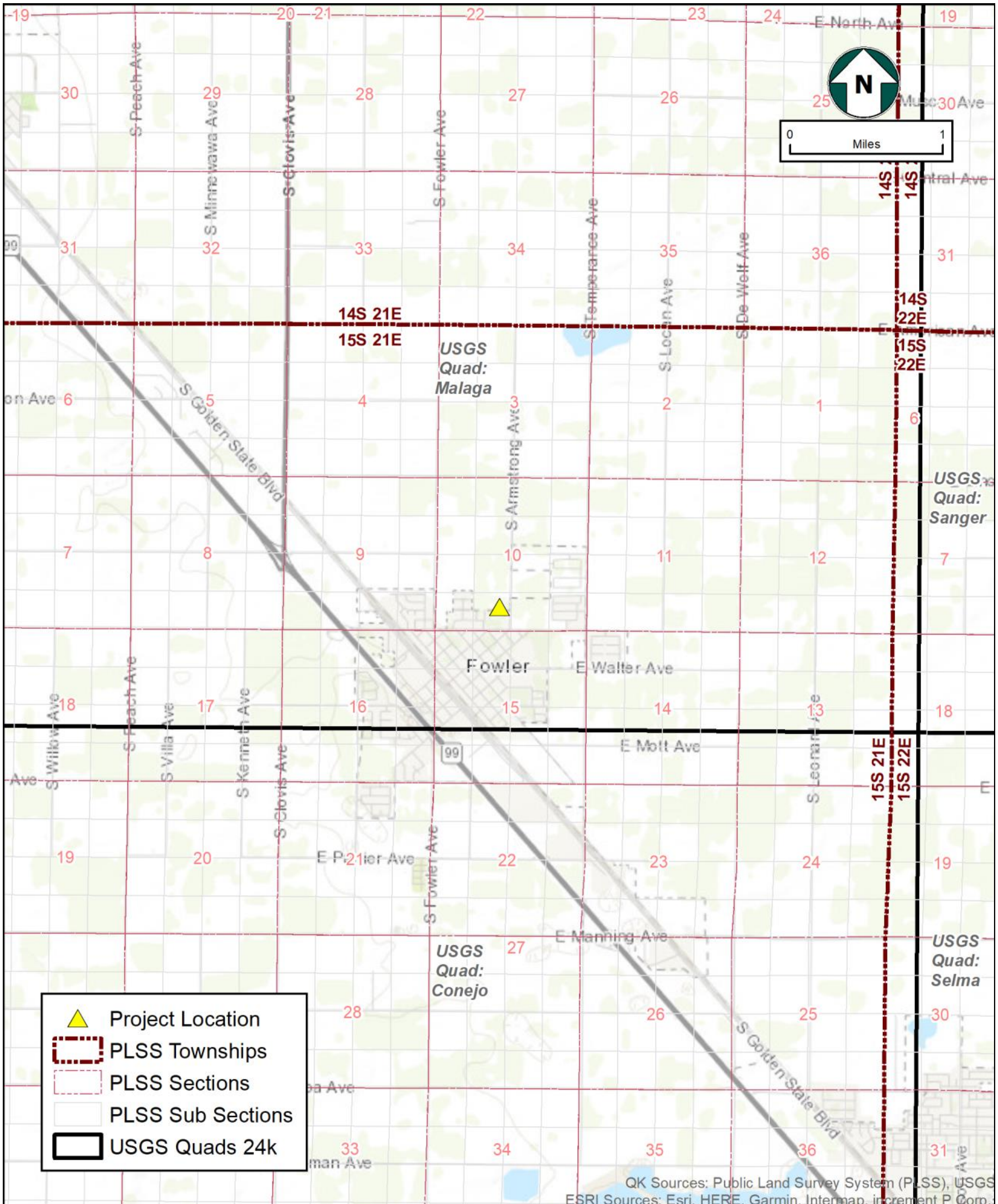

Figure - 3
PLSS/USGS Quad

Figure - 4
Topo

Attachment B-
Sacred Lands File Response by the Native American Heritage Commission

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

January 14, 2021

Jaymie Brauer
Quad Knopf, Inc.

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, Marshall Elementary School Expansion Project, Fresno County

Dear Ms. 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: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
January 14, 2021

Big Sandy Rancheria of Western Mono Indians
Elizabeth D. Kipp, Chairperson
PO. Box 337 — Western Mono
Auberry , CA 93602
lkipp@bsrnation.com
(559) 374-0066

Dunlap Band of Mono Indians
Dirk Charley, Tribal Secretary
5509 E. McKenzie Avenue — Mono
Fresno , CA 93727
dcharley2016@gmail.com
(559) 554-5433

Chicken Ranch Rancheria of Me-Wuk Indians
Lloyd Mathiesen, Chairperson
P.O. Box 1159 — Miwok - Me-wuk
Jamestown , CA 95327
lmathiesen@crtribal.com
(209) 984-9066

Kings River Choinumni Farm Tribe
Stan Alec
3515 East Fedora Avenue — Foothill Yokuts
Fresno , CA 93726 — Choinumni
(559) 647-3227 Cell

Cold Springs Rancheria
Carol Bill, Chairperson
P.O. Box 209 — Mono
Tollhouse , CA 93667
coldsprgstribe@netptc.net
(559) 855-5043

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme A. Valdez, Chairperson
P.O. Box 580986 — Miwok
Elk Grove , CA 95758-00
valdezcome@comcast.net
(916) 429-8047 Voice/Fax

Dumna Wo-Wah Tribal Goverment
Robert Ledger Sr., Chairperson
2191 West Pico Ave. — Dumna/Foothill Yokut
Fresno , CA 93705 — Mono
ledgerrobert@ymail.com
(559) 540-6346

North Fork Mono Tribe
Ron Goode, Chairperson
13396 Tollhouse Road — Mono
Clovis , CA 93619
rwgoode911@hotmail.com
(559) 299-3729 Home

Dunlap Band of Mono Indians
Benjamin Charley Jr., Tribal Chair
P.O. Box 14 — Mono
Dunlap , CA 93621
ben.charley@yahoo.com
(760) 258-5244

Picayune Rancheria of Chukchansi Indians
Claudia Gonzales, Chairwoman
P.O. Box 2226 — Chukchansi / Yokut
Oakhurst , CA 93644
cgonzales@chukchansitribe.net
(559) 412-5590

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced. 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 applicable only for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed: Marshall Elementary School Expansion Project, Fresno County.

Native American Heritage Commission
Tribal Consultation List
January 14, 2021

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This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced. 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 applicable only for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed: Marshall Elementary School Expansion Project, Fresno County.

TABLE MOUNTAIN RANCHERIA
TRIBAL GOVERNMENT OFFICE

CERTIFIED 2768 6190

February 8, 2021

Jaymie Brauer
Quad Knopf, Inc.
5080 California Avenue, Suite 220
Bakersfield, Ca. 93309

RE: Marshall Elementary School Expansion Project

Dear: Jaymie Brauer

This is in response to your letter dated, January 15, 2021, regarding, Marshall Elementary School Expansion Project. Thank you for notifying us of the potential development and the request for consultation.

We decline participation at this time but would appreciate being notified in the unlikely event that cultural resources are identified.

Sincerely,

Robert Pennell
Tribal Cultural Resources Director
rpennell@tmr.org
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APPENDIX C
GEOLOGIC HAZARDS EVALUATION
PRELIMINARY ENVIRONMENTAL ASSESSMENT

March 15, 2019 TES No. 180131.004

Fowler Unified School District
658 E Adams Avenue
Fowler, California 93625
Phone: 559.834.6080

C/O
Ms. Jene M. Hill
Integrated Designs
6011 N Fresno St. Suite 130
Fresno, California 93710
Phone: 559-436-0881
Email: jsue@somam.com

Project: Marshall Elementary School
Proposed 3-Acre Site Addition
142 N Armstrong Avenue
Fowler, California 93625

Subject: Geologic-Seismic Hazards Evaluation Report

Dear Ms. Hill:

The attached report presents the results of a geologic-seismic hazards evaluation for a proposed addition to the Marshall Elementary School at 142 N Armstrong Avenue in Fowler, California. This report describes the study, findings, conclusions, and recommendations for use in project design and construction.

TECHNICON Engineering Services, Inc. (TECHNICON) appreciates the opportunity to provide geotechnical engineering and engineering geology services to the Fowler Unified School District during the design phase of this project. We trust this information meets your current needs. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully submitted,
TECHNICON Engineering Services, Inc.

Kyle Weatherford, EIT
Project Engineer

Salvador Alvarez, PE
Geotechnical Engineering Manager

KW:SA:vm
Attachment

TECHNICON
ENGINEERING SERVICES, INC.

GEOLOGIC-SEISMIC HAZARDS EVALUATION REPORT
PROPOSED 3-ACRE SITE ADDITION
MARSHALL ELEMENTARY SCHOOL
142 N ARMSTRONG AVENUE
FOWLER, CALIFORNIA

Prepared for:
Fowler Unified School District
658 E. Adams Avenue
Fowler, California 93625

March 15, 2019

TES No. 180131.004

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING – CONSTRUCTION TESTING & INSPECTION

TECHNICON
ENGINEERING SERVICES, INC.

TECHNICON
ENGINEERING SERVICES, INC.

1989 ♦ 2019 30 YEARS STRONG

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING – CONSTRUCTION TESTING & INSPECTION

Prepared for:

Fowler Unified School District
658 E Adams Avenue
Fowler, California 93625

GEOLOGIC-SEISMIC HAZARDS EVALUATION REPORT
PROPOSED 3-ACRE SITE ADDITION
MARSHALL ELEMENTARY SCHOOL
142 N ARMSTRONG AVENUE
FOWLER, CALIFORNIA

TECHNICON PROJECT
TES No. 180131.004

Prepared by:

Kyle Weatherford, EIT
Project Engineer

Salvador Alvarez, PE
Geotechnical Engineering Manager

REGISTERED PROFESSIONAL ENGINEER
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Fresno, California 93722
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March 15, 2019

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1 INTRODUCTION

1.1 GENERAL

This report presents the results of a geologic-seismic hazards evaluation for the proposed 3-acre site addition to the existing Marshall Elementary School campus in Fowler, California. The purpose of the evaluation was to explore and evaluate the subsurface conditions at the site to identity geological and seismic hazards that might affect project design and construction.

The Vicinity Map, Figure 1, depicts the location of the project and the Site Map, Figure 2, shows the location of the site and the boring location for this investigation.

References reviewed during preparation of this report are listed in Section 8, “References”.

1.2 LOCATION

The project is located in central Fresno County. The site is located north of 142 N Armstrong Avenue in Fowler. Based on the Malaga, California 7½-minute quadrangle topographic map, the site lies within the southeast quarter of the southwest quarter of Section 10, T15S, R21E. The elevation of the site is approximately 310 feet above Mean Sea Level. Based on the USGS 7½-minute topographic map, the site coordinates are approximately:

Latitude: 36.6366° N
Longitude: 119.6746° W

1.3 PROPOSED CONSTRUCTION

An understanding of the project is based on a Request for Proposal (RFP) and review of an aerial site plan provided by Integrated Design. The project site includes 3 acres of existing agricultural farmland to the north of Marshall Elementary School.

1.4 PURPOSE AND SCOPE OF SERVICES

The purpose of the evaluation was to explore the site subsurface conditions and evaluate pertinent geologic and seismic data to develop recommendations and opinions to aid in project approval, design, and construction. The scope of services consisted of a field exploration program, laboratory testing, design analysis, and preparation of this written report as described in **TECHNICON'S** proposal, dated February 13, 2018 (TES No. GP18-039). Geologic-Seismic Hazards Evaluation Report includes the following:

- A description of the proposed project, including a vicinity map showing the location of the site and a site plan showing the exploration points;
- A description of the site surface and subsurface conditions encountered during the field investigation, including boring log;
- A summary of the field exploration and laboratory testing programs;
- Comments on regional and site engineering geology and seismology;
- Determination of peak horizontal ground surface acceleration utilizing the mapped spectral acceleration parameters of the 2016 California Building Code (CBC); and
- Discussion of geologic hazards with geologic hazards affecting the site and project, including liquefaction, seismically induced settlement, landslides, flooding, etc.

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The field exploration, conducted on February 14, 2019, consisted of drilling one (1) exploratory test boring and a site reconnaissance by a staff engineer. The test boring was drilled with a CME 45 truck-mounted drill rig using hollow stem auger drilling techniques. The boring extended to a depth of 51.5 feet below existing ground surface (bgs). The test boring location is indicated on the Site Map, Figure 2.

The soils encountered in the boring were visually classified in the field and a continuous log was recorded. Relatively undisturbed samples were collected from the test boring at selected depths by driving a 2.5-inch I.D. split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic hammer free falling a distance of 30 inches. In addition, samples of the subsurface soils were obtained using a 1.4-inch I.D. standard penetrometer, driven 18 inches in accordance with ASTM D1586 test procedures. The sampler was used without liners. Resistance to sampler penetration was noted as the number of blows per foot over the last 12 inches of sampler penetration on the boring log. The blow counts listed in the boring log have not been corrected for the effects of overburden pressure, rod length, sampler size, boring diameter, or hammer efficiency. A bulk samples was also retained from auger cuttings of the near surface soils at the test boring locations.

2.2 FIELD AND LABORATORY TESTING

Penetration rates, determined in general accordance with ASTM D1586, were used to aid in evaluating the relative density, consistency, compression, and strength characteristics of the foundation soils.

Laboratory tests were performed on selected samples to evaluate their physical characteristics. The following laboratory tests were used to develop the geotechnical design parameters:

- ❑ Unit Weight (ASTM D2937);
- ❑ Moisture Content (ASTM D2216);
- ❑ Sieve Analysis (ASTM C136);
- ❑ Expansion Index (ASTM D4829);

- ❑ Collapse Potential (ASTM D5333);
- ❑ Soluble Sulfate and Soluble Chloride Contents (California Test Methods No. 417 and 422); and
- ❑ pH and Minimum Resistivity (California Test Method No. 643)

The dry density and moisture content test results are shown on the boring log in Appendix A. The remaining test results are provided in Appendix B.

3 SITE AND GEOLOGIC CONDITIONS

3.1 REGIONAL GEOLOGY

The site lies within the central portion of the San Joaquin Valley, within the Central Valley geomorphic province of California (CGS 2002). The Central Valley is between the Sierra Nevada geomorphic province to the east, and the Coastal Ranges geomorphic province to the west. The thick sequence of sediments that form the valley floor were eroded from these adjacent mountain regions and have been accumulating since the Jurassic period, about 160 million years ago.

The regional bedrock forms an asymmetrical trough, which is deepest near the western margin. The surficial sediments filling the trough include deposits of alluvial fans, flood plains, marshes, and lakes (Croft 1972). The regional geology is depicted on Figure 3.

3.2 AREA AND SITE GEOLOGY

The geology at the site is mapped as recent Holocene Age Fan deposits (Qf) of the Great Valley Sequence (CDMG 1965). The soil subgrade characteristics encountered during the field investigation (i.e., soil type, blow count, etc.) are representative of Alluvial an deposits. Figure 4 presents a site specific geologic map of the project.

3.3 SURFACE CONDITIONS

At the time of investigation, the site consisted of existing agricultural farmland, north of the Marshall Elementary School campus. The site is generally bounded by Armstrong Avenue to the east, Marshall Elementary School to the south, and vacant land to the north and west. Overall, the project site appeared to be generally flat and approximately the same elevation as Armstrong Avenue.

Based on our site reconnaissance we did not observe any obvious signs of high voltage or high pressure utilities on the site. We would recommend that a private utility locator be consulted if more specific information is desired.

3.4 EARTH MATERIALS

The earth materials encountered by the exploration consisted of silty sand in the upper 18 feet, underlain by layers of sandy silt, silty sand, and poorly graded sand extending to the maximum depth explored, 51.5 feet bgs. The granular soils generally had a relative density of medium dense to dense and the fine grained soils had a relative consistency of hard.

The above is a general description of the earth material profile. A more detailed representation of the stratigraphy at the specific exploration locations is provided on figure 5, cross-section detail, and on the boring log in Appendix A.

3.5 GROUNDWATER CONDITIONS

Groundwater was not encountered within the depth explored, 51.5 feet bgs. The Groundwater Information Center interactive map application by the California Department of Water Resources (DWR), indicates the depth to groundwater exceeds 70 feet bgs. Research utilizing the DWR website shows the nearest well is for observation and is less than ¼ mile to the northeast (Well No. 15S21E10E001M). Based on the groundwater elevation data collected at this well, the historic high groundwater depth was recorded at 8 feet bgs in the early 1940’s. A steady increase in the depth to groundwater can be observed from the early 1950’s to current depths.

The most recent groundwater readings obtained in 2010 indicate a record groundwater depth of approximately 55 feet bgs. The data of other wells within a radius of 1½ miles of the site indicated similar groundwater elevations. Based on the available data from the wells near the project site, it is unlikely that groundwater levels will return to the elevations observed before the mid 1970’s.

Considering the historical high groundwater depth as noted above, a design groundwater depth of 8.0 feet is recommended for project planning, design, and the evaluation of liquefaction and any seismically induced effects. This depth coincides with groundwater elevations recorded in the 1940’s.

It is possible that groundwater conditions at the site could change at some time in the future due to variations in rainfall, groundwater withdrawal, construction activities, or other factors not apparent at the time our test borings were made. However, groundwater is not anticipated to impact the future use of the site.

4 FAULTING AND SEISMICITY

4.1 HISTORICAL SEISMICITY

The project site is in a region traditionally characterized by low seismic activity. Seismic activity of the site was researched using information obtained from the U.S. Geologic Survey (USGS) and California Geologic Survey (CGS) websites, a catalog by the Advanced National Seismic System (ANSS) and Caltrans Acceleration Response Spectra (ARS).

Some of the significant regional earthquake events are listed in Table 4.1-1.

TABLE 4.1-1

SIGNIFICANT REGIONAL EARTHQUAKE EVENTS

Earthquake Name	Year	Distance from Site (km)	Magnitude (Mw)
North Kettleman Hills	1985	70	5.6
Coalinga	1983	73	6.5
Fort Tejon	1857	118	7.9
Hollister	1961	139	5.9

Epicenters of significant earthquakes (M $\geq$ 5.5) within the vicinity of the site are shown on Figure 6. Data for earthquakes that occurred from 1800 to 2018 have been obtained from a composite catalog by the ANSS. The ANSS catalog is a worldwide earthquake catalog which is created by merging the master earthquake catalogs from contributing ANSS member networks and then removing duplicate events, or non-unique solutions from the same event. The ANSS network includes the Northern and Southern California Seismic Networks, the Pacific Northwest Seismic Network, the University of Nevada, Reno Seismic Network, the University of Utah Seismographic Stations, and the United States National Earthquake Information Service. The earthquake database also consists of earthquake records between 1800 and 1900 from Seeburger and Bolt (1976) and Toppozada et al. (1978 and 1981).

4.2 FAULTS LOCAL TO THE PROPOSED SITE

The site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code).

The CGS Fault Activity Map of California (2010) was reviewed to determine if identified active faults are located on or near the subject site. According to the map, no identified active faults are located on or near the subject site. Locations of the active and late Quaternary faults in the area with respect to the subject site are shown on Figure 7, Regional Fault Activity Map (obtained from the Fault Activity Map of California, Jennings, Bryant and Saucedo, 2010).

Caltrans ARS is a computer program that performs automated searches of nearby faults and graphs them based on spectral acceleration and also gives the distance to the fault and the magnitude of each. The output from Caltrans ARS is provided in Appendix C.

Based on review of published data and current understanding of the geologic framework and tectonic setting of the proposed improvements, the primary sources of seismic shaking at this site are listed in Table 4.2-1. The table also provides the fault type, distance from the site, and maximum moment magnitude (M_W). A major seismic event on these or other nearby faults may cause ground shaking at the site. Based on the deterministic ground acceleration, the San Andreas Fault, located west of the site, is considered the governing fault.

TABLE 4.2-1
PRIMARY SOURCES OF SEISMIC SHAKING

Fault Name	Fault Type	Distance from Site (km)	Magnitude (Mw)
Great Valley	Reverse Thrust	70	6.9
San Andreas	Right Lateral/ Strike Slip	106	8.0
Kern Canyon	Normal	112	7.5

4.3 SITE CLASS

Based on the field exploration, the surface soils consisted of silty sand in the upper 18 feet, underlain by layers of sandy silt, silty sand, and poorly graded sand extending to the depth explored, 51.5 feet bgs. The granular soils generally had a relative density of medium dense to dense and the fine grained soils had a consistency of hard.

The site soil is classified as Site Class D as presented in ASCE 7-10. Site Class D is defined as a stiff soil profile with shear wave velocities between 600 feet/sec and 1200 feet/sec, or Standard Penetration Resistance (N) between 15 to 50 blows/foot, or undrained shear strength (S_u) between 1,000 and 2,000 psf for the upper 100 feet.

4.4 DESIGN EARTHQUAKE LEVEL

In accordance with CGS, Note 48 (October, 2013), Item 16, an assessment was made to determine the need for employing “Site Specific Ground Procedures” for the design of the proposed buildings. Based on S_1 ground motion value obtained from the USGS Earthquake Hazards Program website (USGS, 2013) and SCE 7 standard analysis method, for site class “D” (stiff soil), was below 0.75g (0.257g), see table 4.5-1. Therefore, the project does not require a site-specific ground motion analysis. In accordance with section 1803S.5.12 of the 2016 California Building Code, the design peak ground acceleration (PGA_m) for evaluation of liquefaction was based on ASCE 7-10, Equation 11.8-1 ($PGA_m = F_{PGA}PGA$), where PGA_m is MCE_g peak ground acceleration adjusted for site class effects, PGA is the mapped MCE_g peak ground acceleration, and F_{PGA} is the site coefficient interpolated from table 11.8-1 of ASCE 7-10. Based on this procedure, a code based peak ground acceleration of 0.312g is recommended for the evaluation of liquefaction.

A probabilistic seismic hazards analysis (PSHA) procedure was performed using the 2008 USGS Unified Hazard Tool to estimate the earthquake magnitude. The program allows user input of the project site coordinates and produces the expected peak ground motions for selected probability of exceedance (e.g., return periods). Based on a probability of exceedance of 2 percent in 50 years, the USGS Unified Hazard Tool determined a peak ground acceleration of 0.302g and a weighted magnitude of Mw = 6.09.

4.5 SEISMIC DESIGN CRITERIA

There are no geologic factors at the project site that are unique or would necessitate special seismic consideration for design of the proposed structures. Use of the 2016 CBC/ASCE 7-10 design criteria would be appropriate, unless the structural engineer deems that more specific data (e.g., site specific response spectra) are necessary. Seismic design parameters were obtained for the project site utilizing a Site Class D, and site coordinates from the Structural Engineers Association of California (SEAOC) website (http://seismicmaps.org). Table 4.5-1 provides the recommended seismic design parameters.

TABLE 4.5-1
2016 CBC/ASCE 7-10 SEISMIC DESIGN PARAMETERS

Seismic Item	Design Value	Seismic Item	Design Value
Site Class	D	S_{MS}	0.821
S_S	0.635	S_{M1}	0.485
S_1	0.257	S_{DS}	0.547
Site Coefficient, F_a	1.292	S_{D1}	0.324
Site Coefficient, F_v	1.885		

5 GEOLOGIC AND SEISMIC HAZARDS

5.1 GENERAL

A discussion of specific geologic hazards that could impact the site is included below. The hazards considered include: surface fault rupture; seismically induced ground failures (liquefaction, lateral spreading, dynamic compaction, and landslides), general flooding and seismically induced flooding (tsunami, seiche, and dam failure); and hydrocompactive, expansive, and corrosive soils.

5.2 SURFACE FAULT RUPTURE

The site is not within an Alquist-Priolo Earthquake Fault Zone. Based upon the reviewed geologic and seismologic reports, maps, and aerial photographs, no mapped active faults cross or project toward the site. Additionally, no evidence of active faulting was visible on the site during our site reconnaissance. Therefore, it is our opinion that the potential for fault-related surface rupture at the proposed project site is very low.

5.3 SEISMICALLY INDUCED GROUND FAILURE

5.3.1 Liquefaction

In order for liquefaction due to ground shaking, and possible associated effects to occur, it is generally accepted that four conditions are required:

- The subsurface soils are in a relatively loose state;
- The soils are saturated;
- The soils are fine, granular, and uniform; and
- Ground shaking of sufficient intensity occurs to act as a triggering mechanism.

Geologic age also influences the potential for liquefaction. Sediments deposited within the past few thousand years are generally much more susceptible to liquefaction than older Holocene sediments; Pleistocene sediments are often more resistant; and pre-Pleistocene sediments are generally immune to liquefaction (Youd, et al., 2001).

Saturated granular sediments can experience liquefaction if subject to seismically induced ground motion of sufficient intensity and duration. Our liquefaction analysis used procedures by Youd et. al (2001) and considered the relative density and fines content of the granular sediments. The analysis considered a design groundwater depth of 8.0 feet and a ground acceleration of 0.312g.

Based on the ground shaking which may be expected at this site, the relative density and geologic age of the sediments, analysis utilizing Youd (2001) indicates liquefaction, seismically induced settlement, or bearing loss is considered unlikely. Therefore, no mitigation measures for liquefaction are considered warranted. The liquefaction calculations are presented in Appendix D.

5.3.2 Dynamic Compaction

Another type of seismically induced ground failure, which can occur as a result of seismic shaking, is dynamic compaction or seismic settlement. Such phenomena typically occur in unsaturated, loose granular material or uncompacted fill soils. Our calculations indicate that seismically induced dry sand settlement should be less than 0.2-inch. As such, no mitigation measures are warranted. The seismically induced dry sand settlement calculation is included in Appendix D.

5.3.3 Landslides and Ground Failure

Since the project site is located on relatively flat terrain, the potential for landslides or other slope failures from earthquake-induced ground shaking is unlikely. Strong shaking also has the potential for activating slope failures on creek banks (lurch cracking) and tension cracking in areas underlain by loose, low density soil such as uncompacted fill. Since the project site is not located near any creek banks, the potential for landslides or other slope failures from earthquake-induced ground shaking is unlikely.

5.4 FLOODING

5.4.1 Tsunamis, Seiches, Earthquake Induced Flooding

Tsunamis are sea waves of unusual size that occur from significant earthquakes either under the ocean floor or adjacent to shorelines and can travel great distances to impact low-lying communities and developments. Given that the Coast Range protects the site from the sea, the potential for the site to be affected by a tsunami is nil.

A seiche is a free or standing wave oscillation that occurs in a confined body of water, such as a reservoir or lake. Earthquake-generated ground waves, which have a period that matches the natural period of the lake or reservoir, may cause the water to oscillate, which can cause damage to shore line improvements. Considering the significant distance to any lake or reservoir the chance for a seiche is not likely.

5.4.2 Potential for Inundation Due to Dam Failure

According to the most recent Fresno County General Plan (FCGP), four major dams including Friant, Big Dry Creek, Redbank-Fancher Creek, and Pine Flat could cause flooding within the project area in the event of a failure. Based on the Inundation Map, Figure 9-8, included in the Fresno County General Plan (2000), the Marshall Elementary School campus lies within the potential flood inundation area should failure of the mentioned dams occur. As such, mitigation measures, such as preparing an emergency evacuation plan and route, may be necessary.

5.4.3 Flood Insurance Rate Maps

According to the Federal Emergency Management Agency (FEMA), the site lies within a Zone X flood designation (Map Number 06019C2143H, dated February 18, 2009) indicating areas outside the 0.2 percent annual chance flood hazard.

5.5 EXPANSIVE SOILS

An Expansion Index (EI) test was performed on a soil sample collected from the near surface soils of the site. The test indicated the near surface soils are not expansive as indicated by an EI of 0.4. As such, expansive soils are not anticipated within the influence of foundation systems and will not warrant special grading, foundations, or special concrete slab-on-grade design.

5.6 HYDROCOMPACTION (SOIL COLLAPSE)

From our experience, some of the alluvial soils in the San Joaquin Valley are subject to hydrocompaction. Hydrocompactive soils have a relatively loose skeletal structure, which is weakly cemented by soluble salts or slight clay mineral content. Moisture increase breaks down the inter-particle cementation causing a collapse of the skeletal structure. The significant loss in soil volume can result in settlement of overlying structures. The geotechnical exploration and laboratory testing identified that hydrocompactive characteristics were minimal. Laboratory testing of soil samples obtained from the site indicated negligible collapse potential upon inundation with a normal load equal to 2,000 psf (less than 0.5 percent compression). Analysis indicates that settlement due to hydrocompaction is less than 0.25 inch. Therefore, mitigation due to hydrocompaction of foundation soils is not warranted.

5.7 CORROSIVE SOILS

A soil sample obtained from the near surface of the site was tested for pH, minimum electrical resistivity, and soluble sulfate and chloride content.

The pH of the soil tested was 8.36 and the minimum electrical resistivity was 9,159 ohm-cm. These values are generally representative of an environment that could be mildly corrosive to buried unprotected metals. Utilizing methods provided in Caltrans California Test 643, “Method for Estimating the Service Life of Steel Culverts”, an 18-gauge steel zinc-coated culvert is estimated to have a maintenance-free service life (years to perforation) of 61 years. Therefore, if project improvements will involve metal that comes in contact with the on-site soil, the design should consider this potential soil corrosiveness.

Test results suggest that a low level of soluble sulfates (<5 ppm) and soluble chlorides (< 5 ppm) are present in on-site soils. Normal cement (Type II) and normal reinforcement cover should be adequate for foundation concrete that comes in contact with the foundation soils.

Corrosion is dependent upon a complex variety of conditions, which are beyond the geotechnical practice. Consequently, a qualified corrosion engineer should be consulted if the owner desires more specific recommendations.

5.8 REGIONAL SUBSIDENCE

Based on the FCGP subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. Due to the predominantly sandy soils encountered at the site and review of Landslide Hazards and Areas of Subsidence

Map, Figure 9-6 of the FCGP, which indicates the project site is outside of known subsidence zones, regional subsidence is not likely.

6 ADDITIONAL SERVICES

6.1 DESIGN REVIEW AND CONSULTATION

It is recommended that **TECHNICON** be retained to review those portions of the contract drawings and specifications that pertain to earthwork, pavement, and foundations prior to finalization to confirm whether they are consistent with our recommendations.

6.2 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that a representative of **TECHNICON** observe the excavation, earthwork, pavement, and foundation phases of work to verify that the subsurface conditions are compatible with those used in the analysis and design. **TECHNICON** can conduct the necessary field testing and provide results on a timely basis so that action necessary to remedy indicated deficiencies can be taken in accordance with the plans and specifications. Upon completion of the work, a written summary of our observations, field testing, and conclusions regarding the conformance of the completed work to the intent of the plans and specifications will be provided. This additional service is not part of this current contractual agreement. **TECHNICON** will not be responsible for establishing or confirming building locations or foundation depths unless retained to do so.

7 LIMITATIONS

The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of our field and laboratory investigation, combined with interpolation of the subsurface conditions between boring locations. The nature and extent of the variations between borings may not become evident until construction. If variations or undesirable conditions are encountered during construction, our firm should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. The unexpected conditions frequently require additional expenditures for proper construction of the project. **TECHNICON Engineering Services, Inc.** will not assume any responsibility for errors or omissions if the final extent and depth of earthwork is not determined by our firm at the time of construction due to said variations or undesirable conditions encountered.

If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes, or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing. Such conditions may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.

It is the responsibility of the contractor to provide safe working conditions with respect to excavation slope stability. This report does not relieve the contractors of responsibility for temporary excavation construction, bracing and shoring in accordance with CAL OSHA requirements.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This report should not be construed as an environmental audit or study.

This report has been prepared for the sole use by Integrated Designs, and their designated consultants for the proposed 3-acre site addition at 142 N Armstrong Avenue in Fowler, California. Recommendations presented in this report should not be extrapolated to other areas or used for other projects without prior review. This report has been prepared with the intent that the firm of **TECHNICON** will be performing the construction testing and observation for the complete project. If, however, another firm or individual(s) should be retained or employed to use this geotechnical investigation report for the purpose of construction testing and observation, notice is hereby given that **TECHNICON** will not assume any responsibility for errors or omissions, if any, which may occur and which could have been avoided, corrected, or mitigated if **TECHNICON**, had performed the work. This notice also applies to the misuse or misinterpretation of the conclusions and recommendations outlined in this report. Furthermore, the other firm or individual(s) performing construction testing and observation should accept transfer of responsibility of the work, as required by the California Building Code, in writing to the project owner and **TECHNICON**. The firm accepting transfer of responsibility should perform additional investigation(s) as may be necessary to develop their own conclusions, evaluations, and recommendations for design and construction.

8 REFERENCES

- California Building Code, (2016), Vol. 2, California Building Standards Commission.
- California Department of Transportation, California Test Method No. 643, Method for Estimated the Service Life of Steel Culverts (1999)
- California Department of Water Resources, Groundwater Information Center Interactive Map (Spring 2018)
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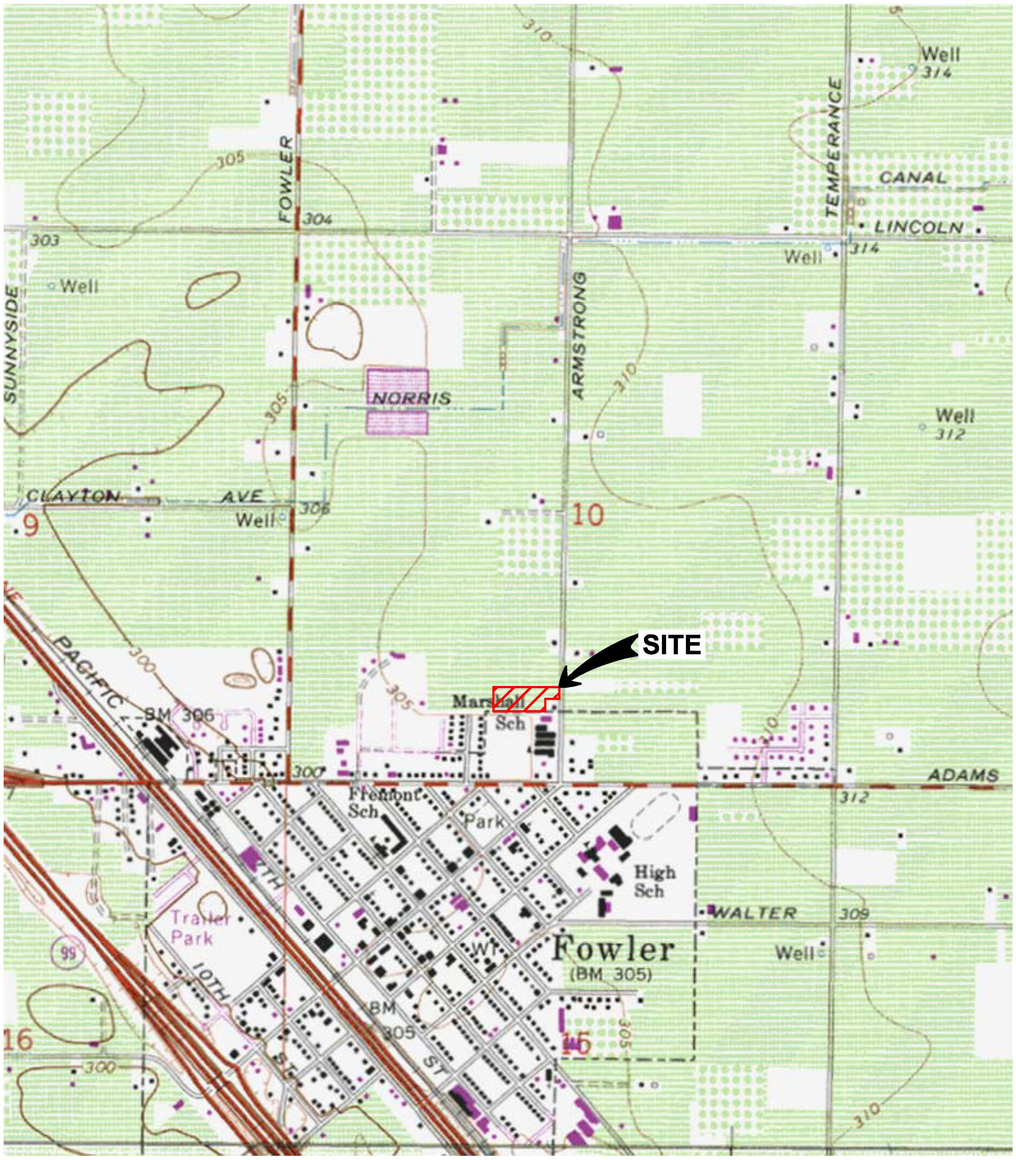
FIGURES

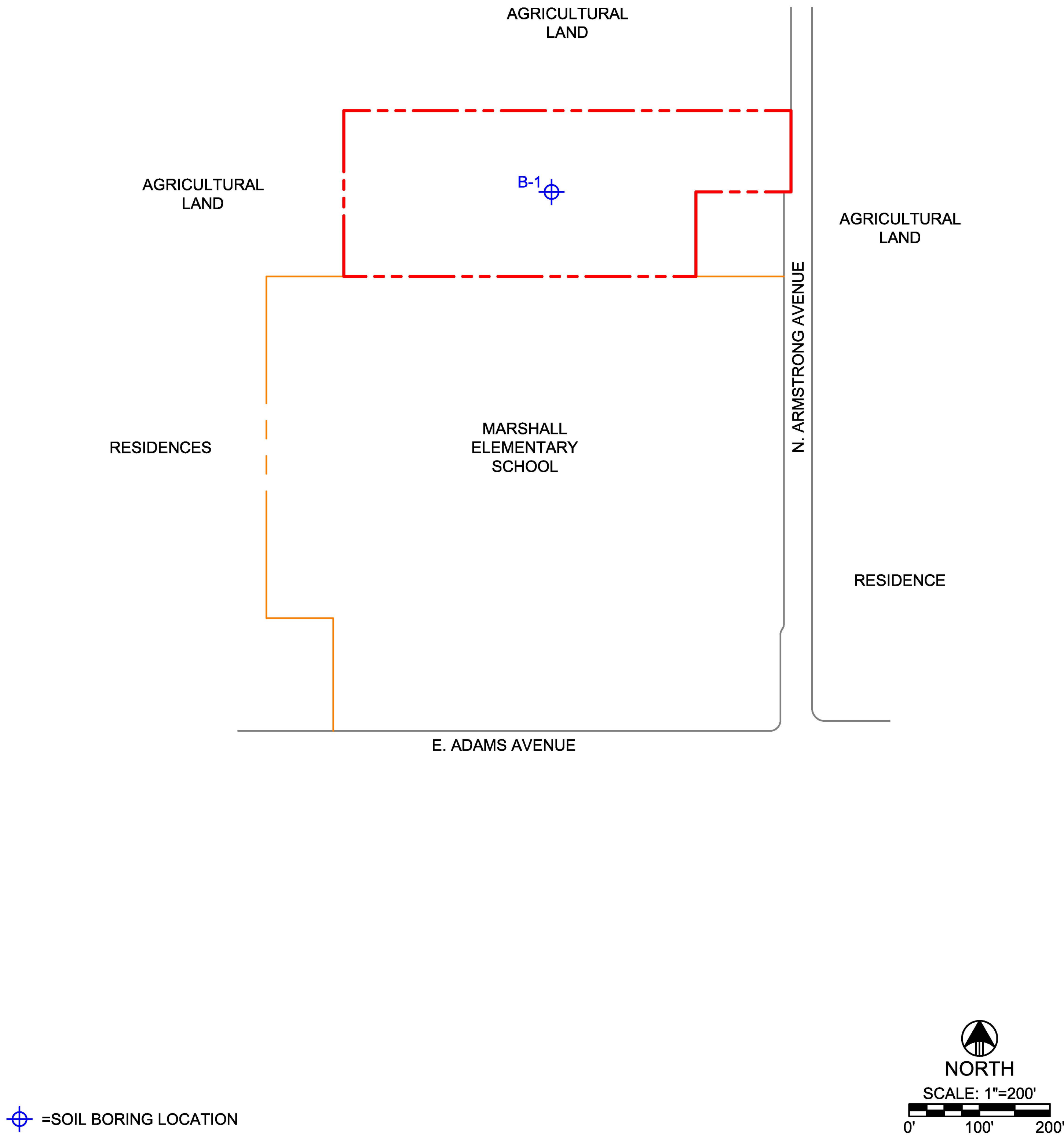
1 through 7



LAT.: 36.6366°N, LONG.: 119.6744°W, 10-T15S-R21E, MDB&M, USGS MAP: MALAGA, DATE: 1964, PHOTO REV.: 1981

NORTH

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	VICINITY MAP MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 1 NTS
	SOURCE: USGS TOPOGRAPHIC MAPS		



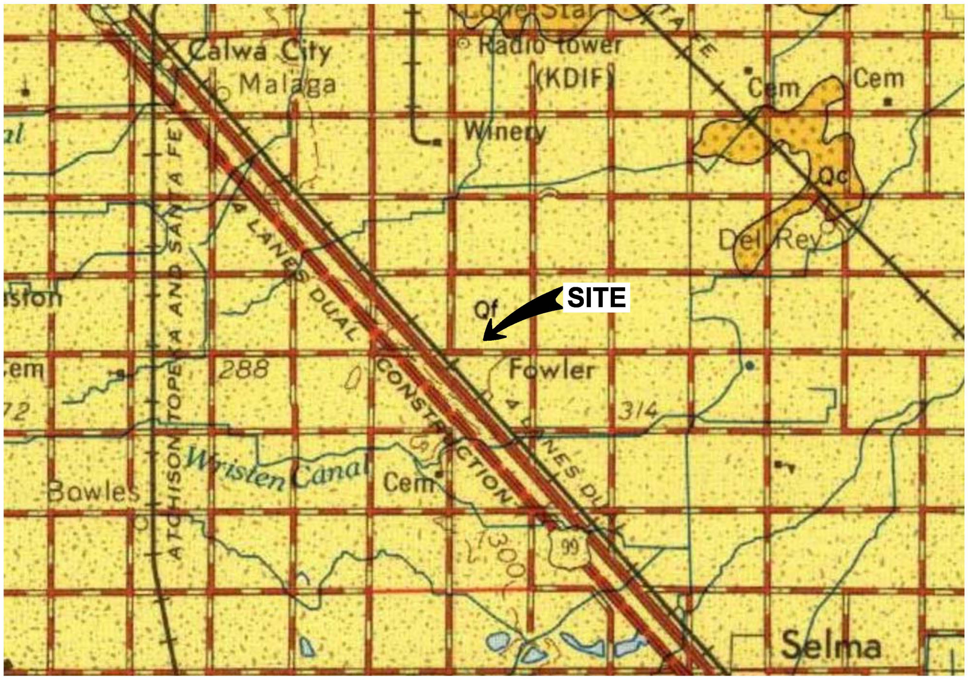
TECHNICON ENGINEERING SERVICES, INC.

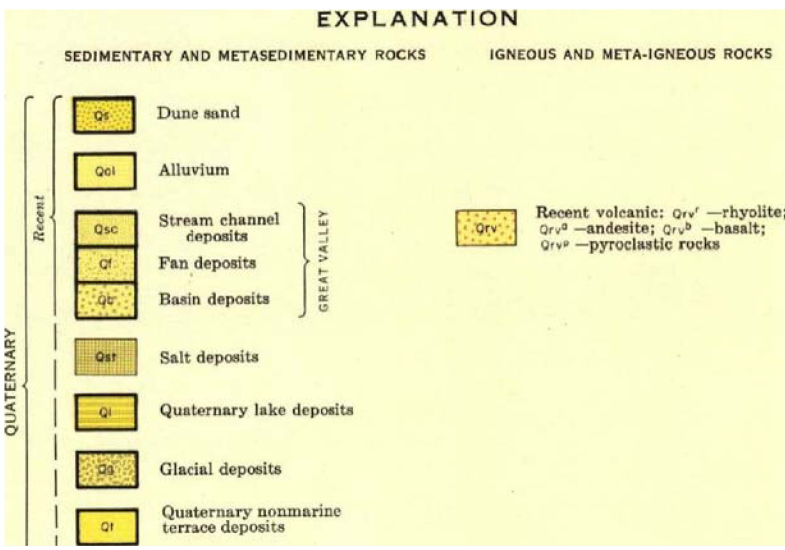
PROJECT: 180131

CAD BY: MH

SITE MAP
MARSHALL ELEMENTARY SCHOOL
3 ACRE SITE ADDITION
142 N. ARMSTRONG AVENUE
FOWLER, CALIFORNIA

FIGURE 2

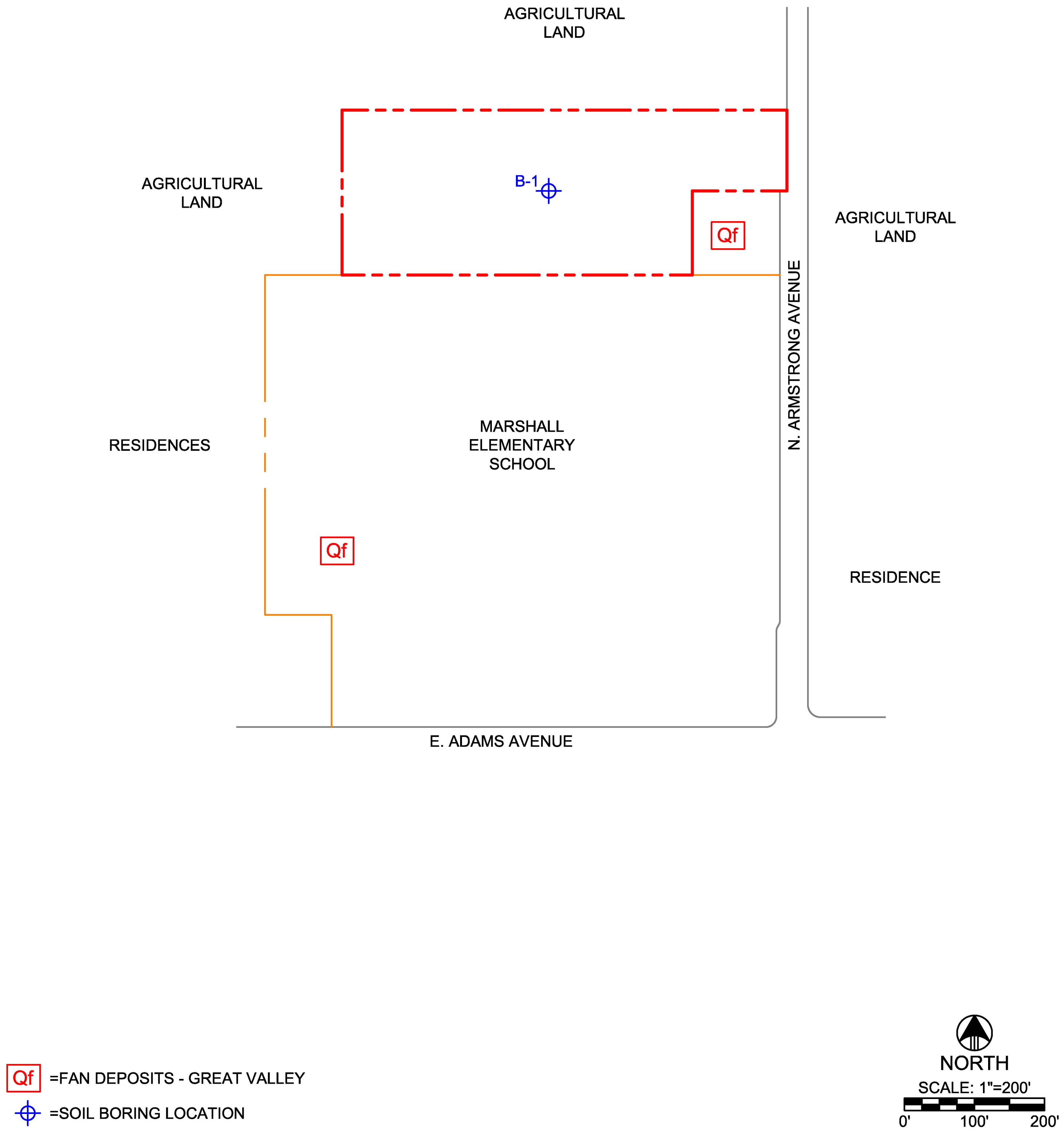




GEOLOGIC MAP OF CALIFORNIA : FRESNO SHEET - 1965, SCALE 1:250,000

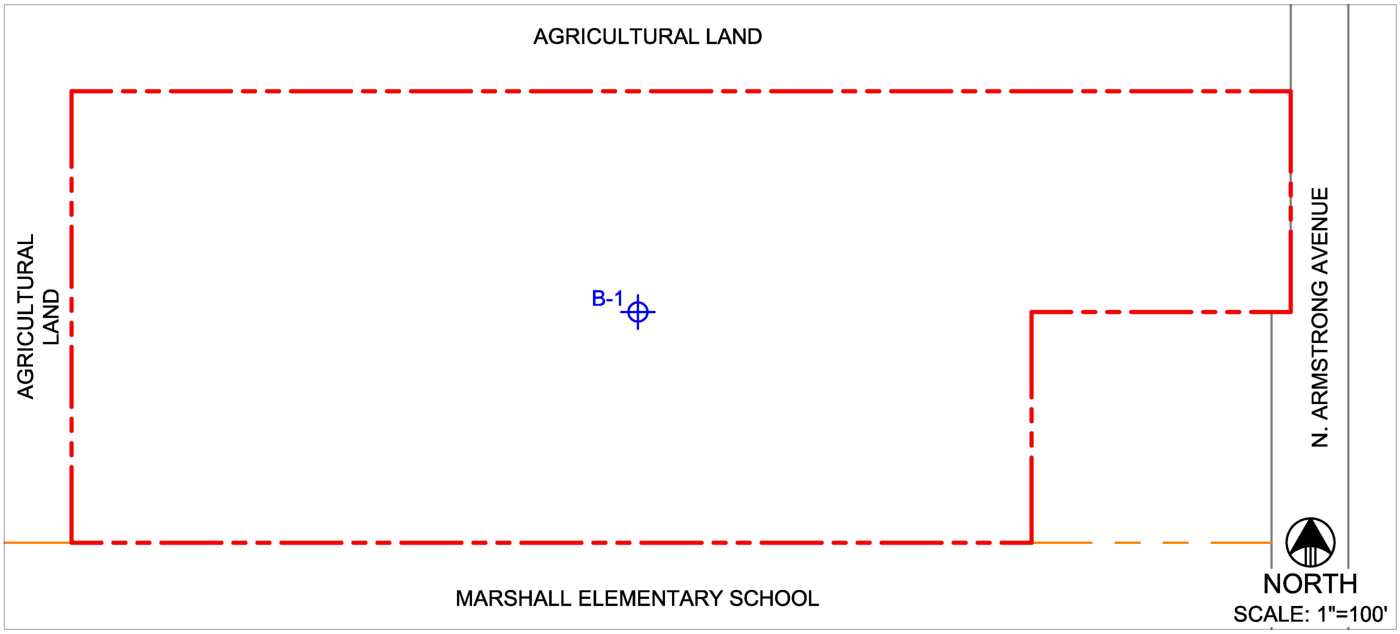
NORTH

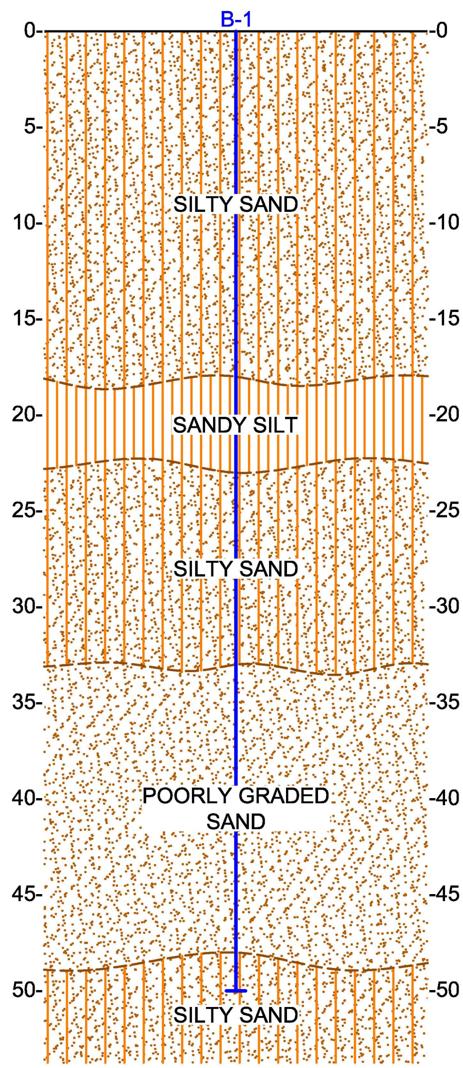
TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	REGIONAL GEOLOGIC MAP	FIGURE
	SOURCE: DIVISION OF MINES AND GEOLOGY	MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	3 NTS



TECHNICON ENGINEERING SERVICES, INC.

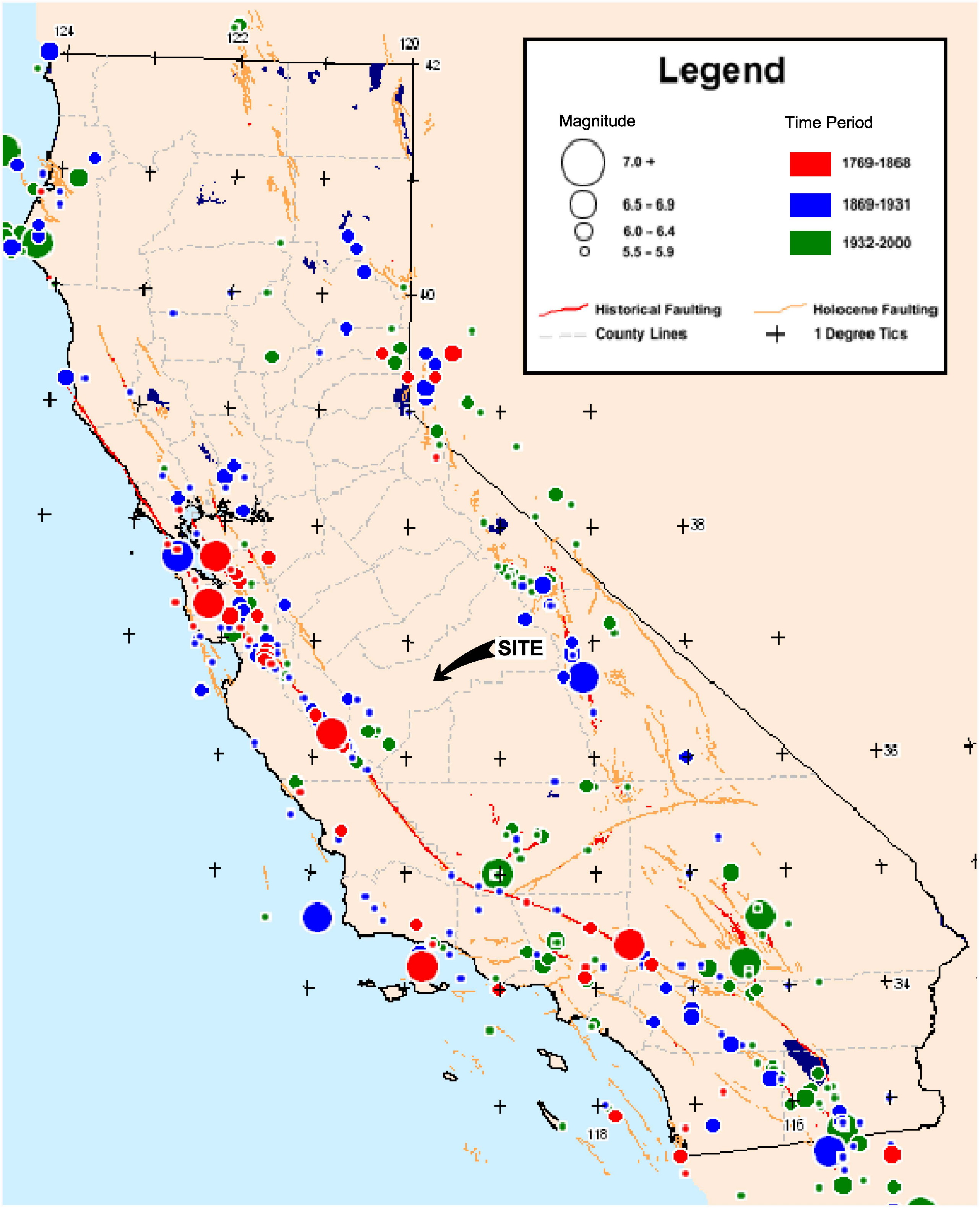
PROJECT: 180131	GEOLOGIC MAP OF SITE MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 4
CAD BY: MH		





TECHNICON ENGINEERING SERVICES, INC.

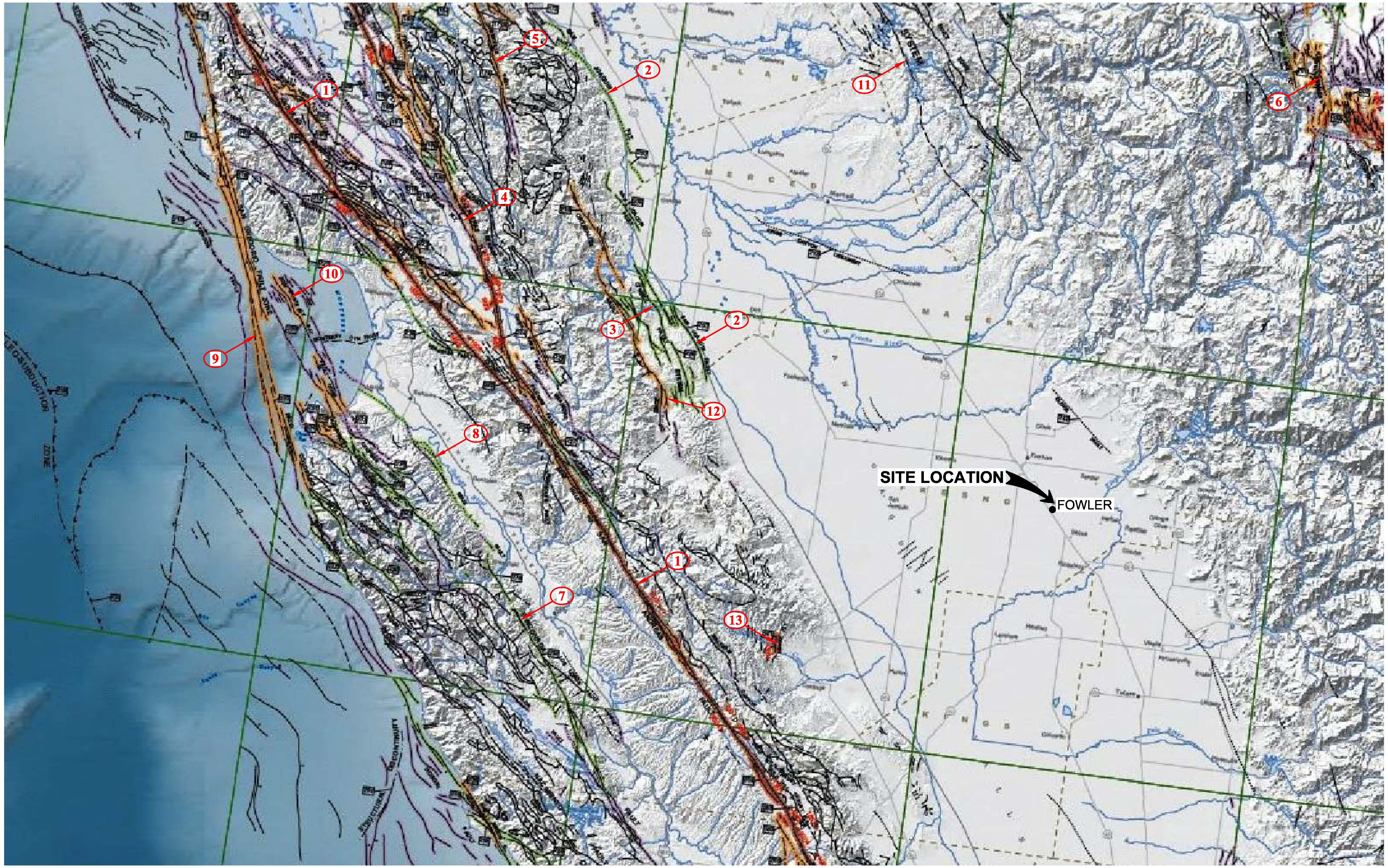
PROJECT: 180131	CROSS SECTION DETAIL MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 5
CAD BY: MH		



NORTH

TECHNICON
ENGINEERING SERVICES, INC.

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	EPICENTER MAP MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 6
	SOURCE: CGS		NTS



EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred.

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate).

FAULTS

1. San Andreas
2. San Joaquin
3. O'neals
4. Calaveras
5. Greenville
6. Hartely Springs
7. Rinoconda
8. Reliz
9. San Gregorio
10. Monterey Bay
11. Foothills Fault System
12. Ortigalita
13. Nunez

REFERENCE: 2010 FAULT ACTIVITY MAP OF CALIFORNIA

NORTH

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	DATE: 2/25/19	REGIONAL FAULT MAP MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 7 NTS
	CAD BY: MH	APPROVED BY: KW		

BORING LOGS AND LOG KEY

APPENDIX A

TECHNICON Enineering Services, Inc.
4539 N Brawley Ave #108
Fresno, CA 93722
Telephone: 559-276-9311

KEY TO SYMBOLS

PROJECT NAME Marshall Elementary School
DATE OF EXPLORATION 2/14/2019
PROJECT LOCATION 142 N Armstrong Ave, Fowler CA
PROJECT NUMBER 180131

LITHOLOGIC SYMBOLS (Unified Soil Classification System)

	FILL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
PT	PEAT
OL	LOW PLASTICITY ORGANIC SILT
OH	HIGH PLASTICITY ORGANIC SILT
ML	LOW PLASTICITY SILT
MH	HIGH PLASTICITY SILT
GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
CL	LOW PLASTICITY CLAY
CH	HIGH PLASTICITY CLAY

SAMPLER SYMBOLS

STANDARD PENETRATION TEST

CALIFORNIA SAMPLER

MODIFIED CALIFORNIA SAMPLER

SHELBY TUBE SAMPLER

ROCK CORE BARREL

BULK SAMPLE

Water Level at Time of Drilling

Water Level at End of Drilling

Water Level After 24 Hours

Assumed stratum line

Observed stratum line

Note 1: The degree of saturation shown on the boring logs is based on an assumed specific gravity of 2.65. The actual degree of saturation may vary.

Note 2: The stratum lines shown on the logs represent the approximate boundary between soil types; the actual in-situ transition may be gradual.

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
S - DEGREE OF SATURATION (%)
NP - NON PLASTIC
-200 PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION

TECHNICON Eningeering Services, Inc.
4539 N Brawley Ave #108
Fresno, CA 93722
Telephone: 559-276-9311

BORING B1

PROJECT NAME Marshall Elementary School
PROJECT NUMBER 180131
PROJECT LOCATION 142 N Armstrong Ave, Fowler CA
SURFACE DESCRIPTION Seasonal Vegetation, Flat
DATE STARTED 2/14/19 **COMPLETED** 2/14/19
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 45
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY K. Rasmussen **CHECKED BY** S. Alvarez

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0				**Silty SAND (SM)** - medium dense, light brown, moist, fine to medium grained				
	CAL	2-4-8 (12)			108.2	3.4	S = 17 %	
5	CAL	4-7-11 (18)			108.2	2.9	S = 14 %	
10	SPT	14-16-12 (28)						
15	CAL	9-9-15 (24)			108.0	4.5	S = 23 %	
				Sandy SILT (ML) - hard, gray, moist, with fine sand, iron oxide staining				
20	SPT	11-16-17 (33)						
				Silty SAND (SM) - dense, light brown, moist, fine to medium grained				
25	CAL	13-21-29 (50)			116.0	6.9	S = 43 %	
30	SPT	7-8-8 (16)		Medium dense, brown				
				Poorly Graded SAND (SP) - dense, light brown and white, moist, fine to medium grained				
35								

(Continued Next Page)

TECHNICON Eningeering Services, Inc.
4539 N Brawley Ave #108
Fresno, CA 93722
Telephone: 559-276-9311

BORING B1

PROJECT NAME Marshall Elementary School
PROJECT NUMBER 180131
PROJECT LOCATION 142 N Armstrong Ave, Fowler CA
SURFACE DESCRIPTION Seasonal Vegetation, Flat
DATE STARTED 2/14/19 **COMPLETED** 2/14/19
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 45
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY K. Rasmussen **CHECKED BY** S. Alvarez

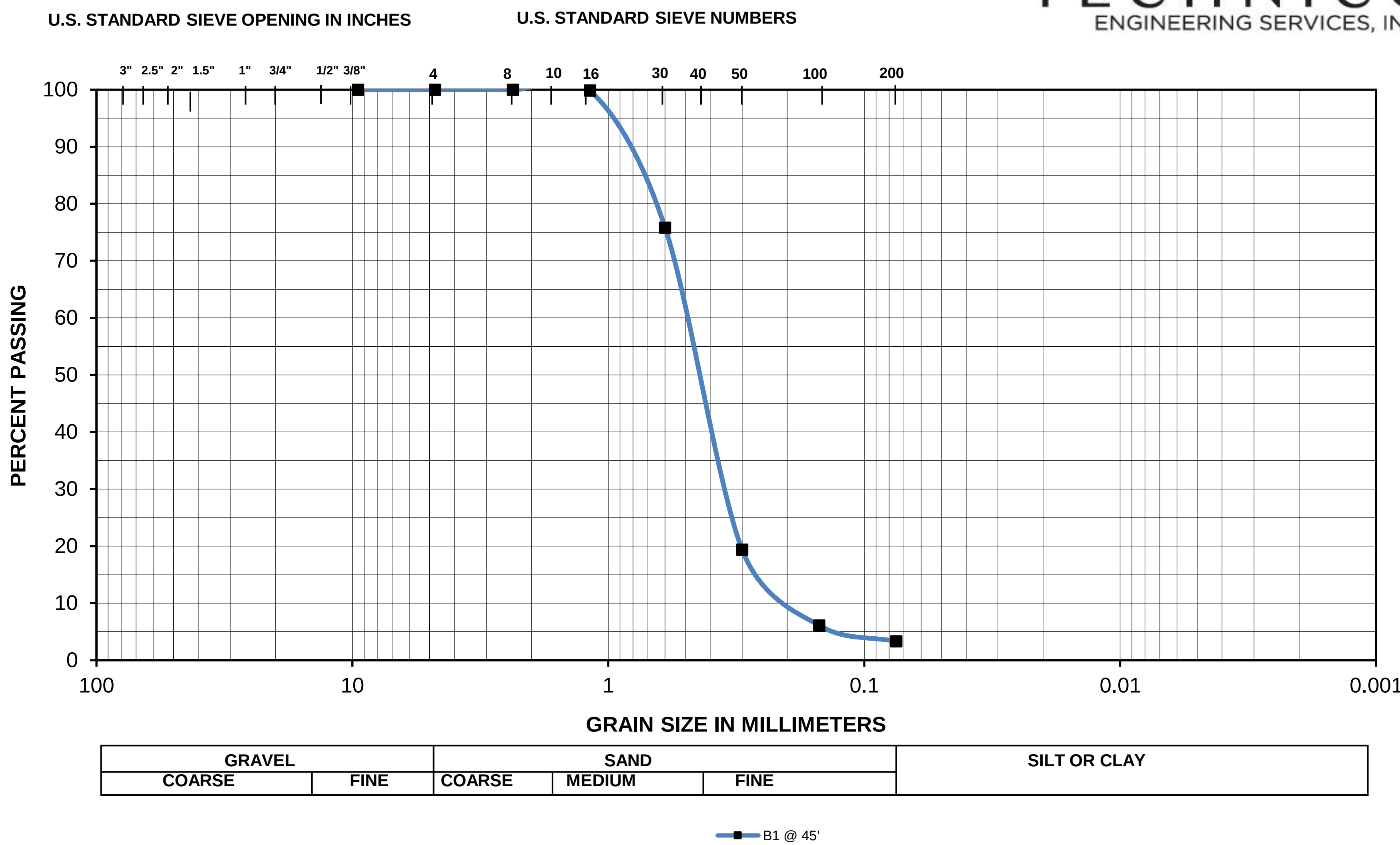
DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	10-17-23 (40)		**Poorly Graded SAND (SP)** - dense, light brown and white, moist, fine to medium grained *(continued)*	96.7	3.0	S = 11 %	
40	SPT	7-11-11 (22)		Medium dense				
45	CAL	7-11-15 (26)			95.8	3.6	S = 13 %	
				Silty SAND (SM) - medium dense, light brown, moist, fine to medium grained				
50	SPT	11-11-13 (24)						

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 2/14/19.

LABORATORY TESTS

APPENDIX B

TECHNICON ENGINEERING SERVICES, INC.



Sample No.	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project	Marshall Elementary
B1 @ 45'	Poorly Graded SAND (SP)	0	96.7	3.3	3.6					Fowler, CA
									TES No.	180131
									Date	2/14/2019

TECHNICON
ENGINEERING SERVICES, INC.

Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project	Marshall Elementary	Technician	WJ
	Fowler, CA	Date	2/14/2019
TES No.	180131	Sample No.	B1 @ 45'
Lab No.		Remarks	Poorly Graded SAND (SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	193.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	188.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.3	0.2	0.2	99.8	
#30	46.7	24.0	24.2	75.8	
#50	155.6	56.4	80.6	19.4	
#100	181.2	13.3	93.9	6.1	
#200	186.7	2.8	96.7	3.3	
Pan					

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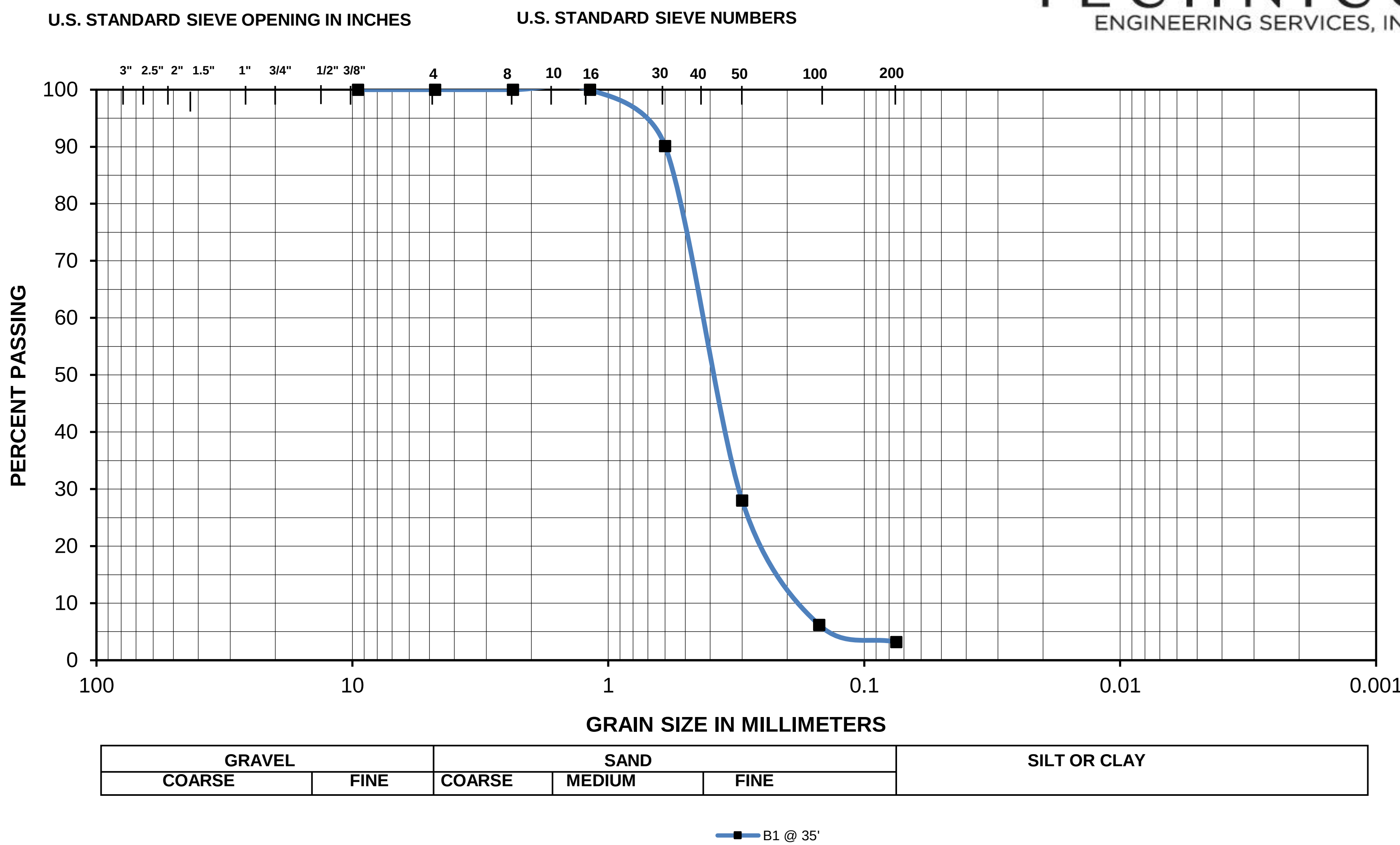
Phone (559) 276-9311 Fax (559) 276-9344

TECHNICON
ENGINEERING SERVICES, INC.



Sample No.	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project	Marshall Elementary
B1 @ 35'	Poorly Graded SAND (SP)	0	96.8	3.2	3.0					Fowler, CA
									TES No.	180131
									Date	2/14/2019

TECHNICON
ENGINEERING SERVICES, INC.

Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project	Marshall Elementary	Technician	WJ
	Fowler, CA	Date	2/14/2019
TES No.	180131	Sample No.	B1 @ 35'
Lab No.		Remarks	Poorly Graded SAND (SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	194.1	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	188.93	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.1	0.0	0.0	100.0	
#30	19.2	9.9	9.9	90.1	
#50	139.8	62.1	72.0	28.0	
#100	182.1	21.8	93.8	6.2	
#200	187.9	3.0	96.8	3.2	
Pan					

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TECHNICON
ENGINEERING SERVICES, INC.

Method for Estimating the Service Life of Steel Culverts
Caltrans California Test 643

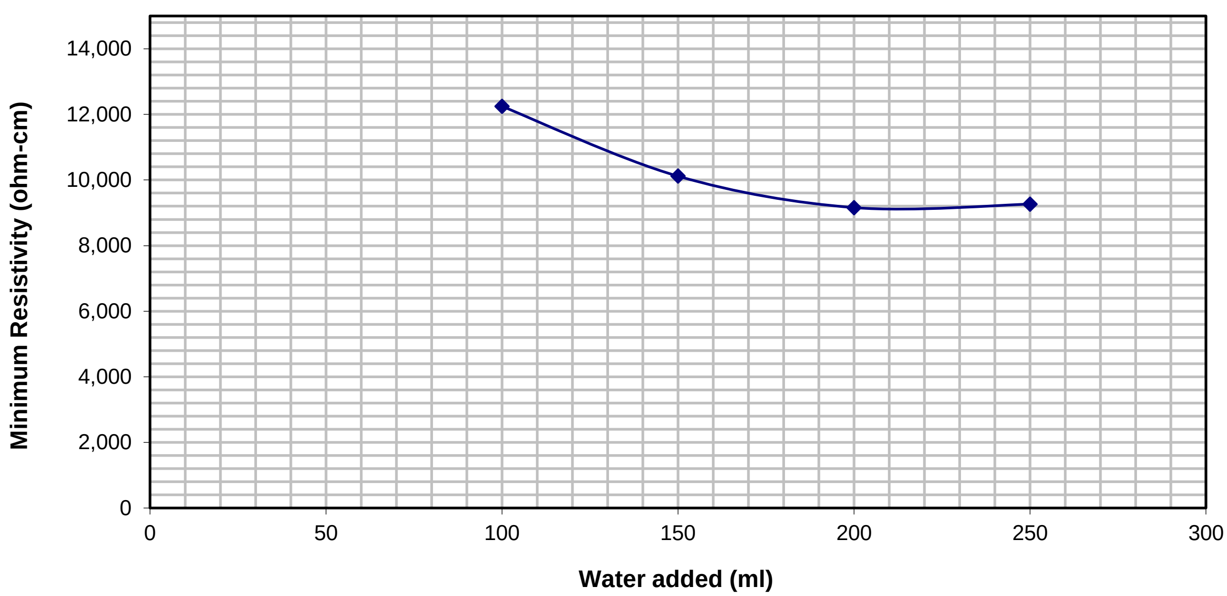
Project Name	Marshall Elementary	Sample Location	B1 @ 0-4'
Project Number	180131	Test Date	3/5/2019
Sample Date	2/14/2019	Tested By	WJ
Sampled By	KR	Material Description	Silty SAND (SM)

Sample Condition	**As Received**	**Minimum Resistivity**					
Water Added (ml)	0	100	150	200	250		
Resistance (ohm)	900,000	11,500	9,500	8,600	8,700		
Resistivity (ohm-cm)	958,500	12,248	10,118	9,159	9,266		

Minimum Resistivity (ohm-cm)	**9,159**	**Field Resistivity (ohm-cm)**

pH = 8.36 **EC =**

Box Constant=1.065



Years to perforation*	61

* Caltrans California Test 643 - Method for Estimating the Service Life of Steel Culverts

TECHNICON
ENGINEERING SERVICES, INC.

Chemical Analysis

SO_4 - Modified Caltrans 417 & CL - Modified Caltrans 417/422

Project	Marshall Elementary	Technician	WJ
	Fowler, CA	Date	3/7/2019
TES No.	180131	Remarks	Silty SAND (SM)

Sample Location	**Soluble Sulfate SO_4-S**		**Soluble Chloride Cl**	
B1 @ 0-4'	3.8	mg/Kg	1.8	mg/Kg
B1 @ 0-4'	3.9	mg/Kg	1.8	mg/Kg
B1 @ 0-4'	3.8	mg/Kg	1.8	mg/Kg
Average	**3.83**	**mg/Kg**	**1.80**	**mg/Kg**

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TECHNICON
ENGINEERING SERVICES, INC.
Construction Testing & Inspection * *Geotechnical & Environmental Engineering*

Expansion Index Test
UBC Standard 29-2 / ASTM D4829

Project: Marshall Elementary
Fowler, CA
TES No. 180131
Lab No.

Technician: WJ
Date: 3/5/2019
Sample No.: B1 @ 0-4'
Remarks: Silty SAND (SM)

Water Added (ml)	Dry Back			
Wt. Of Soil + Mold (g)	790.6			
Wt. of Mold (g)	364.5			
Wt. of Soil (g)	426.1			
Wt. of Soil (lb)	0.939			
Wet Density (pcf)	128.5			
Moisture Sample, wet (g)	200.0			
Moisture Sample, dry (g)	185.9			
Moisture Content (%)	7.6			
Dry Density (pcf)	119.4			
Specific Gravity	2.7			
Degree of Saturation (%)	**49.9**			

Time	Dial Reading
3/5/19 0:00	0.0000
3/5/19 1:00	0.0000
3/6/19 0:00	0.0004
FINAL	0.0004

Expansion meas. = 0.0004
Exp. Index meas. = 0.4
Exp. Index 50 = 0.4

EXPANSION INDEX = 0.4

Expansion Potential Table

Expansion Index	Potential Expansion
0-20	**Very Low**
21-50	Low
51-90	Medium
91-130	High
>130	Very High

Engineering Materials Laboratory
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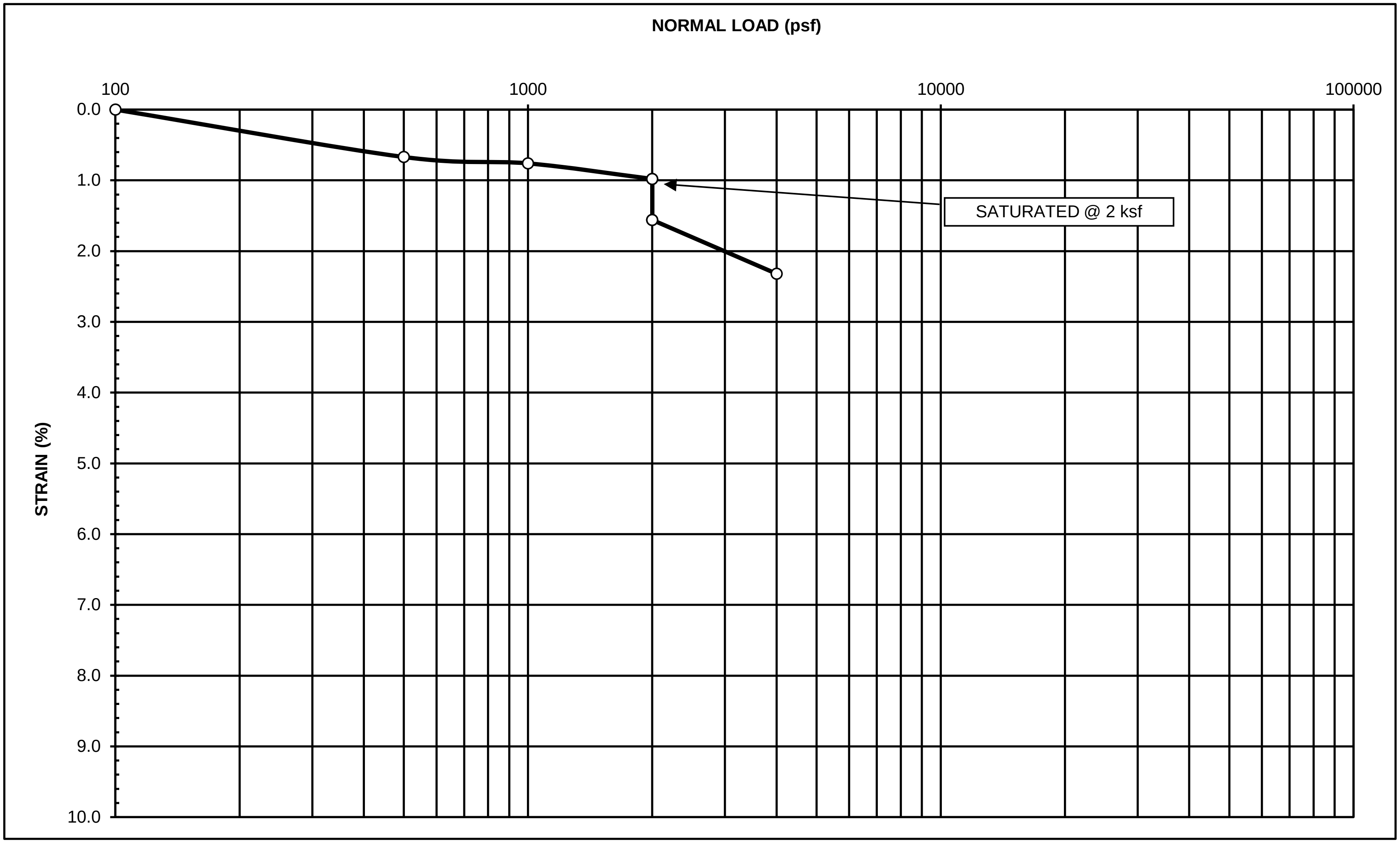
COLLAPSE POTENTIAL TEST DATA

ASTM D5333



BORING NO.	DEPTH (ft)	SAMPLE DESCRIPTION	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PROJECT:	Marshall Elementary
					PROJECT NO.:	180131
B2	**1.0**	Silty SAND (SM) Saturated @ 2 ksf.	2.2	111.4	TEST DATE:	3/5/2019
			FINAL	FINAL	TESTED BY:	WJ
			13.8	114.1	CONDITION:	Undisturbed

TECHNICON
ENGINEERING SERVICES, INC.

COLLAPSE POTENTIAL TEST DATA SUMMARY
ASTM D5333

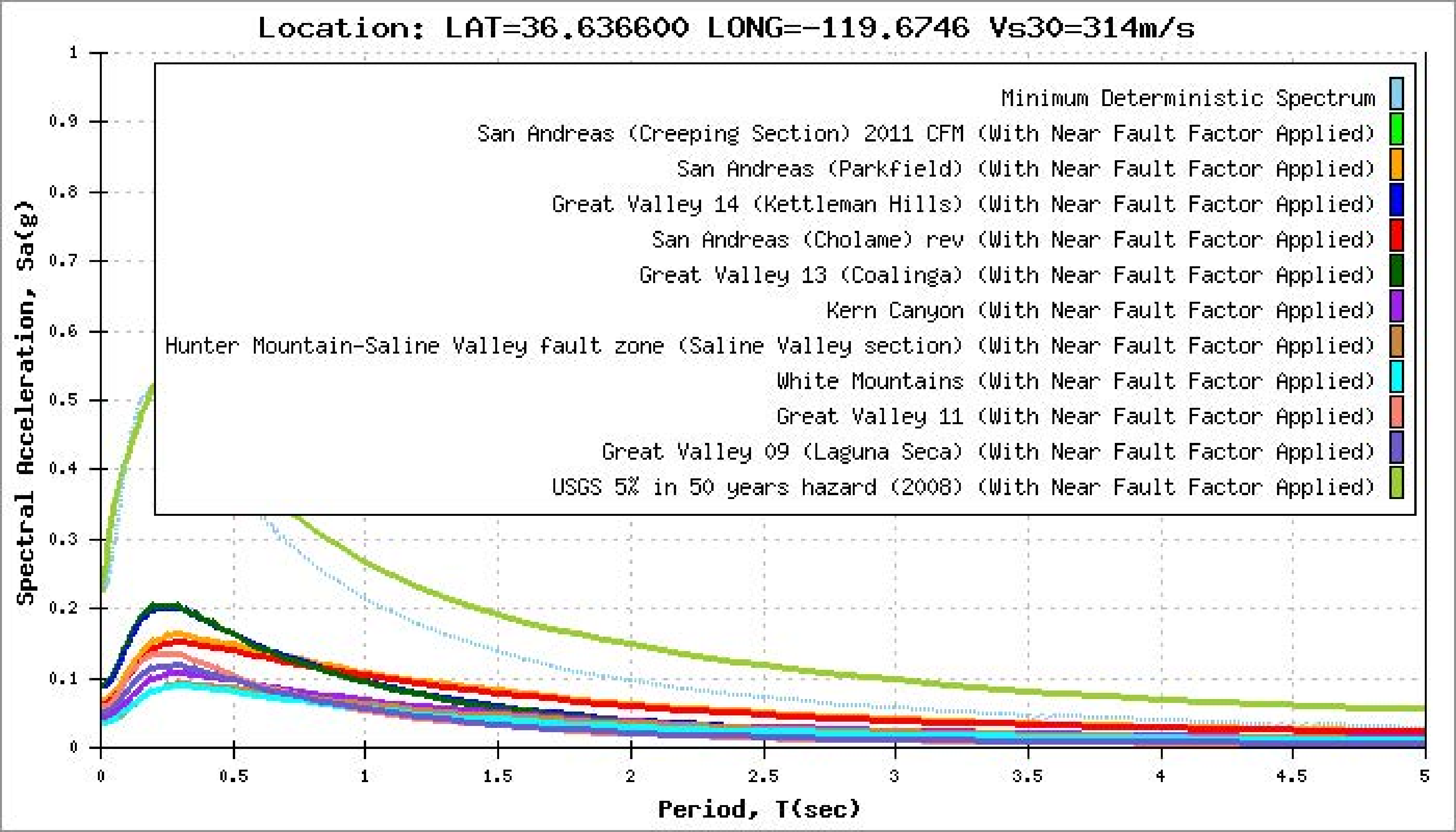
PROJECT: Marshall Elementary TES # : 180131
BORING #: B2 DEPTH (ft) 1.0 DATE: 3/5/2019
DESCRIPTION: Silty SAND (SM) TESTED BY: WJ
REMARKS: Saturated @ 2 ksf.
DIAMETER (in) 2.42

	INITIAL	FINAL
THICKNESS (in)	1.0000	0.9768
VOLUME (cc)		
GROSS WET	183.2	195.9
GROSS DRY	180.25	177.7
TARE	45.69	45.69
WATER	2.9	18.2
SOIL	134.6	132.0
MOISTURE CONTENT (%)	2.2	13.8
WET DENSITY (pcf)	113.9	127.4
DRY DENSITY (pcf)	111.4	114.1

PRESSURE (psf)	DIAL READING (in)	APPARATUS CORRECTION	t (in)	% COMPRESSION	REMARKS
100	0.0000	FALSE	1.0000	0.00	
500	0.0067	0.0000	0.9933	0.67	
1000	0.0076	0.0000	0.9924	0.76	
2000	0.0098	0.0000	0.9902	0.98	
2000	0.0156	0.0000	0.9844	1.56	SATURATED
4000	0.0232	0.0000	0.9768	2.32	

CALTRANS ARS AND USGS DEAGGREGATION SUMMARIES

APPENDIX C



Location: LAT=36.636600 LONG=-119.6746 Vs30=314m/s
Spectral Acceleration, Sa(g)
Period, T(sec)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Minimum Deterministic Spectrum
San Andreas (Creeping Section) 2011 CFM (With Near Fault Factor Applied)
San Andreas (Parkfield) (With Near Fault Factor Applied)
Great Valley 14 (Kettleman Hills) (With Near Fault Factor Applied)
San Andreas (Cholame) rev (With Near Fault Factor Applied)
Great Valley 13 (Coalinga) (With Near Fault Factor Applied)
Kern Canyon (With Near Fault Factor Applied)
Hunter Mountain-Saline Valley fault zone (Saline Valley section) (With Near Fault Factor Applied)
White Mountains (With Near Fault Factor Applied)
Great Valley 11 (With Near Fault Factor Applied)
Great Valley 09 (Laguna Seca) (With Near Fault Factor Applied)
USGS 5% in 50 years hazard (2008) (With Near Fault Factor Applied)

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. 2008

Spectral Period

Peak ground acceleration

Latitude

Decimal degrees

36.6366

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western long…

-119.6746

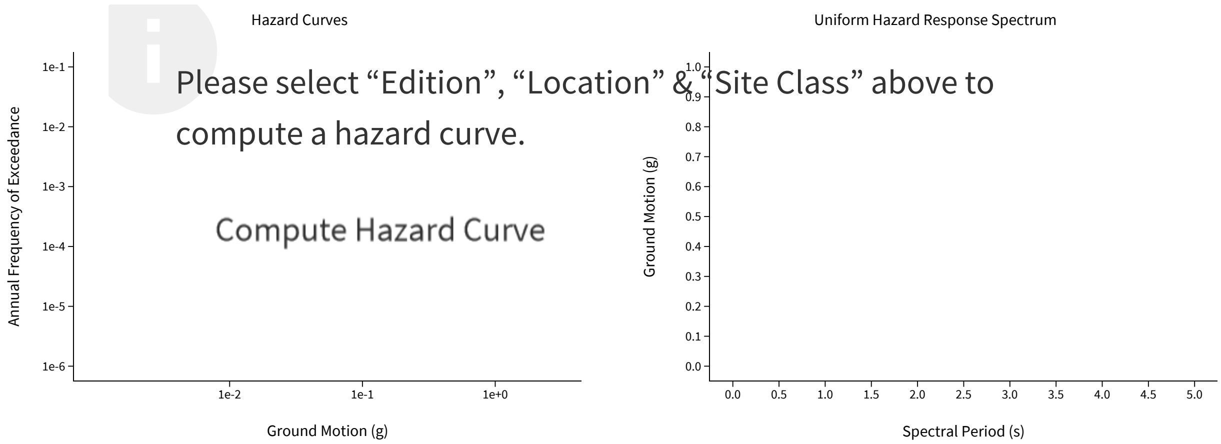
Site Class

259 m/s (Site class D)

Hazard Curve

Please select "Edition", "Location" & "Site Class" above to compute a hazard curve.

Compute Hazard Curve

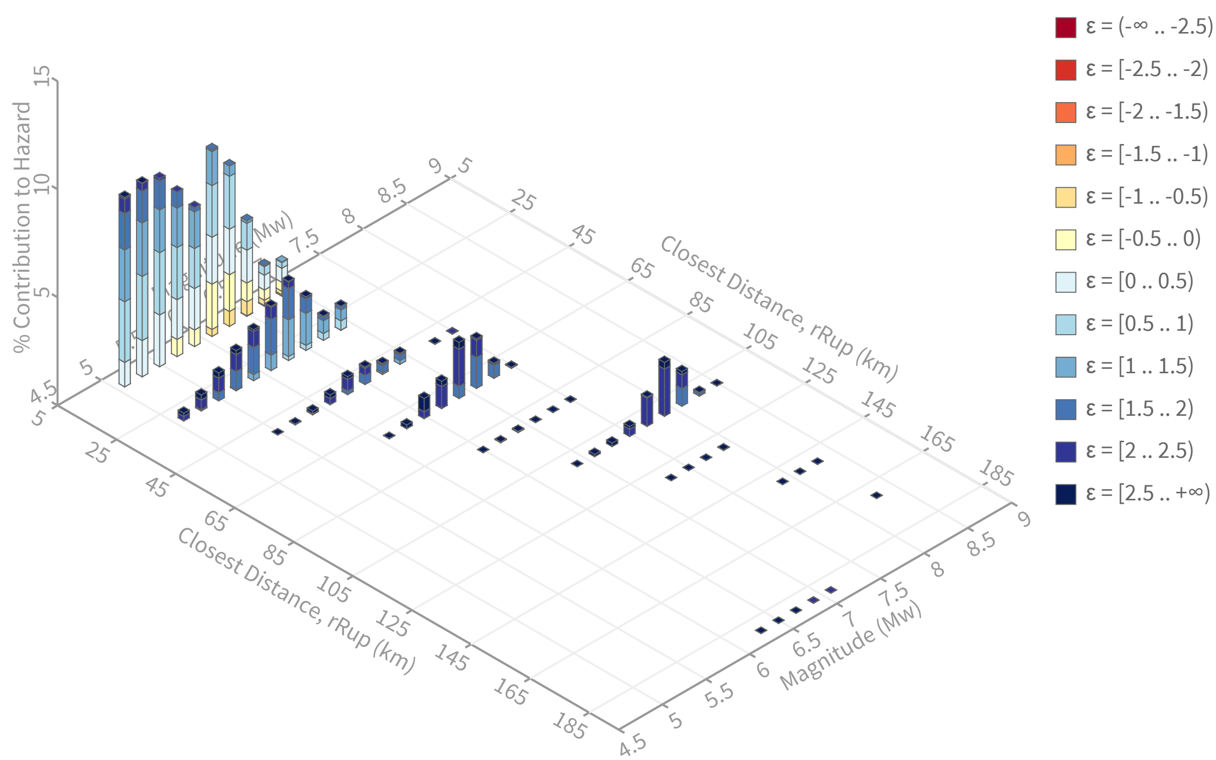


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.30250948 g

Recovered targets

Return period: 2801.0462 yrs
Exceedance rate: 0.00035700946 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.09 %

Mean (for all sources)

r: 25.95 km
m: 6.09
ε_0: 1.13 σ

Mode (largest r-m bin)

r: 10.6 km
m: 5.3
ε_0: 1.02 σ
Contribution: 8.96 %

Mode (largest ε_0 bin)

r: 8.87 km
m: 5.3
ε_0: 0.74 σ
Contribution: 2.97 %

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	%
CAmap.21.ch.in (opt)	Grid							28.10
PointSourceFinite: -119.675, 36.704		8.85	5.68	0.50	119.675°W	36.704°N	0.00	5.24
PointSourceFinite: -119.675, 36.677		6.85	5.62	0.24	119.675°W	36.677°N	0.00	4.81
PointSourceFinite: -119.675, 36.740		11.85	5.78	0.81	119.675°W	36.740°N	0.00	2.40
PointSourceFinite: -119.675, 36.722		10.31	5.73	0.66	119.675°W	36.722°N	0.00	1.61
PointSourceFinite: -119.675, 36.803		17.49	5.96	1.23	119.675°W	36.803°N	0.00	1.48
PointSourceFinite: -119.675, 36.758		13.43	5.84	0.95	119.675°W	36.758°N	0.00	1.48
PointSourceFinite: -119.675, 36.785		15.85	5.91	1.13	119.675°W	36.785°N	0.00	1.29
PointSourceFinite: -119.675, 36.830		19.96	6.04	1.37	119.675°W	36.830°N	0.00	1.23
PointSourceFinite: -119.675, 36.776		15.04	5.89	1.07	119.675°W	36.776°N	0.00	1.20
CAmap.24.ch.in (opt)	Grid							28.09
PointSourceFinite: -119.675, 36.704		8.85	5.68	0.50	119.675°W	36.704°N	0.00	5.24
PointSourceFinite: -119.675, 36.677		6.85	5.62	0.24	119.675°W	36.677°N	0.00	4.80
PointSourceFinite: -119.675, 36.740		11.85	5.78	0.81	119.675°W	36.740°N	0.00	2.40
PointSourceFinite: -119.675, 36.722		10.31	5.73	0.66	119.675°W	36.722°N	0.00	1.60
PointSourceFinite: -119.675, 36.803		17.49	5.96	1.23	119.675°W	36.803°N	0.00	1.48
PointSourceFinite: -119.675, 36.758		13.43	5.84	0.95	119.675°W	36.758°N	0.00	1.47
PointSourceFinite: -119.675, 36.785		15.85	5.91	1.13	119.675°W	36.785°N	0.00	1.29
PointSourceFinite: -119.675, 36.830		19.96	6.04	1.37	119.675°W	36.830°N	0.00	1.23
PointSourceFinite: -119.675, 36.776		15.04	5.89	1.07	119.675°W	36.776°N	0.00	1.20
CAmap.24.gr.in (opt)	Grid							14.02
PointSourceFinite: -119.675, 36.704		8.85	5.68	0.50	119.675°W	36.704°N	0.00	2.62
PointSourceFinite: -119.675, 36.677		6.85	5.62	0.24	119.675°W	36.677°N	0.00	2.40
PointSourceFinite: -119.675, 36.740		11.85	5.78	0.81	119.675°W	36.740°N	0.00	1.20
CAmap.21.gr.in (opt)	Grid							14.01
PointSourceFinite: -119.675, 36.704		8.85	5.68	0.50	119.675°W	36.704°N	0.00	2.62
PointSourceFinite: -119.675, 36.677		6.85	5.62	0.24	119.675°W	36.677°N	0.00	2.40
PointSourceFinite: -119.675, 36.740		11.85	5.78	0.81	119.675°W	36.740°N	0.00	1.20
bFault.ch	Fault							4.77
Great Valley 13 (Coalinga)		66.47	7.02	2.03	120.254°W	36.267°N	231.76	2.33
Great Valley 14 (Kettleman Hills)		70.32	7.12	2.06	120.139°W	36.132°N	216.65	1.86
aFault_aPriori_D2.1	Fault							3.36
S. San Andreas : PK+CH+CC+BB+NM+SM		106.18	7.92	2.18	120.561°W	36.003°N	228.67	1.61
bFault.gr	Fault							2.67
Great Valley 13 (Coalinga)		66.47	6.79	2.23	120.254°W	36.267°N	231.76	1.38
Great Valley 14 (Kettleman Hills)		70.46	6.87	2.27	120.139°W	36.132°N	216.65	1.07
aFault_MoBal	Fault							2.57

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
EXTmap.ch.in (opt)	Grid							1.33

LIQUEFACTION AND DRY SAND SETTLEMENT CALCULATIONS

APPENDIX D

Project **MARSHALL ELEMENTARY SCHOOL** Calc by KW Date 3/5/19
DSA File Checked by ____ Date ____
DSA App No.

Project No: 180131
Boring: B1

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed and Harder (1990), as modified in 1998 NCEER Workshops. Reference Youd et al., 2001
****Includes revisions proposed by Youd (2001)**

The induced cyclic stress ratio (CSR) by a given peak ground acceleration (a_{max}) is:

******CSR = $(t_{av})/s'_{vo} = 0.65\ (s_{vo}/s'_{vo})(a_{max}/g)\ r_d$ MSF

where: ******Magnitude Scaling Factor, MSF =31.623*(exp(-0.4605*Mw))

******Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^2}$$

a_{max} = maximum peak acceleration at the ground surface (g's)

g = acceleration of gravity Mw = Moment Magnitude

The cyclic resistance ratio (CRR) is now read directly from the curve for clean sands under level ground conditions based on the corrected SPT value.
This SPT N value is now corrected for earthquake magnitude, fines, energy, overburden pressure, & sampler factors.
The CSR factors in a magnitude scaling factor and a stress reduction coefficient.

Factor of Safety, F_L is:

F_L = CRR / CSR = Uniform CSR necessary to trigger liquefaction/Equivalent, Uniform, earthquake induced CSR

Hammer Efficiencies - Technicon Drilling Rigs	
CME 45	79.6%
CME 55	74.3%
CME 75	72.5%

Rod Length = **1.22** meters above grounds surface
Hammer Efficiency = **80%** Emean/E60 = Energy Ratio to correct to standard 60% Energy
Ring Sampler Corr. = **0.65**

Surcharge = Any surcharge on top of the ground (psf)

[1]$C_N = 2.2/(1.2+s'_0/P_a)$ Youd and Idriss 2001 Formula (10)

Emean/E60= 1.327 Sur.= 0 psf Measured Ground Water Depth = 70 feet Design Ground Water Depth = 8 feet acc. max = 0.312 g Earthq. Mw = 6.09

Depth to Bottom of Layer (ft.)	Boring Diameter (in)	Soil Type	Layer Thickness (ft.)	Total Overburden Press. σ_{vo} (tsf)	Effect. Overburden Press. σ'_{vo} (tsf) at Measured Ground Water Depth	Effect. Overburden Press. σ'_{vo} (tsf) at Design Ground Water Depth	Midpoint Below Ground Surface (m)	Cn	Total Unit Wt. (pcf) at Measured Ground Water Depth	Total Unit Wt. (pcf) at Design Ground Water Depth	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N	α	β	Stress Reduct. Coeff. rd	MSF	Est. % Fines	C_B	C_R	C_s	$C_BC_RC_s$	Corrected Blow Count $(N_1)_{60}$	$(N_1)_{60cs}$	$CSR_{7.5}$ Induced	$CRR_{7.5}$ (Resist. - c.sand)	Factor of Safety F_L	Will It Liquefy?
3	7.5	SM	3	0.08	0.08	0.08	0.5	1.70	111.9	111.9	2	12	4.706	1.154	0.997	1.91	30.0	1.1	0.75	1.00	0.83	14.6	21.6	0.106	0.237	2.24	ABOVE
8	7.5	SM	5	0.31	0.31	0.31	1.7	1.48	111.3	111.3	2	18	4.706	1.154	0.987	1.91	30.0	1.1	0.75	1.00	0.83	19.2	26.8	0.105	0.334	3.19	ABOVE
12.5	7.5	SM	4.5	0.57	0.57	0.52	3.1	1.27	111.3	129.8	1	28	4.706	1.154	0.976	1.91	30.0	1.0	0.85	1.20	1.02	48.3	60.4	0.113	LARGE	LARGE	NO
18	7.5	SM	5.5	0.85	0.85	0.74	4.6	1.11	112.9	129.6	2	24	4.706	1.154	0.964	1.91	30.0	1.0	0.85	1.00	0.85	19.5	27.2	0.118	0.344	2.93	NO
23	7.5	ML	5	1.15	1.15	0.92	6.2	0.97	112.9	129.6	1	33	5.000	1.200	0.952	1.91	60.0	1.0	0.95	1.20	1.14	48.6	63.4	0.126	LARGE	LARGE	NO
27.5	7.5	SM	4.5	1.43	1.43	1.08	7.7	0.87	124	134.6	2	50	4.706	1.154	0.941	1.91	30.0	1.0	0.95	1.00	0.95	35.8	46.0	0.132	LARGE	LARGE	NO
32	7.5	SM	4.5	1.71	1.71	1.24	9.1	0.79	124	134.6	1	16	4.706	1.154	0.931	1.91	30.0	1.0	1.00	1.20	1.20	20.2	28.0	0.135	0.370	2.74	NO
37.5	7.5	SP	5.5	1.98	1.98	1.41	10.6	0.73	99.7	122.6	2	40	0.000	1.000	0.891	1.91	3.0	1.0	1.00	1.00	1.00	25.1	25.1	0.133	0.293	2.20	NO
42.5	7.5	SP	5	2.25	2.25	1.57	12.2	0.67	99.7	122.6	1	22	0.000	1.000	0.848	1.91	3.0	1.0	1.00	1.20	1.20	23.6	23.6	0.129	0.266	2.06	NO
48	7.5	SP	5.5	2.51	2.51	1.72	13.8	0.63	99.3	122	2	26	0.000	1.000	0.806	1.91	3.0	1.0	1.00	1.00	1.00	14.1	14.1	0.124	0.151	1.21	NO
51.5	7.5	SM	3.5	2.75	2.75	1.87	15.2	0.59	124	134.6	1	24	4.706	1.154	0.769	1.91	30.0	1.0	1.00	1.20	1.20	22.5	30.7	0.120	LARGE	LARGE	NO

Project
DSA File
DSA App No.

Calc by KW Date 3/5/19
Checked by 0 Date 1/0/00

Project No: 180131
Boring: B1

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed and Harder (1990), as modified in 1998 NCEER Workshops. Reference Youd et al., 2001
****Includes revisions proposed by Youd (2001)**
The induced cyclic stress ratio (CSR) by a given peak ground acceleration (a_{max}) is:

******CSR = $(t_{av})/s'_{vo} = 0.65\ (s_{vo}/s'_{vo})(a_{max}/g)\ r_d$ MSF

where: ******Magnitude Scaling Factor, MSF =31.623*(exp(-0.4605*Mw))
******Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^{2}}$$

a_{max} = maximum peak acceleration at the ground surface (g's)
g = acceleration of gravity Mw = Moment Magnitude

The cyclic resistance ratio (CRR) is now read directly from the curve for clean sands under level ground conditions based on the corrected SPT value.
This SPT N value is now corrected for earthquake magnitude, fines, energy, overburden pressure, & sampler factors.
The CSR factors in a magnitude scaling factor and a stress reduction coefficient.

Settlement = e * Layer thickness in inches (Figure 9 1997 NCEER)

Rod Length = **1.22** meters above grounds surface
Hammer Efficiency = **80%** Emean/E60 = Energy Ratio to correct to standard 60% Energy
Ring Sampler Corr. = **0.65**

Surcharge = Any surcharge on top of the ground (psf)

[1]$C_N = (P_a/s'_{vo})^{0.5}$ Youd and Idriss 2001 Formula (9)

Emean/E60= 1.327 Sur.= 0 psf Measured Ground Water Depth = 70 feet Design Ground Water Depth = 8.0 feet acc. max = 0.312 g Earthq. Mw = 6.09

Depth to Bottom of Layer (ft.)	Boring Diameter (in)	Soil Type	Layer Thickness (ft.)	Total Overburden Press. σ_{vo} (tsf)	Effect. Overburden Press. σ'_{vo} (tsf) at Measured Ground Water Depth	Effect. Overburden Press. σ'_{vo} (tsf) at Design Ground Water Depth	Midpoint Below Ground Surface (ft)	Cn	Total Unit Wt. (pcf) at Measured Ground Water Depth	Total Unit Wt. (pcf) at Design Ground Water Depth	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N	Stress Reduct. Coeff. r_d	MSF	Est. % Fines	$C_BC_RC_S$	Corrected Blow Count $(N_1)_{60}$	ΔN	$(N_1)_{60cs}$	$CSR_{7.5}$ Induced	Factor of Safety F_L	ε (Only if FS<1.3) (%)	Settlement, inches
3	7.5	SM	3	0.08	0.08	0.08	0.5	1.70	111.9	111.9	2	12	0.997	1.91	30.0	0.83	14.6	2.4	17.1	0.106	2.24	-	ABOVE
8	7.5	SM	5	0.31	0.31	0.31	1.7	1.48	111.3	111.3	2	18	0.987	1.91	30.0	0.83	19.2	2.4	21.6	0.105	3.19	-	ABOVE
12.5	7.5	SM	4.5	0.57	0.57	0.52	3.1	1.27	111.3	129.8	1	28	0.976	1.91	30.0	1.02	48.3	2.4	50.7	0.113	LARGE	-	NONE
18	7.5	SM	5.5	0.85	0.85	0.74	4.6	1.11	112.9	129.6	2	24	0.964	1.91	30.0	0.85	19.5	2.4	21.9	0.118	2.93	-	NONE
23	7.5	ML	5	1.15	1.15	0.92	6.2	0.97	112.9	129.6	1	33	0.952	1.91	60.0	1.14	48.6	4.8	53.4	0.126	LARGE	-	NONE
27.5	7.5	SM	4.5	1.43	1.43	1.08	7.7	0.87	124	134.6	2	50	0.941	1.91	30.0	0.95	35.8	2.4	38.2	0.132	LARGE	-	NONE
32	7.5	SM	4.5	1.71	1.71	1.24	9.1	0.79	124	134.6	1	16	0.931	1.91	30.0	1.20	20.2	2.4	22.6	0.135	2.74	-	NONE
37.5	7.5	SP	5.5	1.98	1.98	1.41	10.6	0.73	99.7	122.6	2	40	0.891	1.91	3.0	1.00	25.1	0.3	25.3	0.133	2.20	-	NONE
33	7.5	SP	5	2.25	2.25	1.57	12.2	0.67	99.7	122.6	1	22	0.848	1.91	3.0	1.20	23.6	0.3	23.9	0.129	2.06	-	NONE
48	7.5	SP	5.5	2.51	2.51	1.72	13.8	0.63	99.3	122	2	26	0.806	1.91	3.0	1.00	14.1	0.3	14.3	0.124	1.21	0.200	0.1
51.5	7.5	SM	3.5	2.75	2.75	1.87	15.2	0.59	124	134.6	1	24	0.769	1.91	30.0	1.20	22.5	2.4	24.9	0.120	LARGE	-	NONE

Total Settlement 0.1
May be off by 0.1 inches due to rounding

Project
DSA File
DSA App No.

Calc by KW   Date 3/5/19
Checked by 0   Date 1/0/00

Project No: **180131**
Boring: **B1**

Dynamic Dry Sand Settlement

g_{cyc} = [(tav)/s'vo]/Gmax = 0.65 (a_{max} /g) s_o r_d / G_{max}

Where: G_{max} = 20,000 $[(N_1)_{60,cs}]^{0.33}[s'_m]^{0.5}$

Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^{2}}$$

a_{max} = maximum peak acceleration at the ground surface (g's)
g = acceleration of gravity

Notes:
1) Figure 9.51, Geotechnical Earthquake Engineering, Kramer
2) Figure 9.52b, Geotechnical Earthquake Engineering, Kramer
3) Table 9-4, Geotechnical Earthquake Engineering, Kramer

Sur.= 0 psf   Measured Ground Water Depth = 70 feet   acc. max = 0.312 g   Earthq. Mw = 6.09

Elev. Base of Layer (ft)	Elev. Top of Layer (ft)	Soil Type	Layer Thickness (ft)	Depth to Midpoint (m)	Total Unit Wt. (pcf)	Total Overburden Pressure s_{vo} (psf)	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N (SPT)	Stress Reduct. Coeff. rd	$(N_1)_{60cs}$	g_{eff} (G_{eff}/G_{max})	Cyclic Overburden Pressure s_{vo} (tsf)	(1)Cyclic Shear Strain, g_{eff}	Cyclic Shear Strain, g_{eff} (%)	(2)Volumetric Strain, $e_{c,M=7.5}$ (%)	(3)Volumetric Strain Ratio ($e_{c,M}/e_{c,M=7.5}$)	Volumetric Strain, $e_{c,M}$ (%)	Multi Direction Vol. Strain (%)	Settlement (in)
3	7.5	SM	3	0.5	111.9	167.9	2	12	0.997	21.6	5.83E-05	0.05	1.00E-04	1.00E-02	1.00E-02	0.6496	0.0065	0.0130	0.0047
8	**7.5**	**SM**	**5**	**1.7**	**111.3**	**614.0**	**2**	**18**	**0.987**	**26.8**	**1.03E-04**	**0.20**	**1.80E-04**	**1.80E-02**	**1.30E-03**	**0.6496**	**0.0008**	**0.0017**	**0.0010**
12.5	7.5	SM	4.5	3.1	111.3	1142.6	1	28	0.976	60.4	1.06E-04	0.37	1.70E-04	1.70E-02	1.00E-03	0.6496	0.0006	0.0013	0.0007
18	7.5	SM	5.5	4.6	112.9	1703.5	2	24	0.964	27.2	1.66E-04	0.55	2.20E-04	2.20E-02	1.50E-02	0.6496	0.0097	0.0195	0.0129
23	7.5	ML	5	6.2	112.9	2296.3	1	33	0.952	63.4	1.44E-04	0.75	2.10E-04	2.10E-02	1.00E-03	0.6496	0.0006	0.0013	0.0008
27.5	**7.5**	**SM**	**4.5**	**7.7**	**124**	**2857.5**	**2**	**50**	**0.941**	**46.0**	**1.77E-04**	**0.93**	**2.40E-04**	**2.40E-02**	**5.00E-03**	**0.6496**	**0.0032**	**0.0065**	**0.0035**
32	**7.5**	**SM**	**4.5**	**9.1**	**124**	**3415.5**	**1**	**16**	**0.931**	**28.0**	**2.25E-04**	**1.11**	**4.30E-04**	**4.30E-02**	**2.80E-02**	**0.6496**	**0.0182**	**0.0364**	**0.0196**
37.5	7.5	SP	5.5	10.6	99.7	3968.7	2	40	0.891	25.1	2.41E-04	1.29	4.00E-04	4.00E-02	2.80E-02	0.6496	0.0182	0.0364	0.0240
42.5	7.5	SP	5	12.2	99.7	4492.1	1	22	0.848	23.6	2.50E-04	1.46	3.90E-04	3.90E-02	2.90E-02	0.6496	0.0188	0.0377	0.0226
48	7.5	SP	5.5	13.8	99.3	5014.4	2	26	0.806	14.1	2.97E-04	1.63	4.50E-04	4.50E-02	8.00E-02	0.6496	0.0520	0.1039	0.0686
51.5	7.5	SM	3.5	15.2	124	5504.5	1	24	0.769	30.7	2.29E-04	1.79	3.50E-04	3.50E-02	1.80E-02	0.6496	0.0117	0.0234	0.0098
																		Total Settlement	0.17

Project
DSA File
DSA App No.

Calc by KW   Date 3/5/19
Checked by 0   Date 1/0/00

Project No: 180131
Boring: B1

Dynamic Dry Sand Settlement

g_{cyc} = [(tav)/s'vo]/Gmax = 0.65 (a_{max} /g) s_o r_d / G_{max}

Where: G_{max} = 20,000 $[(N_1)_{60,cs}]^{0.33}[s'_m]^{0.5}$

Stress Reduction Factor, r_d =

$$\frac{1.000-0.4113z^{0.5}+0.04052z+0.001753z^{1.5}}{1.00-0.4177z^{0.5}+0.05729z-0.006205z^{1.5}+0.001210z^{2}}$$

a_{max} = maximum peak acceleration at the ground surface (g's)
g = acceleration of gravity

Notes:
1) Figure 9.51, Geotechnical Earthquake Engineering, Kramer
2) Figure 9.52b, Geotechnical Earthquake Engineering, Kramer
3) Table 9-4, Geotechnical Earthquake Engineering, Kramer

Sur.= 0 psf   Design Ground Water Depth = 8 feet   acc. max = 0.312 g   Earthq. Mw = 6.09

Elev. Base of Layer (ft)	Elev. Top of Layer (ft)	Soil Type	Layer Thickness (ft)	Depth to Midpoint (m)	Total Unit Wt. (pcf)	Total Overburden Pressure s_{vo} (psf)	Sampler Type 1 = SPT 2=Ca.Mod	Field Blow Count N (SPT)	Stress Reduct. Coeff. rd	$(N_1)_{60cs}$	g_{eff} (G_{eff}/G_{max})	Cyclic Overburden Pressure s_{vo} (tsf)	(1)Cyclic Shear Strain, g_{eff}	Cyclic Shear Strain, g_{eff} (%)	(2)Volumetric Strain, $e_{c,M=7.5}$ (%)	(3)Volumetric Strain Ratio ($e_{c,M}/e_{c,M=7.5}$)	Volumetric Strain, $e_{c,M}$ (%)	Multi Direction Vol. Strain (%)	Settlement (in)
3	7.5	SM	3	0.5	111.9	167.9	2	12	0.997	21.6	5.83E-05	0.05	1.00E-04	1.00E-02	1.00E-02	0.6496	0.0065	0.0130	0.0047
8	**7.5**	**SM**	**5**	**1.7**	**111.3**	**614.0**	**2**	**18**	**0.987**	**26.8**	**1.03E-04**	**0.20**	**1.80E-04**	**1.80E-02**	**1.30E-03**	**0.6496**	**0.0008**	**0.0017**	**0.0010**
12.5	7.5	SM	4.5	3.1	111.3	1142.6	1	28	0.976	60.4	1.06E-04	0.37	1.70E-04	1.70E-02	1.00E-03	0.6496	0.0006	0.0013	0.0007
18	7.5	SM	5.5	4.6	112.9	1703.5	2	24	0.964	27.2	1.66E-04	0.55	2.20E-04	2.20E-02	1.50E-02	0.6496	0.0097	0.0195	0.0129
23	7.5	ML	5	6.2	112.9	2296.3	1	33	0.952	63.4	1.44E-04	0.75	2.10E-04	2.10E-02	1.00E-03	0.6496	0.0006	0.0013	0.0008
27.5	7.5	SM	4.5	7.7	124	2857.5	2	50	0.941	46.0	1.77E-04	0.93	2.40E-04	2.40E-02	5.00E-03	0.6496	0.0032	0.0065	0.0035
32	7.5	SM	4.5	9.1	124	3415.5	1	16	0.931	28.0	2.25E-04	1.11	4.30E-04	4.30E-02	2.80E-02	0.6496	0.0182	0.0364	0.0196
37.5	7.5	SP	5.5	10.6	99.7	3968.7	2	40	0.891	25.1	2.41E-04	1.29	4.00E-04	4.00E-02	2.80E-02	0.6496	0.0182	0.0364	0.0240
42.5	7.5	SP	5	12.2	99.7	4492.1	1	22	0.848	23.6	2.50E-04	1.46	3.90E-04	3.90E-02	2.90E-02	0.6496	0.0188	0.0377	0.0226
48	7.5	SP	5.5	13.8	99.3	5014.4	2	26	0.806	14.1	2.97E-04	1.63	4.50E-04	4.50E-02	8.00E-02	0.6496	0.0520	0.1039	0.0686
51.5	7.5	SM	3.5	15.2	124	5504.5	1	24	0.769	30.7	2.29E-04	1.79	3.50E-04	3.50E-02	1.80E-02	0.6496	0.0117	0.0234	0.0098
0	0	0	0	0.0	0	5721.5	0	0	0.000	0.0	#DIV/0!	1.86	0.00E+00	0.00E+00	0.00E+00	0.6496	0.0000	0.0000	0.0000
0	0	0	0	0.0	0	5721.5	0	0	0.000	0.0	#DIV/0!	1.86	0.00E+00	0.00E+00	0.00E+00	0.6496	0.0000	0.0000	0.0000
0	0	0	0	0.0	0	5721.5	0	0	0.000	0.0	#DIV/0!	1.86	0.00E+00	0.00E+00	0.00E+00	0.6496	0.0000	0.0000	0.0000
0	0	0	0	0.0	0	5721.5	0	0	0.000	0.0	#DIV/0!	1.86	0.00E+00	0.00E+00	0.00E+00	0.6496	0.0000	0.0000	0.0000
																		Total Settlement	**0.01**

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED EARLY EDUCATION CENTER
MARSHALL ELEMENTARY SCHOOL
142 NORTH ARMSTRONG AVENUE
FOWLER, CALIFORNIA

Project Number: D04505.01

For:

Fowler Unified School District
c/o Integrated Designs by SOMAM, Inc.
6011 North Fresno Street, Suite 130
Fresno, California 93710

March 12, 2019

www.mooretwining.com
PH: 559.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

March 12, 2019 D04505.01

Fowler Unified School District
c/o Integrated Designs by SOMAM, Inc.
6011 North Fresno Street, Suite 130
Fresno, California 93710

Attention: Ms. Sharon Ashida

Subject: Geotechnical Engineering Investigation
Proposed Early Education Center
Marshall Elementary School
142 North Armstrong Avenue
Fowler, California

Dear Ms. Ashida:

We are pleased to submit this Geotechnical Engineering Investigation report prepared for the Early Education Center (Preschool) to be located north of the existing Marshall Elementary School campus in Fowler, California. The contents of this report include the purpose of the investigation, scope of services, background information, investigative procedures, our findings, evaluations, conclusions, and recommendations.

It is recommended that Moore Twining Associates, Inc. (Moore Twining) be retained to review those portions of the plans and specifications that pertain to earthwork, pavements, and foundations to determine if they are consistent with our recommendations. This service is not a part of this current contractual agreement, however, the client should provide these documents for our review prior to their issuance for construction bidding purposes.

In addition, it is recommended that Moore Twining be retained to provide inspection and testing services for the excavation, earthwork, pavement, and foundation phases of construction. These services are necessary to determine if the subsurface conditions are consistent with those used in the analyses and formulation of recommendations for this investigation, and if the construction complies with our recommendations. These services are not, however, part of this current contractual agreement. A representative with our firm will contact you in the near future regarding these services.

PH: 559.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

We appreciate the opportunity to be of service to Fowler Unified School District and Integrated Designs. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience at (800) 268-7021.

Sincerely,
MOORE TWINING ASSOCIATES, INC.

Scott W. Krauter, RGE
Assistant Manager
Geotechnical Engineering Division

REGISTERED PROFESSIONAL ENGINEER
SCOTT KRAUTER
No. C049956
No. GE-2358
Exp. 12/31/20
CIVIL-GEOTECHNICAL
STATE OF CALIFORNIA

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED EARLY EDUCATION CENTER
MARSHALL ELEMENTARY SCHOOL
142 NORTH ARMSTRONG AVENUE
FOWLER, CALIFORNIA

Project Number: D04505.01

1.0 INTRODUCTION

This report presents the results of a geotechnical engineering investigation for the Early Education Center to be located north of the existing Marshall Elementary School campus in Fowler, California. Moore Twining Associates, Inc. (Moore Twining) was authorized by Mr. Scott Griffin with Fowler Unified School District to conduct this investigation, by signed agreement.

The contents of this report include the purpose of the investigation and the scope of services provided. The existing site features, site history, previous studies, and anticipated construction are discussed. In addition, a description of the investigative procedures used and the subsequent findings obtained are presented. Finally, the report provides an evaluation of the findings, general conclusions, and related recommendations. The report appendices contain the drawings (Appendix A); the logs of borings (Appendix B); the results of laboratory tests (Appendix C); and the results of liquefaction and seismic settlement analysis (Appendix D).

The Geotechnical Engineering Division of Moore Twining, headquartered in Fresno, California, performed the investigation.

2.0 PURPOSE AND SCOPE OF INVESTIGATION

2.1 Purpose: The purpose of this geotechnical engineering investigation was to conduct a field exploration, a laboratory testing program, evaluate the data collected during the field and laboratory portions of the investigation, and provide the following:

2.1.1 A description of general subsurface soil and groundwater conditions encountered;

2.1.2 Soil profile type, site coefficients and adjusted Maximum Considered Earthquake spectral response acceleration parameters in accordance with the 2016 California Building Code;

2.1.3 Conclusions regarding the potential for liquefaction or seismic settlement to impact the support of the proposed structures;

2.1.4 Recommendations for earthwork construction, including site and subgrade preparation, and engineered fill;

2.1.5 Recommendations for temporary excavations and utility trench excavation and backfill, and excavation stability;

2.1.6 Geotechnical engineering parameters for use in design of foundations;

2.1.7 Recommendations for slab-on-grade floors and exterior concrete flatwork;

2.1.8 Recommendations for asphaltic concrete pavements;

2.1.9 Evaluation of soil corrosion potential;

2.1.10 Final test boring logs and laboratory results.

It should be noted that this investigation is not intended to include assessment of geohazards in accordance with the requirements of the 2016 California Building Code or California Geological Survey – Note No. 48. Moore Twining was informed that this scope of work was to be provided for the project by others.

This report is provided specifically for the proposed improvements described in the Anticipated Construction section of this report. This investigation did not include in-place density tests, an environmental investigation, preparation of a geohazards assessment report, or an environmental audit.

2.2 **Scope:** Our proposal, dated January 3, 2019 (MTP 19-0011), outlined the scope of our services. The actions undertaken during the investigation are summarized as follows:

2.2.1 A site sketch on an aerial photograph showing the location of the new pre-school center north of the existing Marshall Elementary School; and, a preliminary drawing showing building and parking lot locations with boring locations provided by Integrated Designs by SOMAM, were reviewed.

2.2.2 A visual site reconnaissance and a subsurface exploration program including test borings were conducted.

2.2.3 Laboratory tests were conducted to determine selected physical and engineering properties of the subsurface soils.

2.2.4 Ms. Jene Hill and Ms. Sharon Ashida (Integrated Designs by SOMAM, Inc.) were consulted during the investigation.

2.2.5 The data obtained from the investigation were evaluated to develop an understanding of the subsurface soil conditions and the engineering properties of the subsurface soils.

2.2.6 This report was prepared to present the purpose and scope, background information, field exploration procedures, findings, evaluation, conclusions, and recommendations.

3.0 BACKGROUND INFORMATION

The site description, site history and previous studies, and the anticipated construction are summarized in the following subsections.

3.1 Site Description: The 3.7 acre site is located north of the existing Marshall Elementary School campus, which has an address of 142 North Armstrong Avenue in Fowler, California. A site location map is presented on Drawing No. 1 in Appendix A.

The site was generally rectangular in shape. An existing property developed with a single family residence borders the southeast portion of the site. The plans provided show the residence will remain after the pre-school is constructed. The proposed pre-school campus location is north of the existing school. The proposed building locations and existing residence are shown on Drawing No. 2 in Appendix A of this report

The site was generally undeveloped at the time of our field investigation and was relatively flat. The site was previously covered with a vineyard. At the time of the field investigation, the site surface was covered with green native grasses and weeds. The vineyard trellis system (posts and wire) and former vines had been removed from the site. However, some volunteer vines were noted sporadically, particularly in the north portion of the site. Below the grasses and weeds, it was noted that the site had been plowed.

To the north and west of the site, a vineyard remains in operation. Also, the site is bound to the east by the existing residence and Fowler Avenue and, to the south by a chain link fence and Marshall Elementary School.

According to the USGS 7½-Minute Series Topographic data maintained by the United States Geological Survey (USGS), the elevation of the site is about 305 feet above mean sea level (AMSL). The site is located at about 36.636609 degrees latitude and -119.674459 degrees longitude.

3.2 Site History and Previous Studies: Based on our review of available on-line aerial images dated between 1998 and 2018, the pre-school site was formerly a grape vineyard. The existing residence in the southeast corner of the rectangular site was an open lot in the earliest image from 1998. A December 2002 image shows the existing residence under construction in the former open lot located southeast of the site. Images from 2007 through 2009 suggest the vineyard was re-planted. An August 2017 image shows the vineyard was permanently removed from most of the area proposed for the pre-school center (west of the residence); and, an August 2018 image shown the vineyard was removed from the rest (north portion) of the site.

Although we understand that a geologic/seismic hazards investigation was being conducted by another firm concurrently to this investigation, the report was not available for review at the time of preparation of this report. No other previous reports of geotechnical engineering investigations, compaction testing or environmental studies conducted for this site were provided for review during this investigation. When available, these reports should be provided for review and consideration for this project.

3.3 Anticipated Construction: It is our understanding the project will include four groups of new modular buildings, hardcourts, play field and paved parking and fire access driveways.

The new modular building groups total about 16,000 square feet within the western portion of the campus. The modular classrooms are expected to be wood or metal stud frame structures supported on either a perimeter shallow spread foundation or at grade foundation. Maximum continuous wall loads less than 1.5 kips per foot are anticipated for the single story modular structures.

We understand that the project will include new asphalt concrete hard court areas and site improvements around the new classrooms. Also, new parking lot improvements are planned in the east portion of the site.

Grading plans were not available at the time this report was prepared. Due to the flat nature of the site cuts and fills of less than 1 foot are planned.

4.0 INVESTIGATIVE PROCEDURES

The field exploration and laboratory testing program conducted for this investigation are summarized in the following subsections.

4.1 Field Exploration: The field exploration consisted of a site reconnaissance, drilling test borings, soil sampling, and standard penetration tests.

4.1.1 Site Reconnaissance: The site reconnaissance consisted of walking the site and noting visible surface features. The reconnaissance was conducted by a Moore Twining geologist on January 21, 2019. The features noted are described in the "Background Information" section of this report.

4.1.2 Drilling Test Borings: On January 21, 2019, six (6) test borings were drilled at the site at the locations requested by Integrated Designs. Four (4) of the borings were drilled in the proposed modular building locations, to depths of between 15 and 51½ feet below site grade (BSG). These test borings were drilled with a CME-75 drill rig equipped with 6⅝-inch outside diameter (O.D.) hollow-stem drilling augers. The two borings drilled in the north driveway area (B-5 and B-6) were advanced using hand augers to a depth of about 5 feet. The approximate locations of the borings are depicted on Drawing No. 2 in Appendix A of this report.

The borings were drilled and soils logged by a Moore Twining geologist under the direction of a Moore Twining geotechnical engineer. The field soil classification was in accordance with the Unified Soil Classification System and consisted of particle size, color, and other distinguishing features of the soil.

The presence and elevation of free water, if any, in the borings were noted and recorded during drilling and immediately following completion of the test borings.

Test boring locations were determined by pacing with reference to the existing site features. The boreholes were loosely backfilled with material excavated during the drilling operations. Due to the loose nature of the test boring backfill, some settlement of the backfill should be anticipated.

4.1.3 Soil Sampling: During drilling of the hollow stem auger borings, standard penetration tests were conducted, and both disturbed and relatively undisturbed soil samples were obtained.

The standard penetration resistance, N-value, is defined as the number of blows required to drive a standard split barrel sampler into the soil. The standard split barrel sampler has a 2-inch O.D. and a 1⅜ inch inside diameter (I.D.). The sampler is driven by a 140-pound weight free falling 30 inches. The sampler is lowered to the bottom of the bore hole and set by driving it an initial 6 inches. It is then driven an additional 12 inches, or portion thereof, and the number of blows required to advance the sampler an additional 12 inches, or portion thereof, is recorded as the N-value.

Relatively undisturbed soil samples for laboratory tests were obtained by pushing or driving a California modified split barrel ring sampler into the soil. The soil was retained in brass rings, 2.5 inches O.D. and 1-inch in height. The lower 6-inch portion of the samples were placed in close-fitting, plastic, airtight containers which, in turn, were placed in cushioned boxes for transport to the laboratory. Soil samples obtained were taken to Moore Twining's laboratory for classification and testing. In addition, bulk samples of soil were obtained for laboratory testing.

4.2 Laboratory Testing: The laboratory testing was programmed to determine selected physical and engineering properties of the soils sampled and tested. The tests were conducted on disturbed and relatively undisturbed samples considered representative of the subsurface materials encountered.

The results of laboratory tests conducted on samples obtained from the test borings are summarized on the figures in Appendix C. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

5.0 FINDINGS AND RESULTS

The findings and results of the field exploration and laboratory testing are summarized in the following subsections.

5.1 Geologic Setting: Fowler is located in the lowlands along the eastern edge of the valley, approximately 21 miles west of the Sierra Nevada foothills. The Geologic Map of California, Fresno Sheet, prepared by the Division of Mines and Geology, dated 1965, Second Printing, 1971 indicates that the school site is underlain by Quaternary age Fan Deposits (Qf).

5.2 Surface Conditions and Soil Profile: The test borings drilled encountered varied soils across the site. Silty sands were encountered at most boring locations from the surface to depths ranging from 10 to 20 feet BSG. However, sandy silts were encountered in the west portion of the site (B-4) from the surface to a depth of 15 feet BSG. The upper silty sand stratum encountered at most locations was interbedded with layers of sandy silts, sandy lean clays, and clayey sands.

In Boring B-1, drilled below 15 feet BSG, the soils encountered consisted of silty sands to a depth of 20 feet BSG, which were underlain by sandy lean clays to a depth of 30 feet BSG. The clays were underlain by a stratum which classifies as poorly graded sands with silt to a depth of 46 feet BSG. The poorly graded sands were underlain by silty sands to the maximum depth explored of 51½ feet BSG.

Some cemented soils (hardpan) were encountered in some of the borings at a depth of about 10 feet BSG.

The foregoing is a general summary of the soil conditions encountered in the test borings drilled for this investigation. Detailed descriptions of the soils encountered at each test boring are presented on the logs of borings in Appendix B. The stratification lines shown on the logs represent the approximate boundary between soil types; the actual in-situ transition may be gradual.

5.3 **Soil Engineering Properties:** The following is a description of the soil engineering properties as determined from our field exploration and laboratory testing.

Silty Sands [SM]: The silty sands encountered were described as very loose to dense, as determined by standard penetration test, N-values, ranging from 2 to over 50 blows per foot. The moisture content of near surface silty sand samples ranged from 2 to 8 percent. The results of testing of three (3) relatively undisturbed samples of silty sand indicated dry densities of 103.0, 104.7, and 106.4 pounds per cubic foot. Consolidation tests indicated these soils have moderate compressibility characteristics, based on 6.0 and 7.0 percent consolidation under a load of 8 kips per square foot. Upon inundation, the samples exhibited a low collapse potential (about 1.2 and 1.6 percent collapse when wetted under a load of 2 kips per square foot). An expansion index test resulted in an expansion index of 1. Resistance value tests conducted on two silty sand samples indicated R-values of 55 and 60.

Sandy Silts [ML] and Sandy Lean Clays [CL]: The fine graded sandy silts and sandy lean clays were described as soft to hard, as determined by standard penetration resistance, N-values, ranging from 3 to over 50 blows per foot. The moisture content of the samples tested ranged from 3 to 10 percent. The results of testing on an undisturbed sample of sandy silt indicated a dry density of 105.2 pounds per cubic foot.

Poorly Graded Sands with Silt [SP-SM]: The poorly graded sands with silt were described as medium dense, as determined by standard penetration resistance, N-values, ranging from 14 to 24 blows per foot.

Chemical Tests: The results of chemical tests performed on a near surface soil sample resulted in a pH value of 7.6, a minimum resistivity value of 3,602 ohm-centimeters, none detected (less than 0.00060) percent by weight chloride concentration, and 0.0016 percent by weight sulfate.

5.4 **Groundwater Conditions:** During our January 21, 2019 field exploration, groundwater was not encountered in the borings drilled to the maximum depth explored of about 51½ feet BSG.

The Groundwater Information Center Interactive Map Application provided by the Department of Water Resources, indicates the groundwater depths in the vicinity of the site was about 70 feet BSG in the Spring of 2018. Further review of the data shows groundwater depths have ranged from about 45 feet BSG in Spring of 2012 to 80 feet BSG in the Fall of 2016.

Further historic research was conducted regarding groundwater levels using the Department of Water Resources historical well data. An active water well was identified about ½ mile west of the site which shows a high groundwater depth of about 10 feet when the well was installed in 1940. Although groundwater elevations declined to a depth of about 40 feet in the mid-1960's and 1970's, groundwater elevations increased to a high of about 18 feet BSG in 1984. Following the mid-1980's, groundwater continued to decline to the depths indicated by the recent groundwater depth of 70 feet BSG.

It should be recognized, that water table elevations fluctuate with time, since they are dependent upon seasonal precipitation, irrigation, land use, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered both during the construction phase and the design life of the project. The evaluation of such factors was beyond the scope of this investigation and report.

6.0 EVALUATION

The data and methodology used to develop conclusions and recommendations for project design and preparation of construction specifications are summarized in the following subsections. The evaluation was based upon the subsurface soil conditions determined from the field exploration and laboratory testing program and our understanding of the proposed construction. The conclusions obtained from the results of our evaluations are described in the Conclusions section of this report.

6.1 **Existing Site Conditions**: The subsurface soils varied across the site. At most boring locations, very loose to loose silty sands were encountered to depths ranging from 4 to 7 feet BSG. However, soft to stiff sandy silts were encountered in Boring B-4 (west side of site) from the surface to a depth of about 4 feet BSG. These upper loose and soft soils were underlain by mostly medium dense silty sands and very stiff to hard sandy silts below about 5 to 7 feet BSG.

The upper very loose sands and soft silts encountered within the upper 18 inches across the site are likely disturbed from past agricultural activities and vine removal. In addition, the presence of some volunteer grape vine growth after vine removal across the site suggests larger roots still remain. Thus, removal of root systems from the former vineyard (where left in place) is anticipated to require hand picking. These upper disturbed soils that may contain roots will not provide adequate support of building or site improvements. So, as part of the site preparation, it is recommended that these soils be excavated and any roots or residual organics be removed from the areas of proposed site improvements. In addition, the roots and other organic debris should be fully removed and not mixed in with soils to be used as engineered fill.

6.2 **Static Settlements and Bearing Capacity of Shallow Foundations:** The potential for excessive total and differential static settlement of foundations and slabs-on-grade was evaluated for the proposed structures. The increases in effective stress to underlying soils which can occur from new foundations and structures, placement of fill, withdrawal of groundwater, etc. can cause vertical deformation of the soils, which can result in damage to the overlying structures and improvements. The differential component of the settlement is often the most damaging. In addition, the allowable bearing pressures of the soils supporting the foundations should be evaluated for shear and punching type failure of the soils resulting from the imposed foundation loads.

Considering the very loose to loose surface soil conditions, excessive differential static settlement would be anticipated if the building foundations were placed directly on the disturbed native soils. In order to limit the potential for excessive static settlement of the proposed foundations, this report includes recommendations for over-excavation and compaction of the near surface soils to support the proposed foundations on engineered fill. The static settlements are based upon a net allowable soil bearing pressure of 2,000 pounds per square foot, for dead-plus-live loads.

The net allowable soil bearing pressure is the additional contact pressure at the base of the foundations caused by the structure. The weight of the soil backfill and weight of the footing may be neglected in design. The net allowable soil bearing pressure presented was selected to satisfy both the static settlement criteria and Terzaghi bearing capacity equations for spread foundations. A factor of safety of 3.0 was used to determine the allowable bearing capacity based on Terzaghi equations. Schmertmann's method was used to estimate foundation settlements. The analyses were conducted assuming a maximum wall load of 1.5 kips per lineal foot. If maximum loads other than those indicated are anticipated, these loads should be provided to Moore Twining to evaluate the anticipated settlements.

6.3 **Expansive Soils:** One of the potential geotechnical hazards evaluated at this site is the expansion potential of the near surface soils. Over time, expansive soils will experience cyclic drying and wetting as the dry and wet seasons pass. Expansive soils experience volumetric changes (shrink/swell) as the moisture content of the clayey soils fluctuate. These shrink/swell cycles can impact foundations and lightly loaded slabs-on-grade when not designed for the anticipated expansive soil pressures. Expansive soils cause more damage to structures, particularly light buildings and pavements, than any other natural hazard, including earthquakes and floods (Jones and Holtz, 1973). Expansion potential may not manifest itself until months or years after construction. The potential for damage to slabs-on-grade and foundations supported on expansive soils can be reduced by placing non-expansive fill underlying foundations and slabs-on-grade.

In evaluation of the potential for expansive soils at the site, expansion index testing was performed on a representative sample of the near surface silty sand soils which are anticipated to be within the zone of influence of the planned improvements. The expansion index testing was performed in accordance with ASTM D4829 and the results are included in Appendix C of this report. The result of the expansion index test indicated that the near surface soils are not expansive (EIs=1). Accordingly, special conditions such as importing granular fill to address expansive soils concerns are not anticipated for the project. However, for constructability, a layer of aggregate base or subbase is recommended below concrete slabs on grade.

6.4 **Design Seismic Ground Motion Parameters and Site Class:** Seismic coefficients and spectral response acceleration values were developed for design of the buildings as required by the 2016 California Building Code (CBC). The CBC methodology for determining design ground motion values is based on U.S Geological Survey seismic hazard maps, which incorporate both probabilistic and deterministic seismic ground motion.

A table providing the recommended seismic coefficient and earthquake spectral response acceleration values for the project site is included in the "Foundations" recommendations section of this report. The site is classified as a stiff soil (D) site with standard penetration resistance, N-values averaging between 15 and 50 blows per foot for the upper 100 feet BSG.

A Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M) of 0.312g was determined for the site using the Ground Motion Parameter Calculator provided by the Structural Engineers Association of California (https://seismicmaps.org/).

A table providing the recommended seismic coefficients and earthquake spectral response acceleration values for the project site is included in the Shallow Foundations recommendations section of this report.

6.5 <u>Liquefaction and Seismic Settlement</u>: Liquefaction and seismic settlement are conditions that can occur under seismic shaking from earthquake events. Liquefaction describes a phenomenon in which a saturated, cohesionless soil loses strength during an earthquake as a result of induced shearing strains. Lateral and vertical movements of the soil mass, combined with loss of bearing usually results. Fine, well sorted, loose sand, shallow groundwater conditions, higher intensity earthquakes, and particularly long duration of ground shaking are the requisite conditions for liquefaction.

Liquefaction analysis was conducted using an historic high groundwater depth of about 10 feet based on groundwater data from a nearby well in 1942. The analyses were conducted using the computer program LIQUEFYPRO by Civiltech. The results of hazard deaggregation analysis indicates a magnitude 5.3 earthquake event is the predominant earthquake magnitude contributing to the design ground motion based on the potential magnitudes of nearby faults and background seismicity and a peak horizontal ground acceleration of 0.312g was also used for the analysis.

The SPT N-values from boring B-1 were relied upon in the analysis. Soil parameters, such as wet unit weight, N-value, and fines content were input for the soil layers encountered throughout the depths explored (see test boring logs, Appendix B).

The results indicate factors of safety against liquefaction as low as 1.25 in the poorly graded sand with silt stratum encountered between 30 and 46 feet BSG. This factor of safety indicates the potential for liquefaction in these deeper soils is moderate. However, considering the depths of these soils, and the fact that groundwater depths are trending much deeper than 10 feet over the last 30 years, the potential for liquefaction to impact the support of the proposed improvements is considered low.

Further, the results of the liquefaction analysis estimates that seismic settlement of about 0.6 inch would occur under the design level seismic event. This seismically induced settlement would likely result in about ½ inch differential seismic settlement across 40 feet in addition to the anticipated static settlements.

Graphical output and tabular results of the liquefaction/seismic settlement analyses are included in Appendix D.

6.6 <u>Asphaltic Concrete (AC) Pavements</u>: Recommendations for asphaltic concrete pavement structural sections are presented in the "Recommendations" section of this report for proposed asphaltic concrete (AC) pavements.

The structural sections were designed using the gravel equivalent method in accordance with the California Department of Transportation Highway Design Manual. The analysis was based on traffic index values ranging from 5.0 to 7.0. Also, considering that the sport court playground pavements will not be subjected to vehicle traffic, a section is provided in the recommendations section for lightly loaded playground pavements not subjected to vehicle loading. The appropriate paving section should be determined by the project civil engineer or applicable design professional based on the actual vehicle loading (traffic index) values. If traffic loading is anticipated to be greater than assumed, the pavement sections should be re-evaluated.

It should be noted that if pavements are constructed prior to the construction of the structures, the additional construction truck traffic should be considered in the selection of the traffic index value. If more frequent or heavier traffic is anticipated and higher Traffic Index values are needed, Moore Twining should be contacted to provide additional pavement section designs.

Two (2) R-value tests were conducted on near surface samples of silty sands collected between the depths of about 0 and 3 feet BSG, which indicated R-values of 55 and 60. Based on the results of the testing, the procedures of the Caltrans Highway Design Manual and considering the grading planned for the project, an R-value of 50 was used to determine the minimum pavement section thickness recommendations.

6.7 <u>Soil Corrosion</u>: The risk of corrosion of construction materials relates to the potential for soil-induced chemical reaction. Corrosion is a naturally occurring process whereby the surface of a metallic structure is oxidized or reduced to a corrosion product such as iron oxide (i.e., rust). The metallic surface is attacked through the migration of ions and loses its original strength by the thinning of the member.

Soils make up a complex environment for potential metallic corrosion. The corrosion potential of a soil depends on numerous factors including soil resistivity, texture, acidity, field moisture and chemical concentrations. In order to evaluate the potential for corrosion of metallic objects in contact with the onsite soils, chemical testing of soil samples was performed by Moore Twining as part of this report. The test results are included in Appendix C of this report. Conclusions regarding the corrosion potential of the soils tested are included in the Conclusions section of this report based on the National Association of Corrosion Engineers (NACE) corrosion severity ratings listed in Table No. 1, below.

Table No. 1

Soil Resistivity (ohm cm)	Corrosion Potential Rating
>20,000	Essentially non-corrosive
10,000 - 20,000	Mildly corrosive
5,000 - 10,000	Moderately corrosive
3,000 - 5,000	Corrosive
1,000 - 3,000	Highly corrosive
<1,000	Extremely corrosive

The results of soil sample analyses indicate that the near-surface soils exhibit a "corrosive" corrosion potential to buried metal objects.

The soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to provide design parameters. Moore Twining does not provide corrosion engineering services.

6.8 **Sulfate Attack of Concrete:** Degradation of concrete in contact with soils due to sulfate attack involves complex physical and chemical processes. When sulfate attack occurs, these processes can reduce the durability of concrete by altering the chemical and microstructural nature of the cement paste. Sulfate attack is dependent on a variety of conditions including concrete quality, exposure to sulfates in soil/groundwater and environmental factors. The standard practice for geotechnical engineers in evaluation of the soils anticipated to be in contact with concrete is to perform testing to determine the sulfates present in the soils. The test results are then compared with the provisions of ACI 318, section 4.3 to provide guidelines for concrete exposed to sulfate-containing solutions. Common methods used to resist the potential for degradation of concrete due to sulfate attack from soils include, but are not limited to the use of sulfate-resisting cements, air-entrainment and reduced water to cement ratios.

7.0 CONCLUSIONS

Based on the data collected during the field exploration and laboratory testing programs, our geotechnical experience in the vicinity of the project site, and our understanding of the anticipated construction, the following general conclusions are presented.

7.1 The site is considered suitable, from a geotechncial standpoint, for support of the proposed improvements, provided the recommendations contained in this report are followed. It should be noted that the recommended design consultation and construction monitoring by Moore Twining are integral to this conclusion.

7.2 The near surface soils encountered were mostly very loose to loose silty sands and soft to stiff silts to depths ranging from 4 to 7 feet BSG, which were underlain by mostly medium dense silty sands and very stiff to hard sandy silts to a depth of about 20 feet BSG. The silty sands were underlain by very stiff sandy lean clays to a depth of 30 feet BSG. The clays were underlain by a stratum of medium dense poorly graded sands with silt to a depth of 46 feet BSG, which were underlain by medium dense silty sands to the maximum depth explored of 51½ feet BSG.

7.3 The upper very loose sands and soft silts encountered are likely disturbed soils resulting from past agricultural activities and vine removal. Also, these upper disturbed soils may contain roots resulting from the previous vineyard. These upper soils will not provide adequate support of building or site improvements in their in-situ condition. To improve support, the soils should be prepared as recommended in the Site Preparation section of this report. In addition, existing roots and organics should be removed as part of the site preparation.

7.4 The laboratory testing indicates the near surface silty sands exhibit a very low expansion potential. Also, the testing indicates the upper silty sands will provide good support characteristics for pavement support when compacted as engineered fill.

7.5 During our January 2019 field exploration, groundwater was not encountered. Based on our review of groundwater data current groundwater depths in the vicinity of the are likely in the range of 60 to 70 feet BSG. However, historical well data suggests groundwater has been as shallow as about 10 feet in the past (1940's).

7.6 The potential for liquefaction to impact the support of the proposed improvements is considered low. The analysis estimates that seismic settlement of about 0.6 inch total would occur under the design level seismic event.

7.7 The results of soil sample analyses indicate that the near-surface soils exhibit a “corrosive” corrosion potential to buried metal objects. Chemical analyses indicated a “negligible” potential for sulfate attack on concrete placed in contact with the near surface soils.

8.0 RECOMMENDATIONS

Based on the evaluation of the field and laboratory data and our geotechnical experience in the vicinity of the project, we present the following recommendations for use in the project design and construction. However, this report should be considered in its entirety. When applying the recommendations for design, the background information, procedures used, findings, evaluation, and conclusions should be considered. The recommended design consultation and observation of clearing, demolition activities and earthwork operations by Moore Twining are integral to the proper application of the recommendations.

8.1 General

8.1.1 Where the requirements of a governing agency or utility agency differ from the recommendations of this report, the more stringent recommendations should be applied to the project.

8.1.2 Structural plans were not available at the time this report was prepared. Moore Twining should be provided the opportunity to review the final grading and foundation plans before the plans are released for bidding purposes so that any relevant recommendations can be presented. If proposed foundation loading or the planned construction is different from that described in the Anticipated Construction section of this report, the recommendations in this report may not be appropriate. Moore Twining should be notified and requested to provide supplemental recommendations for the proposed construction if changes are planned.

8.1.3 The project geohazards report should be provided for review when available.

8.1.4 A preconstruction meeting including, as a minimum, the owner, architect, general Contractor, earthwork, foundation subcontractors, and Moore Twining should be scheduled by the general Contractor at least one week prior to the start of clearing and grubbing. The purpose of the meeting should be to discuss critical project issues, concerns and scheduling.

8.1.5 Contractor(s) bidding on this project should determine if the data are sufficient for accurate bid purposes. If the data are not sufficient, the Contractor should conduct, or retain a qualified geotechnical engineer to conduct, supplemental studies and collect more data as required to prepare accurate bids.

8.1.6 All wells encountered (if any) should be abandoned per state and local requirements. The contractor should obtain an abandonment permit from the local environmental health department, and issue certificates of destruction to the owner upon completion.

8.1.7 It should be noted that roots and other remnants of the former vineyard may remain in the surface soils. All roots and organics should be removed as part of the site preparation.

8.2 Site Grading and Drainage

8.2.1 It is critical to develop and maintain site grades which will drain surface and roof runoff away from foundations and floor slabs - both during and after construction. Adjacent exterior finished grades should be sloped a minimum of five(5) percent for a distance of at least ten (10) feet away from the structure (or minimum of 2 percent for paved surfaces), or as necessary to preclude ponding of water adjacent to foundations, whichever is more stringent.

8.2.2 Surface grades should be designed so that surface water drains positively away from the building foundations. Surface water must not be allowed to pond adjacent to the building foundations. To reduce the potential for negative drainage, it is recommended to provide rain gutters and direct all water from roof drains into closed conduits that are connected to an acceptable discharge area away from the building foundations, or upon an impervious surface that will direct water away into a storm drain.

8.2.3 It is recommended that landscaped, planted areas, etc. not be placed directly adjacent to the building foundations. Trees should be setback from proposed structures at least 10 feet or a distance equal to the anticipated drip line radius of the mature tree. For example, if a tree has an anticipated drip-line diameter of 30 feet, the tree should be planted at least 15 feet away (radius) from proposed or existing buildings.

8.2.4 Landscape and planter areas should be irrigated using low flow irrigation (such as drip, bubblers or mist type emitters). The use of plants with minimal water requirements are recommended.

8.2.5 In the event subsurface storm water disposal systems, bioswales or similar designs are planned, the proposed locations and details of these features should be provided to Moore Twining for review and comment. If these types of features are required, sufficient setbacks to existing improvements should be maintained, and/or specific measures such as deepened curbs, cutoffs, liners, etc. should be incorporated in the designs to reduce the potential for excessive settlement of improvements due to moisture and freewater migration from storm water disposal systems.

8.3 Site Preparation

8.3.1 All weeds, grasses, topsoil, vegetation, organics, and debris should be stripped from all areas of planned improvements. The general depth of stripping should be sufficiently deep to remove all root systems and soils with organic contents of more than 3 percent by dry weight. The surface weeds, grasses, former vineyard roots, and organic cover should not be disced into the soils. Removal of buried roots by hand picking should be anticipated in areas where the former vineyard root systems have not been removed. The actual depth of stripping should be reviewed by Moore Twining at the time of construction. Stripping should extend laterally a minimum of 5 feet outside the limits of the new improvements (i.e., proposed buildings, slabs-on-grade, etc.). These materials will not be suitable for use as engineered fill; however, stripped topsoil may be stockpiled and reused in landscape areas at the discretion of the District.

8.3.2 As part of site preparation, all irrigation systems found should be removed; and the soils disturbed as a result of the demolition and removal of existing pipeline and improvements. The resulting excavations should be cleaned of all backfill and organic material, the exposed undisturbed native soils should then be scarified to a depth of 8-inches, moisture conditioned, then compacted as engineered fill, and the excavation backfilled with engineered fill.

8.3.3 As part of the stripping, the existing volunteer vines, roots and all organics will need to be removed from areas of site preparation. Roots from the former vineyard should be completely removed. Contractors bidding this project should anticipate that hand picking may be required to adequately remove roots and organics from the excavated soils to be re-used as engineered fill. Excavation of roots should be conducted as necessary to remove all root systems greater than about ¼ inch in diameter. Soils containing organic matter such as root clumps, roots exceeding ¼ inch in diameter or fine roots or accumulations of organic material with organic contents above 3 percent should be completely removed and not used as engineered fill. After removal of the roots and organics, the bottom of the excavation should be scarified to a minimum depth of 8 inches and compacted as engineered fill prior to backfilling operations. Areas of depressions should be excavated and backfilled with engineered fill under the observation of Moore Twining.

8.3.4 Following the stripping and removal of roots and all surface and subsurface improvements, the proposed building and foundation areas should be over-excavated to a depth of:

1) at least 24 inches below the preconstruction grade,
2) at least 12 inches below the bottom of the proposed foundations, and
3) at least 12 inches below the bottom of existing improvements to be removed, whichever is deeper.

The zone of the over-excavation for the proposed building should include the entire building footprint, all foundations, a minimum of five (5) feet beyond the building and all foundations, and 3 feet beyond adjacent walkways, whichever is greater. Slot cutting only below foundations will not be allowed. Upon approval of the over-excavation limits by Moore Twining based on the survey data provided by the Contractor, the soils at the bottom of the excavation should be scarified to a minimum depth of 8 inches, moisture conditioned and compacted as engineered fill. The resulting excavation should then be backfilled to finished grades with engineered fill. The horizontal limits of over-excavation should be shown on the project plans.

8.3.5 It is recommended that extra care be taken by the Contractor to ensure that the horizontal and vertical extent of the over-excavation and compaction conform to the site preparation recommendations presented in this report. The Contractor should verify in writing to the owner that the horizontal and vertical over-excavation limits were completed in conformance with the recommendations of this report, the project plans, and the specifications (the most stringent applies). The verification should include an as-built plan created with survey data showing the depth and horizontal extent of the building pads over-excavation recommended in this report were achieved.

8.3.6 Structural loads for miscellaneous lightly loaded (less than 1 kip per lineal foot) foundations should be evaluated on a case by case basis to develop supplemental recommendations for site preparation and foundation design. In lieu of a case by case evaluation, miscellaneous lightly foundations should be over-excavated to the bottom of proposed footings, to a depth of at least

18 inches below preconstruction site grades, to at least 12 inches below subsurface roots or pipeline structures to be removed (if any), and to the depth required to remove all undocumented fill soils, whichever is deeper. The zone of engineered fill should extend horizontally beyond the edge of foundations by a distance equal to the depth of fill below foundations. Upon approval of the over-excavation limits by Moore Twining, the soils at the bottom of the excavation should be scarified to a minimum depth of 8 inches, moisture conditioned to between optimum and three (3) percent above optimum moisture content and compacted as engineered fill. The resulting excavation should be backfilled to finished grades with engineered fill.

8.3.7 In areas of exterior concrete slabs on grade, play courts, and pavements (non-building areas), following the stripping and removal of surface and subsurface improvements, the areas should be over-excavated to a depth of at least 12 inches below the preconstruction grade or to the bottom of the recommended aggregate base sections, whichever is deeper. The zone of the over-excavation should extend a minium of 3 feet beyond the limits of new concrete slabs or to existing improvements to remain. Upon approval of the over-excavation limits by Moore Twining based on the survey data provided by the Contractor, the soils at the bottom of the excavation should be scarified to a minimum depth of 8 inches, moisture conditioned and compacted as engineered fill. The resulting excavation should then be backfilled to finished grades with engineered fill. The horizontal limits of over-excavation should be shown on the project plans.

8.3.8 All fill required to bring the site to final grades should be placed as engineered fill. In addition, all areas which are over-excavated should be compacted as engineered fill.

8.3.9 The moisture content and density of the compacted soils should be maintained until the placement of the aggregate base, vapor retarder and concrete slabs. If soft or unstable soils are encountered during excavation or compaction operations, our firm should be notified so the soils conditions can be examined and additional recommendations provided to address the pliant areas.

8.4 Engineered Fill

8.4.1 After stripping and removal of the roots from the former vineyard, the on-site soils will be generally suitable for use as engineered fill material, provided they are free of organics (less than 3 percent by weight as determined by Loss on Ignition testing), debris, roots greater than ¼ inch in diameter, and particles greater than 3 inches in diameter. If soils other than those considered in this report are encountered, Moore Twining should be notified to provide alternate recommendations. Due to the presence of former vineyard, removal of roots should be anticipated during site preparation (such as by hand picking) prior to placement of soils as engineered fill.

8.4.2 The compactability of the native soils is dependent upon the moisture contents, subgrade conditions, degree of mixing, type of equipment, as well as other factors. The evaluation of such factors was beyond the scope of this report; therefore, they should be evaluated by the Contractor during preparation of bids and construction of the project.

8.4.3 Imported fill soil should be non-contaminated, non-recycled, and granular in nature and contain enough fine-grained material (binder) to allow cutting "neat" footing trenches. Import fill should meet the following acceptance criteria.

Percent Passing 3-Inch Sieve	100
Percent Passing No. 4 Sieve	85 - 100
Percent Passing No. 200 Sieve	10 - 40
Expansion Index (ASTM D4829)	Less than 15
Organics	< 3% by weight
Sulfates	< 0.05 % by weight
Min. Resistivity	> 4,000 ohms-cm
*R-value	Minimum 50
* in pavement areas only	

8.4.4 Prior to importing fill, the Contractor should submit test data that demonstrates that the proposed import soils comply with the recommended criteria for both geotechnical and environmental compliance. Also, prior to being transported to the site, the import material should be certified by the Contractor and the supplier (to the satisfaction of the Owner) that the soils do not contain any environmental contaminates regulated by local, state or federal agencies having jurisdiction. This certification should consist of, as a minimum, analytical data specific to the source of the import material in accordance with the Department of Toxic Substances Control, "Informational Advisory, Clean Imported Fill Material," dated October 2001. The list of constituents to be tested for the fill source should be submitted to the Owner for review and approval prior to the Contractor testing the fill.

8.4.5 Imported and on-site engineered fill soils should be placed in loose lifts approximately 8 inches thick or less, moisture-conditioned or air dried to between optimum and 3 percent above the optimum moisture content, and compacted to at least 92 percent of the maximum dry density as determined by ASTM D1557, with the exception of the final 12 inches of the subgrade soils below pavements, exterior slabs, and play courts, which should be compacted to a minimum of 95 percent of the maximum dry density as determined by ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

8.4.6 In-place density tests should be conducted in accordance with ASTM D6938 (nuclear density) at a frequency of at least:

Table No. 2

Area	Minimum Test Frequency
Mass Fills or Building Pad Subgrade	1 test per 2,500 square feet per compacted lift, but not less than two (2) tests per building pad per lift
Pavements and Sport Court areas	1 test per 5,000 square feet per compacted lift
Walkways	1 test per 100 lineal feet
Utility Lines	1 test per 150 feet per compacted lift

8.4.7 Recycled materials (such as asphaltic concrete or Portland cement concrete) cannot be used in the proposed building pads.

8.4.8 Aggregate base should comply with State of California Department of Transportation requirements for Caltrans Class 2 aggregate base, with the exception that aggregate base below the building should not contain recycled materials. A recycled Class 2 aggregate base may be used for pavement areas outside the buildings. Aggregate base shall be compacted to a minimum relative compaction of 95 percent based on ASTM D 1557. Prior to importing the aggregate base material, the contractor should submit documentation demonstrating that the material meets all the quality requirements (i.e., recycled content, gradation, R-value, sand equivalent, durability, etc.) for the applicable aggregate base. Documentation should be provided to the Owner, Architect and Moore Twining and reviewed and approved prior to delivery of the aggregate base to the site.

8.4.9 Open graded gravel and rock material such as ¾-inch crushed rock or ½-inch crushed rock should not be used as backfill including trench backfill. In the event gravel or rock is required by a regulatory agency for use as backfill, all open graded materials should be fully encased in a geotextile filter fabric, such as Mirafi 140N, to prevent migration of fine grained soils into the porous material.

8.5 Shallow Spread Foundations

8.5.1 Shallow spread foundations for the proposed building should be supported on engineered fill prepared as recommended in the Site Preparation section of this report. Shallow spread foundations for the proposed building meeting these recommendations may be designed for a maximum net allowable soil bearing pressure of 2,000 pounds per square foot for dead-plus-live loads. This value may be increased by one-third for short duration wind or seismic loads.

8.5.2 All foundations for the proposed structure should have a minimum depth of 12 inches below the bottom of the slab on grade. In addition, perimeter footings should have a minimum depth of 12 inches below the lowest final adjacent site grade.

8.5.3 The foundations should be continuous around the perimeter of all structures to reduce moisture migration beneath the structure. Continuous perimeter foundations should be extended through doorways and/or openings that are not needed for support of loads.

8.5.4 The foundations should be designed and reinforced for the anticipated differential settlements and for temperature and shrinkage effects. A structural engineer experienced in foundation design should recommend the thickness, design details and concrete specifications for the foundations based on: 1) a total static settlement of 1 inch, 2) a differential static settlement of ½ inch in 40 feet; 3) a total seismic settlement of 0.6 inch; and 4) a differential seismic settlement of ½ inch in 40 feet.

8.5.5 The bottom surface area of concrete footings or concrete slabs in direct contact with engineered fill can be used to resist lateral loads. An allowable coefficient of friction of 0.40, can be used for design. In areas where slabs are underlain by a synthetic moisture barrier, an allowable coefficient of friction of 0.10, can be used for design.

8.5.6 The allowable passive resistance of the engineered fill may be assumed to be equal to the pressure developed by a fluid with a density of 300 pounds per cubic foot. The upper 6 inches of subgrade in landscape areas should be neglected in determining the total passive resistance.

8.5.7 Structural loads for miscellaneous lightly loaded (less than 1 kip per lineal foot) foundations should be supported on subgrade soils prepared in accordance with the recommendations in the Site Preparation section of this report. Miscellaneous lightly loaded foundations extending a minimum depth of 12 inches below the lowest adjacent site grades may be designed for a maximum allowable soil bearing pressure of 1,500 pounds per square foot for dead-plus-live loads for footings. This value may be increased by one-third for short duration wind or seismic loads.

8.5.8 The following seismic factors were developed using online data obtained from the United States Geological Survey (U.S.G.S.) based upon a latitude of 36.636609 degrees and a longitude of -119.674459 degrees. The reported values are based upon Sections 1613.3.2A through 1613.3.4A of the 2016 California Building Code and were not determined based upon a ground motion hazard analysis. If a ground motion hazard analysis is required based upon the Seismic Design Category or structural detailing of the proposed structure(s), the following values will need to be updated with seismic factors determined by a ground motion hazard analysis. The designer should determine whether a ground motion hazard analysis is required for the project. If required, Moore Twining should be notified and requested to conduct the additional analysis and develop updated seismic factors for the project.

Table No. 3

Item	**CBC Value**
Site Class	D
Maximum Considered Earthquake (geometric mean) peak ground acceleration adjusted for site effects (PGA_M)	0.312
Mapped Maximum Considered Earthquake (geometric mean) peak ground acceleration ASCE 7-10 (PGA)	0.235

Item	CBC Value
Spectral Response At Short Period (0.2 Second), Ss	0.635
Spectral Response At 1-Second Period, S_1	0.257
Site Coefficient, Fa	1.292
Site Coefficient, Fv	1.885
Maximum considered earthquake spectral response acceleration for short period, SM_S	0.821
Maximum considered earthquake spectral response acceleration for 1 second, SM_1	0.485
Five percent damped design spectral response acceleration for short period, SD_S	0.547
Five percent damped design spectral response acceleration at 1-second period, SD_1	0.323

8.5.9 Foundation excavations should be observed by Moore Twining prior to the placement of steel reinforcement and concrete to verify conformance with the intent of the recommendations of this report.

8.5.10 The moisture conditions of the subgrade soils for the building pad and foundation excavations should be maintained in accordance with the recommendations for engineered fill until placement of concrete for foundations or until aggregate base is placed for the building pad areas.

8.6 Interior Concrete Slabs-on-Grade

The following recommendations are intended for the interior floor slab of the buildings.

8.6.1 A structural engineer experienced in slab-on-grade design should recommend the thickness, design details and concrete specifications for the proposed slabs-on-grade for the total and differential settlements noted in this report.

8.6.2 Concrete slabs on grade should be supported on a minimum of 4 inches of non-recycled Class 2 aggregate base (compacted to a minimum of 95 percent relative compaction) over the depth of engineered fill recommended below foundations in the Site Preparation section of this report.

8.6.3 The recommendations provided herein are intended only for the design of interior concrete slabs-on-grade and their proposed uses, which do not include construction loading. The building contractor should assess the slab sections and determine its adequacy to support any proposed construction loads.

8.6.4 Where slabs on grade adjacent to the building are planned adjacent to landscape areas, these slabs should include a thickened edge or cutoff extending to the bottom of the aggregate base to reduce the potential for moisture to migrate through the base section towards the structures.

8.6.5 The moisture content of the engineered fill below the aggregate base section should be verified to be at least optimum moisture content prior to placing the aggregate base section, and also within 48 hours of placement of the vapor retarding membrane or the concrete for the slab-on-grade if a vapor retarding membrane is not used. The moisture content of the upper 12 inches of the subgrade soils should be tested and confirmed prior to placement of the base section.

8.6.6 The slabs and underlying subgrade should be constructed in accordance with current American Concrete Institute (ACI) standards.

8.6.7 ACI recommends that the interior slab-on-grade be placed directly on a vapor retarder when the potential exists that excessive moisture could be trapped in materials above the vapor retarder prior to placement of the slab-on-grade. It is recommended that Stegowrap 15 or equivalent should be used where floor coverings, such as carpet and tile, are anticipated or where moisture could permeate into the interior and create problems. The layer of Stegowrap 15 should overlay a minimum of 4 inches of non-recycled compacted AB. It should be noted that placing the PCC slab directly on the vapor barrier will increase the potential for cracking and curling; however, ACI recommends the placement of the vapor retarding membrane directly below the slab to reduce the amount vapor emission through the slab-on-grade. Based on discussions with Stego Industries, L.L.C. (telephone 949-493-5460), the Stegowrap can be placed directly on the AB and the concrete can be placed directly on the Stegowrap. It is recommended that a low shrinkage concrete mix be used for the slab on grade and that the slab be moist cured for a minimum of 7 days to reduce the potential for excessive cracking from drying shrinkage. The underslab membrane should have a high puncture resistance (minimum of approximately 2,400 grams of puncture resistance), high abrasion resistance, rot resistant, and mildew resistant. It is recommended that the membrane be selected in accordance with the current ASTM C 755, Standard Practice For Selection of Vapor Retarder For Thermal Insulation and conform to the current ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Waters, or as Ground Cover. It is recommended that the vapor barrier selection and installation conform to the current ACI Manual of Concrete Practice, Guide for Concrete Floor and Slab Construction (302.1R), Addendum, Vapor Retarder Location and current ASTM E 1643, Standard Practice for Installation of Water Vapor Retarders Used In Contact with Earth or Granular Fill Under Concrete Slabs. In addition, it is recommended that the manufacturer of the floor covering and floor covering adhesive be consulted to determine if the manufacturers have additional recommendations regarding the design and construction of the slab-on-grade, testing of the slab-on-grade, slab preparation, application of the adhesive, installation of the floor covering and maintenance requirements. It should be noted that the recommendations presented in this report are not intended to achieve a specific vapor emission rate.

8.6.8 The membrane should be installed so that there are no holes or uncovered areas. All seams should be overlapped and sealed with the manufacturer approved tape, continuously at the laps so they are vapor tight. All perimeter edges of the membrane, such as pipe penetrations, interior and exterior footings, joints, etc., should be sealed per manufacturer's recommendations.

8.6.9 Tears or punctures that may occur in the membrane should be repaired prior to placement of concrete per the manufacturer's recommendations. Once repaired, the membrane should be inspected by the Contractor and the owner to verify adequate compliance with manufacture's recommendations.

8.6.10 The manufacturer's requirements vary regarding the surface and cover material around the placed membrane. Vapor retarding membranes should be installed in accordance with the manufacturers' specifications.

8.6.11 The membrane is not required beneath exposed concrete floors provided that moisture intrusion into the structure is permissible for the design life of the structure.

8.6.12 Additional measures to reduce moisture migration should be implemented if moisture sensitive floor coverings (such as wood or vinyl) are used. These include: 1) constructing a less pervious concrete floor slab by maintaining a low water-cement ratio as recommended by ACI in the concrete for slabs-on-grade; 2) moist cure the slab for at least 7 days; 3) ensuring that all seams and utility protrusions are sealed with tape to create a "water tight" moisture retarding membrane; 4) placing concrete walkways or pavements adjacent to the structure; 5) locating lawns, planters and flower beds away from the structure; and 6) providing adequate drainage away from the structure sat a minimum two percent slope. In addition, water should not be allowed to pond adjacent to the structure.

8.6.13 It should be noted that the placement and compaction of the aggregate base, the vapor retarding membrane installation, protection, etc., and the placement, curing, etc. of concrete should be in accordance with the project geotechnical engineering report, applicable ACI requirements, the manufacturer's requirements, the project plans, the project specifications, whichever is most stringent.

8.6.14 The Contractor should test the moisture vapor transmission through the slab, the pH, internal relative humidity, etc., at a frequency and methods as specified by the flooring manufacturer or as required by the plans and specifications, whichever is most stringent. The results of vapor transmission tests, pH tests, internal relative humidity tests, ambient building conditions, etc. should be within floor manufacturer's and adhesive manufacturer's specifications at the time the floor is placed. It is recommended that the floor manufacturer and subcontractor review and approve the test data prior to floor covering installation.

8.6.15 To reduce the potential for damaging slabs during construction, the following recommendations are presented: 1) design for a differential slab movement of ½ inch relative to interior columns; 2) provide at least 4 inches of compacted aggregate base below the slabs, 3) the suitability of the loads from construction equipment which will operate on slabs or pavements should be evaluated by the contractor prior to loading the slab.

8.6.16 Backfill the zone above the top of footings at interior column locations, building perimeters, and below the bottom of slabs with an approved backfill and/or an aggregate base section as recommended herein for the area below interior slabs-on-grade. This procedure should provide more uniform support for the slabs which may reduce the potential for cracking.

8.7 Exterior Concrete Slabs on Grade

The recommendations for exterior slabs provided below are not intended for use for slabs subjected to vehicular traffic, rather lightly loaded sidewalks, curbs, and planters, etc. Recommendations for concrete slabs subjected to vehicular traffic are not included in the scope of this report.

8.7.1 Exterior improvements that are planned directly adjacent to the buildings or that subject the subgrade soils to a sustained load greater than 125 pounds per square foot should be prepared in accordance with the recommendations presented in this report for interior floor slabs.

8.7.2 Exterior slabs should be underlain by 4 inches of Class 2 aggregate base over the compacted native soils prepared as recommended for exterior slabs in the "Site Preparation" subsection of these recommendations. The aggregate base layer may be omitted if an increased potential for cracking is acceptable to the owner.

8.7.3 Where exterior slabs are planned adjacent to landscape areas, as a minimum, the exterior slabs should include a thickened edge or cutoff extending to the bottom of the aggregate base.

8.7.4 If the subgrade is prepared, and then disturbed by equipment workers, weather or other sources, we recommend that the exposed subgrade to receive slabs be tested to verify adequate compaction. If adequate compaction is not verified, the disturbed non-expansive subgrade should be over-excavated, scarified, and compacted as engineered fill. This condition should be verified prior to installation of plumbing, footing excavation, and construction of the slabs-on-grade.

8.7.5 Since exterior sidewalks, curbs, etc. are typically constructed at the end of the construction process, the moisture conditioning conducted during earthwork can revert to natural dry conditions. Placing concrete walks and finish work over dry or slightly moist subgrade should be avoided. It is recommended that the general Contractor notify Moore Twining to conduct in-place moisture and density tests prior to placing aggregate base and concrete flatwork. Written test results indicating passing density and moisture tests (minimum moisture content of optimum moisture) should be in the general Contractor's possession prior to placing concrete for exterior flatwork.

8.8 Asphaltic Concrete (AC) Pavements

8.8.1 The subgrade soils for asphaltic concrete pavements should be over-excavated and compacted as recommended in the "Site Preparation" section of the recommendations in this report. As part of the final preparation, the upper 12 inches of the subgrade soils should be moisture conditioned and compacted to a minimum of 95 percent of the maximum dry density determined in accordance with ASTM D 1557.

8.8.2 The following pavement sections are based on an R-value of 50 and traffic index values ranging from 5.0 to 7.0 with a minimum section for sport court pavements. A minimum of 4 inches of aggregate base is recommended below for the pavement sections. It should be noted that if pavements are constructed prior to construction of the buildings, the traffic index value should account for construction traffic. The actual traffic index values applicable to the site should be determined by the project civil engineer.

Table No. 4
Two-Layer Asphaltic Concrete Pavements

Traffic Index	AC thickness, inches	AB thickness, inches	Compacted Subgrade, inches
Sport Courts*	2.5	4.0	12
5.0	2.5	4.0	12
5.5	3.0	4.0	12
6.0	3.0	4.5	12
6.5	3.5	4.5	12
7.0	4.0	4.5	12

* - Not subject to regular vehicle traffic or parking
AC - Asphaltic Concrete compacted as recommended in this report
AB - Class II Aggregate Base with minimum R-value of 78 and compacted to at least 95 percent relative compaction (ASTM D1557)
Subgrade - Subgrade soils compacted to at least 95 percent relative compaction (ASTM D1557)

8.8.3 The curbs where pavements meet irrigated landscape areas or uncovered open areas should extend at least to the bottom of the aggregate base section. This should reduce subgrade moisture from irrigation and runoff from migrating into the base section and reducing the life of the pavements.

8.8.4 If actual pavement subgrade materials are significantly different from those tested for this study due to unanticipated grading or soil importing, the pavement sections should be re-evaluated for the changed subgrade conditions.

8.8.5 If the paved areas are to be used during construction, or if the type and frequency of traffic are greater than assumed in design, the pavement sections should be re-evaluated for the anticipated traffic.

8.8.6 Pavement section design assumes that proper maintenance, such as sealing and repair of localized distress, will be performed on an as needed basis for longevity and safety.

8.8.7 Pavement materials and construction method should conform to the State of California Standard Specifications.

8.8.8 It is recommended that the base 2 inch thick course of asphaltic concrete consist of a ¾ inch maximum medium gradation. The top course or wear course should consist of a ½ inch maximum medium gradation.

8.8.9 The asphaltic concrete, including the joint density, should be compacted to an average relative compaction of 93 percent, with no single test value being below a relative compaction of 91 percent and no single test value being above a relative compaction of 97 percent of the referenced laboratory density according to ASTM D2041.

8.8.10 The asphalt concrete should comply with the requirements for a Type "A" asphalt concrete as described in Section 39 of the 2015 State of California Department of Transportation (Caltrans) Standard Specification, or the requirements of the governing agency, whichever is more stringent.

8.9 Temporary Excavations

8.9.1 It is the responsibility of the Contractor to provide safe working conditions with respect to excavation slope stability. The Contractor is responsible for site slope safety, and classification of materials for excavation purposes, and maintaining slopes in a safe manner during construction. The grades classification and height recommendations presented for temporary slopes are for consideration in preparing budget estimates and evaluating construction procedures.

8.9.2 Temporary excavations should be constructed in accordance with CAL OSHA requirements. As a minimum, temporary cut slopes should not be steeper than 1½ to 1, horizontal to vertical, and flatter if possible. If excavations cannot meet these criteria, the temporary excavations should be shored.

8.9.3 Shoring systems, if used, should be designed by an engineer with experience in designing shoring systems and registered in the State of California. Shoring design should be based on the lateral earth pressures included in this report, temporary and permanent surcharge loads and hydrostatic pressures.

8.9.4 In no case should excavations extend below a 1.5H to 1V zone below existing utilities, foundations and/or floor slabs which are to remain after construction. Excavations which are required to be advanced below the 1.5H to 1V envelope should be shored to support the soils, foundations, and slabs.

8.9.5 Excavation stability should be monitored by the Contractor. Slope gradient estimates provided in this report do not relieve the Contractor of the responsibility for excavation safety. In the event that tension cracks or distress to the structure occurs, during or after excavation, the owners and Moore Twining should be notified immediately and the Contractor should take appropriate actions to prevent further damage or injury.

8.10 Utility Trenches

8.10.1 The utility trench subgrade should be prepared by excavation of a neat trench without disturbance to the bottom of the trench. If sidewalls are unstable, the Contractor should either slope the excavation to create a stable sidewall or shore the excavation. All trench subgrade soils disturbed during excavation, such as by accidental over-excavation of the trench bottom, or by excavation equipment with cutting teeth, should be compacted to a minimum of 92 percent relative compaction prior to placement of bedding material. The Contractor is responsible for notifying Moore Twining when these conditions occur and arrange for Moore Twining to observe and test these areas prior to placement of pipe bedding. The Contractor should use such equipment as necessary to achieve a smooth undisturbed native soil surface at the bottom of the trench with no loose material at the bottom of the trench. The Contractor should either remove all loose soils or compact the loose soils as engineered fill prior to placement of bedding, pipe and backfill of the trench.

8.10.2 The trench width, type of pipe bedding, the type of initial backfill, and the compaction requirements of bedding and initial backfill material for utility trenches (storm drainage, sewer, water, electrical, gas, cable, phone, irrigation, etc.) should be specified by the project Civil Engineer or applicable design professional in compliance with the manufacturer's requirements, governing agency requirements and this report, whichever is more stringent. The contractor is responsible for contacting the governing agency to determine the requirements for pipe bedding, pipe zone and final backfill. The contractor is responsible for notifying the Owner and Moore Twining if the requirements of the agency and this report conflict, the most stringent applies. For flexible polyvinylchloride (PVC) pipes, these requirements should be in accordance with the manufacturer's requirements or ASTM D-2321, whichever is more stringent, assuming a hydraulic gradient exists (gravel, rock, crushed gravel, etc. cannot be used as backfill on the project). The width of the trench should provide a minimum clearance of 8 inches between the sidewalls of the pipe and the trench, or as necessary to provide a trench width that is 12 inches greater than 1.25 times the outside diameter of the pipe, whichever is greater. As a minimum, the pipe bedding should consist of 4 inches of compacted (92 percent relative compaction) select sand with a minimum sand equivalent of 30 and meeting the following requirements: 100 percent passing the 1/4 inch sieve, a minimum of 90 percent passing the No. 4 sieve and not more than 10 percent passing the No. 200 sieve. The bottom of the trench should be compacted as engineered fill prior to placement of the pipe bedding. The haunches and initial backfill (12 inches above the top of pipe) should consist of a select sand meeting these sand equivalent and gradation requirements that is placed in maximum 6-inch thick lifts and compacted to a minimum relative compaction of 92 percent using hand equipment. The final fill (12 inches above the pipe to the surface) should be on-site or imported, non-expansive materials moisture conditioned to within optimum to three (3) percent above optimum moisture content and compacted to a minimum of 92 percent relative compaction. The project civil engineer should take measures to control migration of moisture in the trenches such as slurry collars, etc.

8.10.3 If ribbed or corrugated HDPE or metal pipes are used on the project, then the backfill should consist of select sand with a minimum sand equivalent of 30, 100 percent passing the 1/4 inch sieve, a minimum of 90 percent passing the No. 4 sieve and not more than 10 percent passing the No. 200 sieve. The sand should be placed in maximum 6-inch thick lifts, extending to at least 1 foot above the top of pipe, and compacted to a minimum relative compaction of 92 percent using hand equipment. Prior to placement of the pipe, as a minimum, the pipe bedding should consist of 4 inches of compacted (92 percent relative compaction) sand meeting the above sand equivalent and gradation requirements for select sand bedding. The width of the trench should meet the requirements of ASTM D2321 listed in Table No. 5, below (minimum manufacturer requirements). As an alternative to the trench width recommended above and the use of the select sand bedding, a lesser trench width for HDPE pipes may be used if the trench is backfilled with a 2-sack sand-cement slurry from the bottom of the trench to 1 foot above the top of the pipe.

Table No. 5
Minimum Trench Widths for HDPE Pipe with Select Sand Backfill

Inside Diameter of HDPE Pipe (inches)	Outside Diameter of HDPE Pipe (inches)	Minimum Trench Width (inches) per ASTM D2321
12	14.2	30
18	21.5	39
24	28.4	48
36	41.4	64
48	55	80
60	67.3	96

8.10.4 Crushed gravel and rock for backfill is prohibited. In the event an open graded rock is required as backfill by a governing agency, the rock section should be fully encapsulated in an engineering filter fabric.

8.10.5 The contractor should use appropriate equipment and methods to avoid damage to utilities and/or structures during placement and compaction of the backfill materials.

8.10.6 Trench backfill should be placed in 8 inch lifts, moisture conditioned and compacted as engineered fill.

8.10.7 On-site soils and approved imported engineered fill may be used as final backfill (12 inches above the pipe to the ground surface) in trenches. However, rocks greater than 6 inches in any dimension will not be permitted in backfill placed between 1 foot above the top of any pipe and subgrade.

8.10.8 Jetting of trench backfill is not allowed to compact the backfill soils.

8.10.9 Storm drains and/or utility lines should be designed to be watertight. If encountered, leaks should be immediately repaired. Leaking storm drain and/or utility lines could result in trench failure, sloughing and/or soil heave causing damage to surface and subsurface structures, pavements, flatwork, etc. In addition, landscaping irrigation systems should be monitored for leaks. It is recommended that the pipelines be video inspected and pressure tested prior to placement of foundations, slabs-on-grade or pavements to verify that the pipelines are constructed properly and are watertight. The record of the video inspection along with a written description, prepared by the video inspection firm, of the condition of the pipe should be provided to the Owner for review and approval.

8.10.10 The plans should note that all utility trenches for electrical lines, irrigation lines, etc. should be compacted to a minimum relative compaction of 92 percent per ASTM D-1557, as required.

8.10.11 Utility trenches should not be constructed within a zone defined by a line that extends at an inclination of 1.5 horizontal to 1 vertical downward from the bottom of building foundations.

8.10.12 The project Civil Engineer should include slurry type cutoff collars along utility trenches at critical locations to prevent the migration of surface water into the trench and below the buildings.

8.11 <u>Corrosion Protection</u>

8.11.1 Based on the National Association of Corrosion Engineers corrosion severity rating listed in the Evaluation section of this report and the analytical result of analysis of one (1) near surface soil sample, the near surface soils are "corrosive" to ferrous alloy pipes, as indicated by resistivity value of 3,602 ohms-cm and pH value of 7.6. Buried metal objects should be protected in accordance with the manufacturer's recommendations based on the "corrosive" corrosion potential of the soil. The evaluation was limited to the effects of soils to metal objects; corrosion due to other potential sources, such as stray currents and groundwater, was not evaluated.

8.11.2 Corrosion of concrete due to sulfate attack is not anticipated based on the 0.0016 percent by dry weight concentration of sulfate for the near-surface soils. According to provisions of ACI 318, section 4.3, the sulfate concentrations fall in the negligible classification (0.00 to 0.10 percent by weight) for concrete. Therefore, no restrictions are required regarding the type, water-to-cement ratio, or strength of the concrete used for foundation and slabs due to the sulfate content. However, a low water to cement ratio is recommended for slabs on grade as recommended in the "Interior Slabs on Grade" section of this report and a low water to cement ratio would be recommended for other concrete slab on grade construction.

8.11.3 These soil corrosion data should be provided to the manufacturers or suppliers of materials that will be in contact with soils (pipes or ferrous metal objects, etc.) to provide assistance in selecting the protection and materials for the proposed products or materials. If the manufacturers or suppliers cannot determine if materials are compatible with the soil corrosion conditions, a professional consultant, i.e., a corrosion engineer, with experience in corrosion protection should be consulted to design parameters. Moore Twining is not a corrosion engineer; thus, cannot provide recommendations for mitigation of corrosive soil conditions. It is recommended that a corrosion engineer be consulted for the site specific conditions.

9.0 DESIGN CONSULTATION

9.1 Moore Twining should be retained to review those portions of the contract drawings and specifications that pertain to earthwork operations, pavements and foundations prior to finalization to determine whether they are consistent with our recommendations. This service is not part of this current contractual agreement.

9.2 It is the client's responsibility to provide plans and specification documents for our review prior to their issuance for construction bidding purposes.

9.3 If Moore Twining is not retained for the plan review, we assume no liability for the misinterpretation of our conclusions and recommendations. This review is documented by a formal plan/specification review report provided by Moore Twining.

10.0 CONSTRUCTION MONITORING

10.1 It is recommended that Moore Twining be retained to conduct the necessary observation, field-testing services and provide results so that action necessary to remedy indicated deficiencies can be taken in accordance with the plans and specifications. Upon completion of the work, the geotechnical engineer should provide a written summary of the observations, field testing and conclusions regarding the conformance of the completed work to the intent of the plans and specifications. This service is not, however, part of this current contractual agreement.

10.2 The construction monitoring is an integral part of this investigation. This phase of the work provides Moore Twining the opportunity to verify the subsurface conditions interpolated from the soil borings and make alternative recommendations if the conditions differ from those anticipated.

10.3 If the Moore Twining is not afforded the opportunity to provide engineering observation and field testing services during construction activities related to earthwork, foundations, pavements and trenches; then, Moore Twining will not be responsible for compliance of any aspect of the construction with our recommendations or performance of the structures or improvements if the recommendations of this report are not followed. We recommend that if a firm other than Moore Twining is selected to conduct these services that they provide evidence of professional liability insurance of at least $3,000,000 and review this report. After their review, the firm should, in writing, state that they understand and agree with the conclusions and recommendations of this report and agree to conduct sufficient observations and testing to ensure the construction complies with this report's recommendations. Moore Twining should be notified, in writing, if another firm is selected to conduct observations and field-testing services prior to construction.

11.0 NOTIFICATION AND LIMITATIONS

11.1 The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of the field and laboratory investigation, combined with interpolation of the subsurface conditions between boring locations.

11.2 The nature and extent of subsurface variations between borings may not become evident until construction.

11.3 If variations or undesirable conditions are encountered during construction, Moore Twining should be notified promptly so that these conditions can be reviewed and the recommendations reconsidered where necessary. It should be noted that unexpected conditions frequently require additional expenditures for proper construction of the project.

11.4 If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work (more than 12 months) at the site, or if conditions have changed due to natural cause or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing.

11.5 Changed site conditions, or relocation of proposed structures, may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.

11.6 The conclusions and recommendations contained in this report are valid only for the project discussed in Section 3.3, Anticipated Construction. The use of the information and recommendations contained in this report for structures on this site not discussed herein or for structures on other sites not discussed in Section 3.2, Site Description is not recommended. The entity or entities that use or cause to use this report or any portion thereof for another structure or site not covered by this report shall hold Moore Twining, its officers and employees harmless from any and all claims and provide Moore Twining's defense in the event of a claim.

11.7 This report is issued with the understanding that it is the responsibility of the client to transmit the information and recommendations of this report to developers, owners, buyers, architects, engineers, designers, contractors, subcontractors, and other parties having interest in the project so that the steps necessary to carry out these recommendations in the design, construction and maintenance of the project are taken by the appropriate party.

11.8 This report presents the results of a geotechnical engineering investigation only and should not be construed as an environmental audit or study.

11.9 Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally-accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

11.10 This investigation report should not be used in the preparation of a Storm Water Pollution Prevention Plan (SWPPP). Use of this report or any data included in the report in preparation of an SWPPP would be at the owner’s sole risk.

11.11 Reliance on this report by a third party (i.e., that is not a party to our written agreement) is at the party's sole risk. If the project and/or site are purchased by another party, the purchaser must obtain written authorization and sign an agreement with Moore Twining in order to rely upon the information provided in this report for design or construction of the project.

We appreciate the opportunity to be of service to the Fowler Unified School District and Integrated Designs. If you have any questions regarding this report, or if we can be of further assistance, please contact us at your convenience.

Respectfully Submitted,

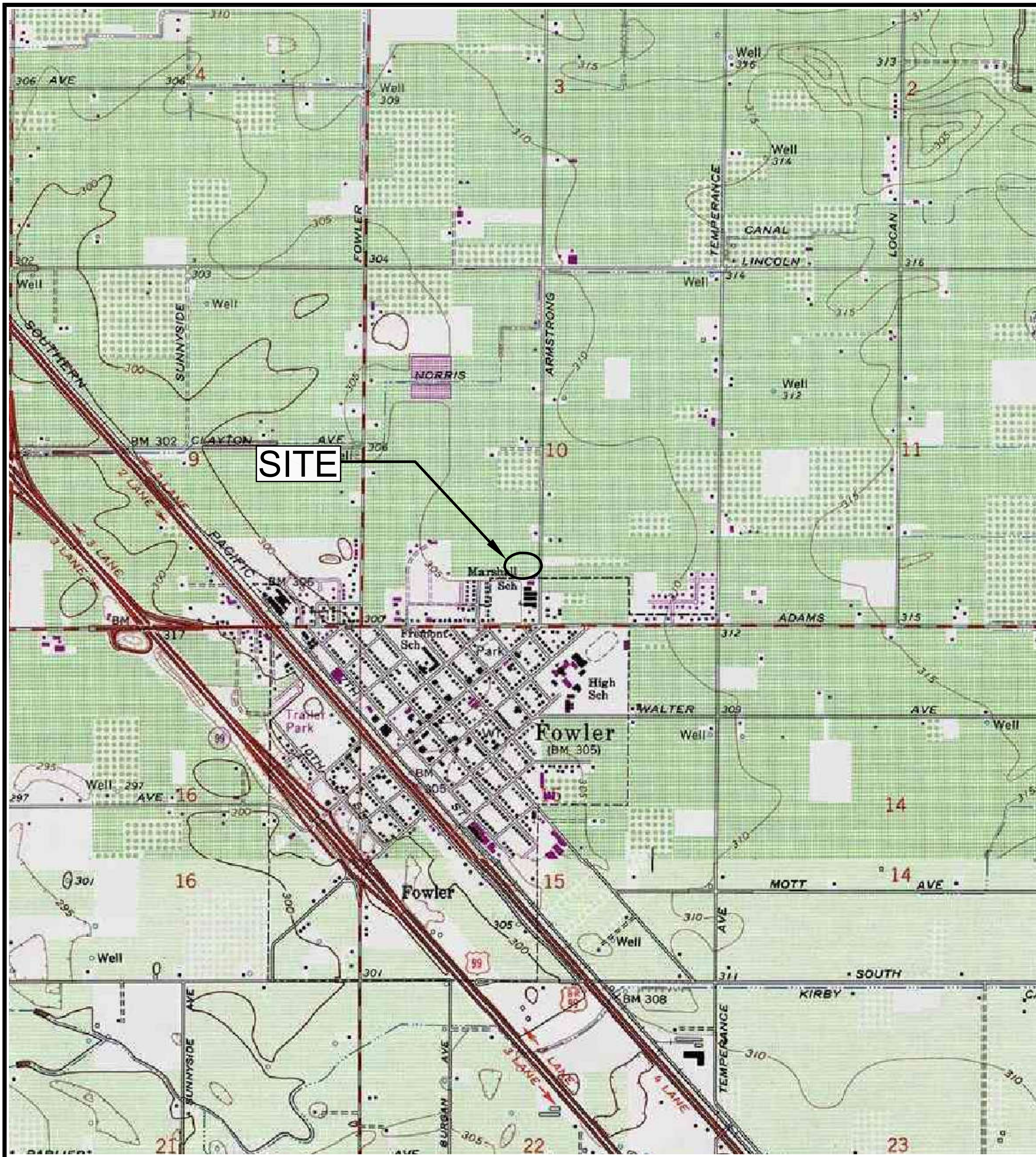
MOORE TWINING ASSOCIATES, INC.
Geotechnical Engineering Division

Scott W. Krauter, RGE
Assistant Manager

Read L. Andersen, RGE
Manager

APPENDIX A

DRAWINGS

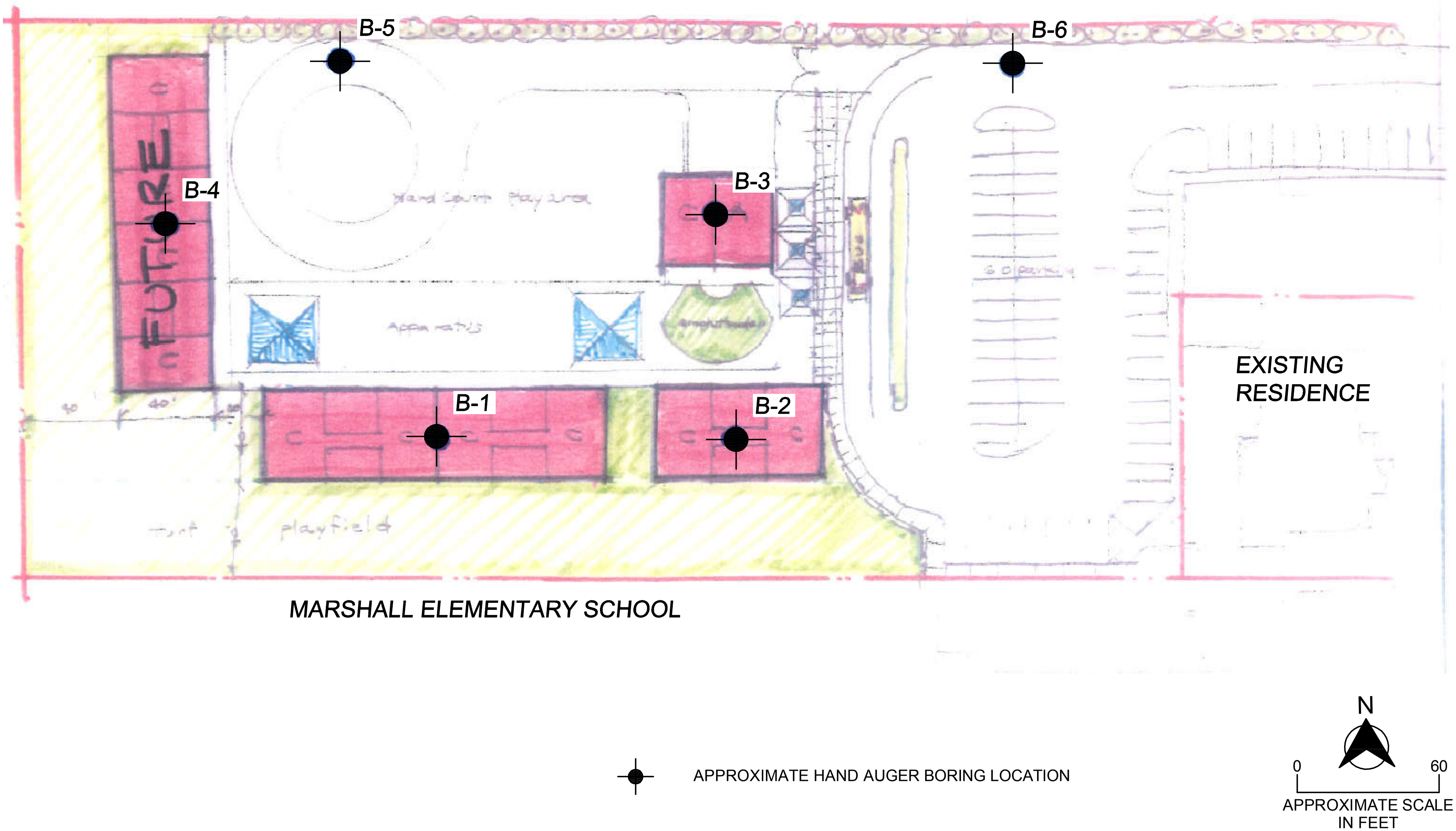


SOURCE: U.S.G.S. TOPOGRAPHIC MAP, 7 ½ MINUTE SERIES
MALAGA, CALIFORNIA QUADRANGLE 1978, PHOTOREVISED 1981

0 2000
APPROXIMATE SCALE
IN FEET

SITE LOCATION MAP PROPOSED EARLY EDUCATION CENTER (PRESCHOOL) MARSHALL ELEMENTARY SCHOOL 142 NORTH ARMSTRONG AVENUE FOWLER, CALIFORNIA	FILE NO.: 04505-01-01	DATE: 03/07/19
	DRAWN BY: RM	APPROVED BY:
	PROJECT NO. D04505.01	DRAWING NO. 1

MOORE TWINING ASSOCIATES, INC.



TEST BORING LOCATION MAP PROPOSED EARLY EDUCATION CENTER (PRESCHOOL) MARSHALL ELEMENTARY SCHOOL 142 NORTH ARMSTRONG AVENUE FOWLER, CALIFORNIA	FILE NO. 04505-01-02	DATE DRAWN: 03/07/19
	DRAWN BY: RM	APPROVED BY:
	PROJECT NO. D04505.01	DRAWING NO. 2

MOORE TWINING ASSOCIATES, INC.

APPENDIX B

LOGS OF BORINGS

This appendix contains the final logs of borings. These logs represent our interpretation of the contents of the field logs and the results of the field and laboratory tests.

The logs and related information depict subsurface conditions only at these locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these test boring locations. Also, the passage of time may result in changes in the soil conditions at these test boring locations.

In addition, an explanation of the abbreviations used in the preparation of the logs and a description of the Unified Soil Classification System are provided at the end of Appendix B.

MOORE TWINING ASSOCIATES, INC.

Since 1898

Test Boring: B-1

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 inch hollow stem

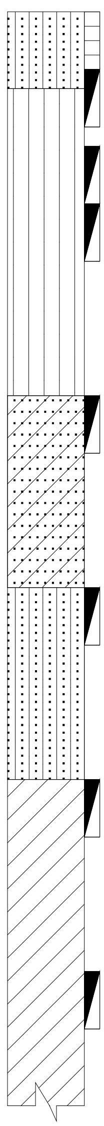
Hammer Type: 140 pound auto trip

Logged By: VB

Date: January 21, 2019

Elevation: 305 feet AMSL

Depth to Groundwater First Encountered During Drilling: N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 — 0	1/6 3/6 5/6	SM	Silty SAND; loose, moist, fine grained, light brown	DD= 106.4 pcf - 200 = 43.5% ø = 36° c = 330 psf	8	8
	2/6 3/6 3/6	ML	Sandy SILT; medium stiff, moist, non-plastic, light brown		6	4
	3/6 4/6 4/6				8	4
300 — 5	8/6 26/6 40/6		hard, color is gray		69	10
295 — 10	12/6 12/6 11/6	SC	Clayey SAND; dense, moist, fine grained, low plasticity, medium brown		33	
290 — 15	7/6 12/6 8/6	SM	Silty SAND; medium dense, moist, fine grained, non-plastic, light brown		20	
285 — 20	6/6 13/6 17/6	CL	Sandy LEAN CLAY; very stiff, moist, moderate plasticity, gray		30	
280 — 25	6/6 13/6 13/6		iron oxide staining		26	

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Since 1898

Test Boring: B-1

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Logged By: VB

Drilled By: JC

Date: January 21, 2019

Drill Type: CME-75

Elevation: 305 feet AMSL

Auger Type: 6-5/8 inch hollow stem

Depth to Groundwater First Encountered During Drilling: N/E

Hammer Type: 140 pound auto trip

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
275 / 30	4/6 7/6 9/6	SP-SM	POORLY GRADED SAND with Silt, medium dense, moist, fine to medium grained, light brown, some mica	-200 = 7.0%	16	3
270 / 35	7/6 9/6 12/6				21	
265 / 40	6/6 7/6 11/6			-200 = 8.7%	18	2
260 / 45	7/6 10/6 14/6				24	
		SM	Silty SAND; medium dense, moist, fine grained, light brown to red-brown			
255 / 50	5/6 11/6 13/6				24	
			Bottom of Boring			
250 / 55						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Since 1898

Test Boring: B-2

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 inch hollow stem

Hammer Type: 140 pound auto trip

Logged By: VB

Date: January 21, 2019

Elevation: 305 feet AMSL

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 — 0	2/6 2/6 1/6	SM	Silty SAND; very loose, damp, fine grained, brown		3	4
	2/6 3/6 4/6		Loose at 1.5 feet	DD= 104.7 pcf -200 = 28.4%	7	4
300 — 5	1/6 2/6 3/6				5	3
	6/6 50/2				>50	
		CL	Sandy LEAN CLAY; hard, moist, low plastic, slightly cemented, red-brown			
295 — 10		ML	Sandy SILT; very stiff, moist, slightly plastic, brown			
290 — 15	8/6 14/6 12/6		interbeded silty SAND layers		26	
			Bottom of Boring			
285 — 20						
280 — 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-3

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Logged By: VB

Drilled By: JC

Date: January 21, 2019

Drill Type: CME-75

Elevation: 305 feet AMSL

Auger Type: 6-5/8 inch hollow stem

Hammer Type: 140 pound auto trip

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 — 0	1/6 1/6 1/6	SM	Silty SAND, very loose, damp, fine grained, brown		2	
	2/6 3/6 3/6		Loose at 3 feet	DD= 103.0 pcf	6	
300 — 5	3/6 3/6 4/6				7	
	32/6 50/5		Very dense, slightly cemented, still Silty SAND		>50	
295 — 10						
290 — 15	3/6 5/6 13/6		Grading to Sandy LEAN CLAY		18	
			Bottom of Boring			
285 — 20						
280 — 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Since 1898

Test Boring: B-4

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Drilled By: JC

Drill Type: CME-75

Auger Type: 6-5/8 inch hollow stem

Hammer Type: 140 pound auto trip

Logged By: VB

Date: January 21, 2019

Elevation: 305 feet AMSL

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 / 0	1/6 1/6 2/6	ML	Sandy SILT; soft, moist, slightly plastic, light brown		3	6
	4/6 5/6 4/6		Stiff at 1.5 feet		9	3
	17/6 25/6 18/6		at 3.5 feet, very stiff and slightly cemented	DD= 105.2 pcf	43	9
300 / 5						
	10/6 11/6 10/6		no cementation, reddish brown,		21	5
295 / 10						
290 / 15	4/6 7/6 7/6	SP-SM	POORLY GRADED SAND with Silt; medium dense, damp, fine to medium grained, light brown		14	
			Bottom of Boring			
285 / 20						
280 / 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC. Since 1898

Test Boring: B-5

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Logged By: VB

Drilled By: JC

Date: January 21, 2019

Drill Type: Hand Auger

Elevation: 305 feet AMSL

Auger Type: 4 inch diameter closed bucket

Hammer Type: N/A

Depth to Groundwater First Encountered During Drilling: N/E

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 — 0		SM	Silty SAND; damp, fine to medium grained, brown	RV = 60		
300 — 5			Bottom of Boring			
295 — 10						
290 — 15						
285 — 20						
280 — 25						

Notes:

Figure Number

MOORE TWINING ASSOCIATES, INC.

Test Boring: B-6

Project: Early Education Center - Marshall Elementary School - Fowler, CA

Project Number: D04505.01

Logged By: VB

Drilled By: JC

Date: January 21, 2019

Drill Type: Hand Auger

Elevation: 305 feet AMSL

Auger Type: 4 inch diameter closed bucket

Depth to Groundwater First Encountered During Drilling: N/E

Hammer Type: N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	Remarks	N-Values blows/ft.	Moisture Content %
305 / 0		SM	Silty SAND; damp, fine to medium grained, brown	RV = 55		
300 / 5			Bottom of Boring			
295 / 10						
290 / 15						
285 / 20						
280 / 25						

Notes:

Figure Number

KEY TO SYMBOLS

Symbol	Description

Strata symbols

Symbol	Description
	Silty sand
	Silt
	Clayey sand
	Lean clay
	Poorly graded sand with silt

Misc. Symbols

Symbol	Description
	Boring continues

Soil Samplers

Symbol	Description
	California Modified split barrel ring sampler
	Standard penetration test
	Bulk sample taken from auger

Notes:

1. Exploratory borings were drilled on January 21, 2019.

2. The borings were drilled using a CME 75 drill rig equipped with 6-5/8" outside diameter hollow stem augers. The hand auger (HA) borings were drilled with hand auger tools.

3. Groundwater was not encountered in borings.

4. Boring locations were measured from the existing property corners.

5. These logs are subject to the limitations, conclusions, and recommendations in this report.

6. The "N-value" reported for the California Modified Split Barrel Sampler is the uncorrected field blow count. This value should not be interpreted as an SPT equivalent N-value.

7. Results of tests conducted on samples recovered are reported on the logs.

DD	= Natural dry density (pcf)	LL	= Liquid Limit (%)
+4	= Percent retained on No. 4 sieve (%)	PI	= Plasticity Index (%)
-200	= Percent passing the No. 200 sieve (%)	EI	= Expansion Index
pH	= Soil pH	SR	= Soil resistivity (ohms-cm)
SS	= Soluble sulfates (%)	Cl	= Soluble chlorides (%)
ø	= Internal Angle of Friction (degrees)	c	= Cohesion (psf)
pcf	= Pounds per cubic foot	psf	= Pounds per square foot
O.D.	= Outside diameter	AMSL	= Above mean sea level
N/A	= Not applicable	N/E	= Not encountered

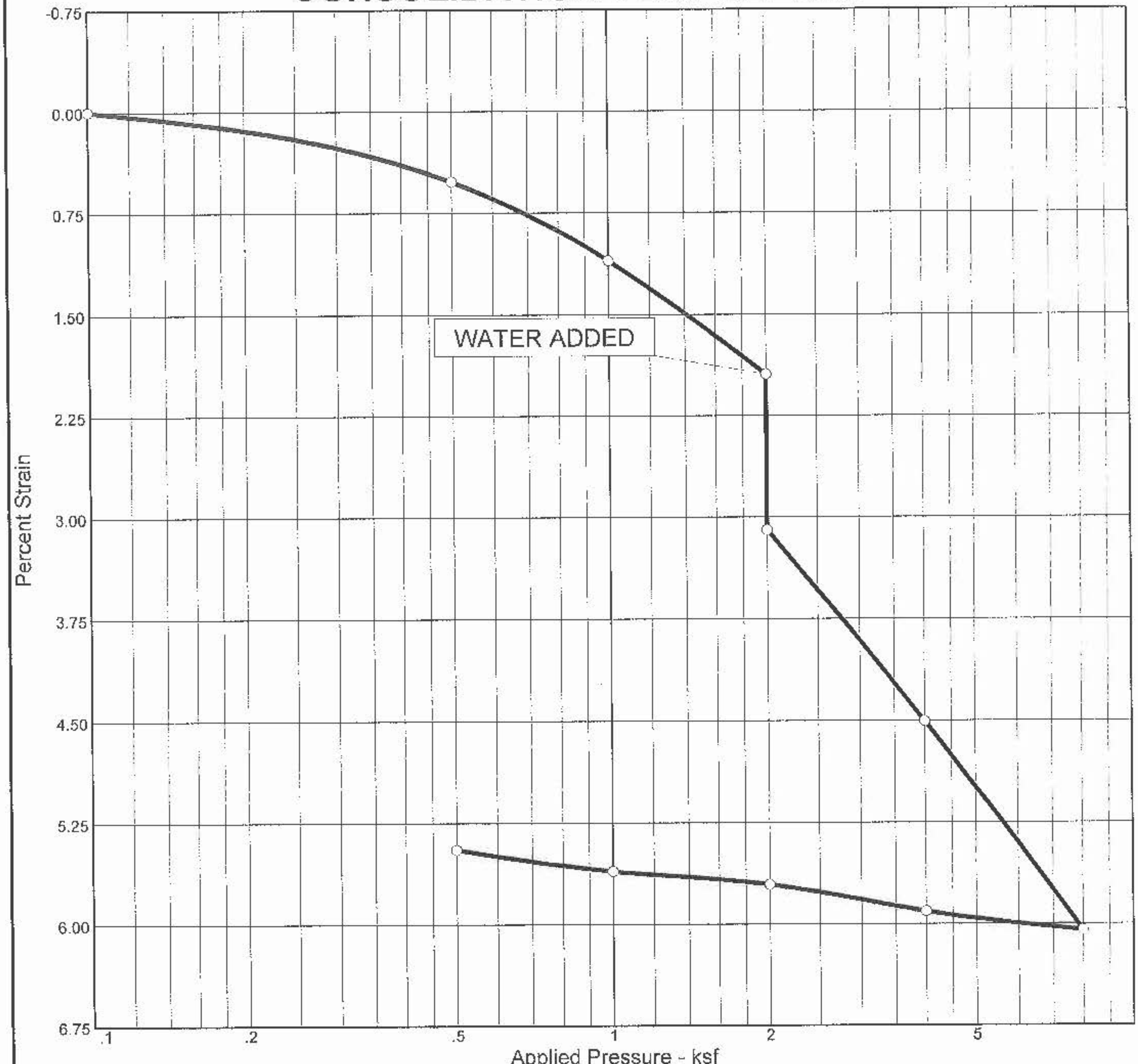
APPENDIX C

RESULTS OF LABORATORY TESTS

This appendix contains the individual results of the following tests. The results of the moisture content and dry density tests are included on the test boring logs in Appendix B. These data, along with the field observations, were used to prepare the final test boring logs in Appendix B.

These Included:	To Determine:
Moisture Content (ASTM D2216)	Moisture contents representative of field conditions at the time the sample was taken.
Dry Density (ASTM D2216)	Dry unit weight of sample representative of in-situ or in-place undisturbed condition.
Grain-Size Distribution (ASTM D422)	Size and distribution of soil particles, i.e., clay, silt, sand, and gravel.
Direct Shear (ASTM D3080)	Soil shearing strength under varying loads and/or moisture conditions.
Expansion Index (ASTM D4829)	Swell potential of soil with increases in moisture content.
Consolidation (ASTM D2435)	The amount and rate at which a soil sample compresses when loaded, and the influence of saturation on its behavior.
Sulfate Content (ASTM D4327)	Percentage of water-soluble sulfate as (SO4) in soil samples. Used as an indication of the relative degree of sulfate attack on concrete and for selecting the cement type.
Chloride Content (ASTM D4327)	Percentage of soluble chloride in soil. Used to evaluate the potential attack on encased reinforcing steel.
Resistivity (ASTM G187)	The potential of the soil to corrode metal.

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
38.2 %	7.7 %	107.7			2.65		0.80	0.08	0.01		1.2	0.536

MATERIAL DESCRIPTION	USCS	AASHTO
Silty sand	SM	

Project No. D04505.01 **Client:**

Project: Early Eduation Center, Fowler

Source: **Sample No.:** B-1 **Elev./Depth:** 0-1.5'

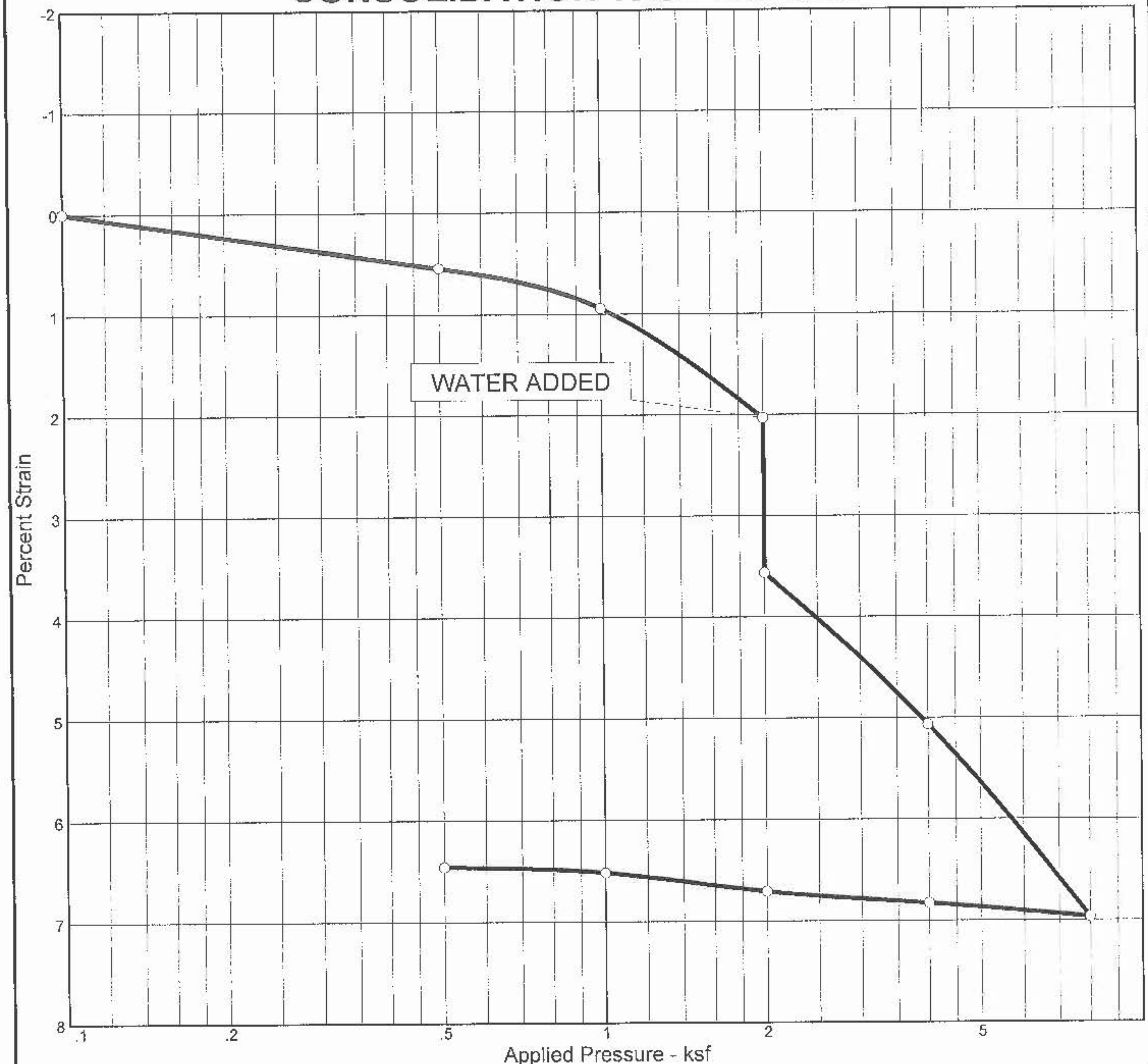
Remarks:

Moore Twining Associates, Inc.

Fresno, CA

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
20.7 %	4.4 %	105.9			2.65		0.91	0.10	0.01		1.6	0.562

MATERIAL DESCRIPTION	USCS	AASHTO
Silty sand	SM	

Project No. D04505.01 **Client:**

Project: Early Eduation Center, Fowler

Source: **Sample No.:** B-2 **Elev./Depth:** 1.5-3'

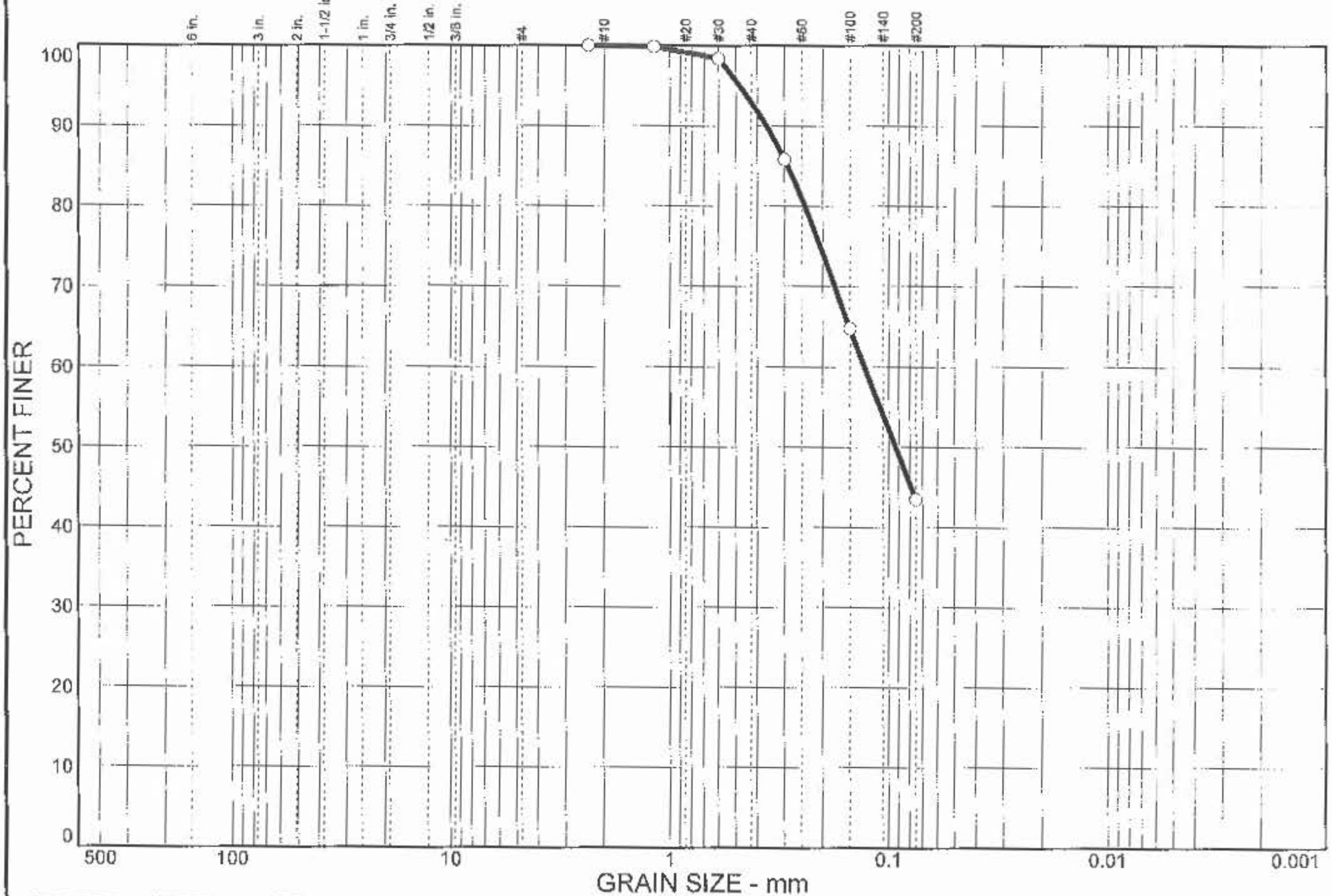
Moore Twining Associates, Inc.

Fresno, CA

Remarks:

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	56.5	43.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.9		
#30	98.4		
#50	85.8		
#100	64.8		
#200	43.5		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.291 D_{60}= 0.129 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

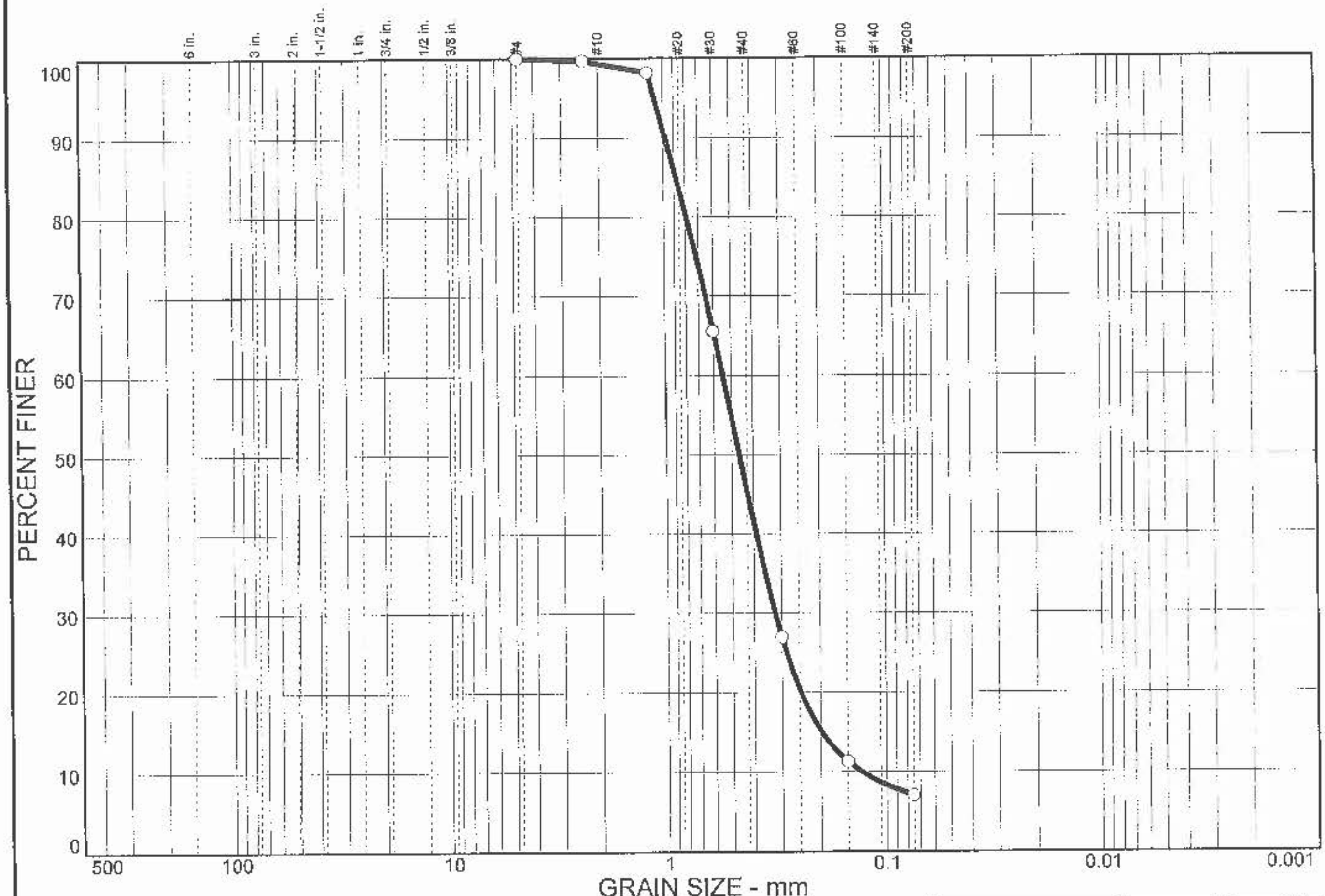
Sample No.: B-1 **Source of Sample:** **Date:** 1/21/19
Location: **Elev./Depth:** 0-1.5'

Moore Twining Associates, Inc.

Fresno, CA

Client:
Project: Early Eduation Center, Fowler
Project No: D04505.01 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	93.0	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#8	99.7		
#16	98.2		
#30	65.6		
#50	27.0		
#100	11.3		
#200	7.0		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.880 D_{60}= 0.545 D_{50}= 0.461
D_{30}= 0.321 D_{15}= 0.198 D_{10}= 0.130
C_u= 4.20 C_c= 1.46

Classification

USCS= SP-SM AASHTO=

Remarks

Sample No.: B-1 **Source of Sample:** **Date:** 1/21/19
Location: **Elev./Depth:** 30-31.5'

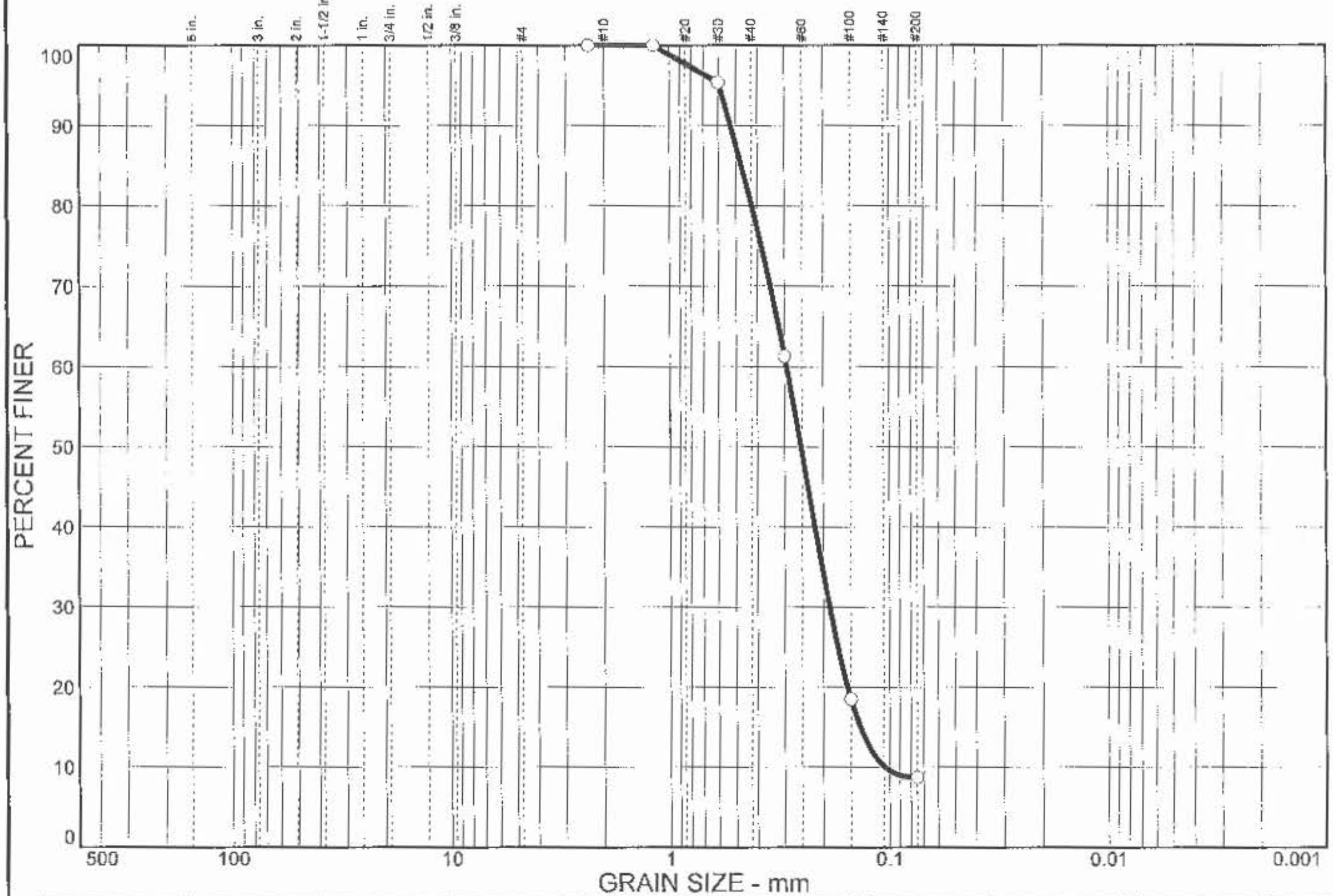
Moore Twining Associates, Inc.

Fresno, CA

Client:
Project: Early Eduation Center, Fowler

Project No: D04505.01 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	91.3	8.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	100.0		
#30	95.4		
#50	61.3		
#100	18.5		
#200	8.7		

* (no specification provided)

Material Description

Poorly graded sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.472 D_{60}= 0.294 D_{50}= 0.253
D_{30}= 0.187 D_{15}= 0.136 D_{10}= 0.105
C_u= 2.79 C_c= 1.13

Classification

USCS= SP-SM AASHTO=

Remarks

Sample No.: B-1 **Source of Sample:** **Date:** 1/21/19
Location: **Elev./Depth:** 40-41.5'

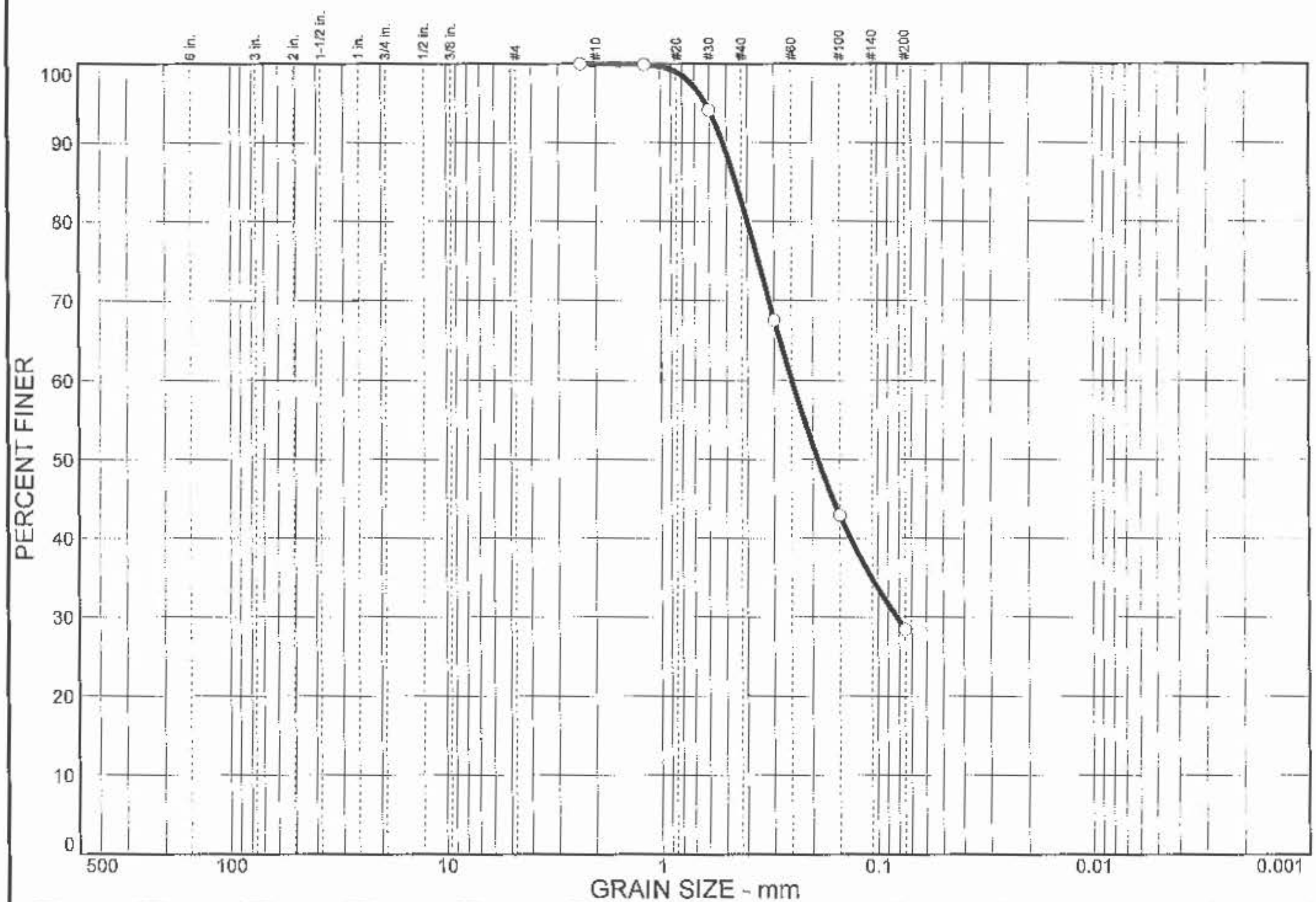
Moore Twining Associates, Inc.

Fresno, CA

Client:
Project: Early Eduation Center, Fowler

Project No: D04505.01 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	71.6	28.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.9		
#30	94.1		
#50	67.6		
#100	42.9		
#200	28.4		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.452 D_{60}= 0.249 D_{50}=
D_{30}= 0.0821 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

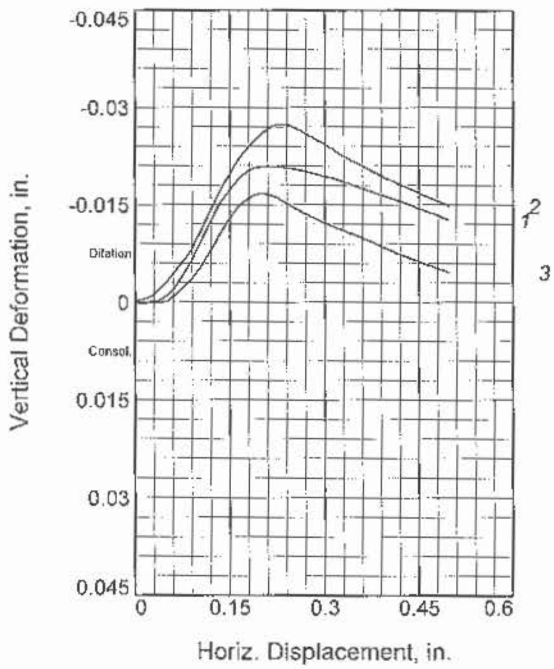
Remarks

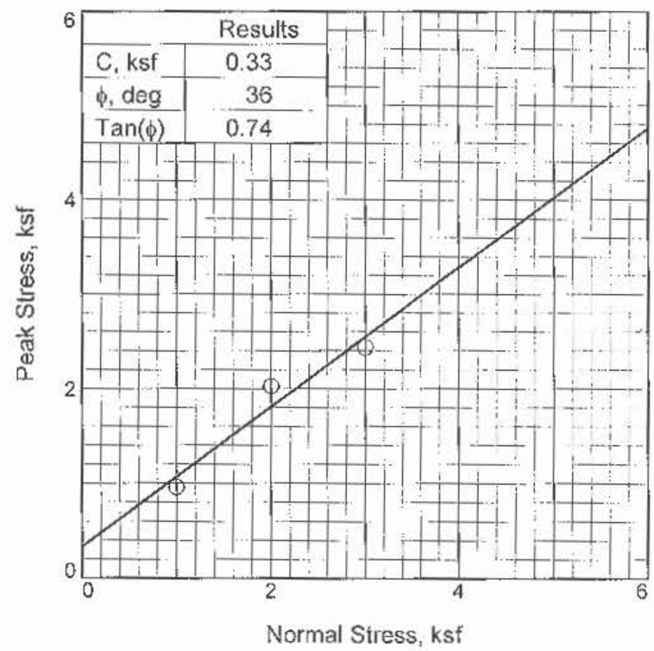
Sample No.: B-2 **Source of Sample:** **Date:** 1/21/19
Location: **Elev./Depth:** 1.5-3'

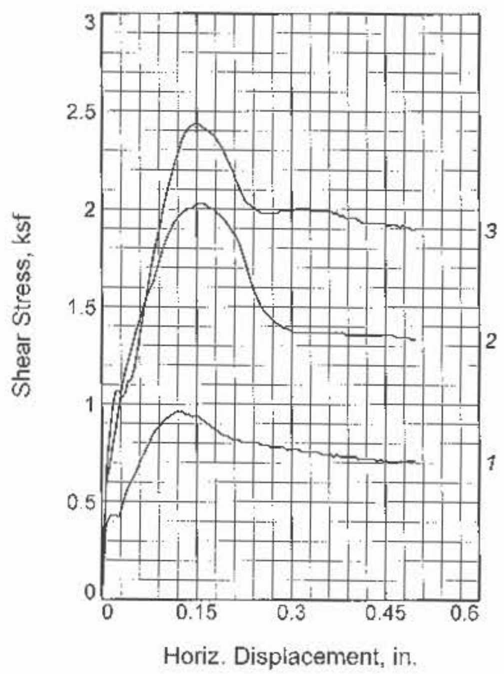
Moore Twining Associates, Inc.

Fresno, CA

Client:
Project: Early Eduation Center, Fowler
Project No: D04505.01 **Figure**







Sample No.		1	2	3
Initial	Water Content, %	8.0	7.6	8.0
	Dry Density, pcf	107.3	107.7	107.3
	Saturation, %	39.0	37.8	39.0
	Void Ratio	0.5421	0.5361	0.5421
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	19.5	18.7	19.0
	Dry Density, pcf	108.2	109.1	108.9
	Saturation, %	97.8	96.3	96.9
	Void Ratio	0.5291	0.5162	0.5192
	Diameter, in.	2.42	2.42	2.42
	Height, in.	0.99	0.99	0.99
Normal Stress, ksf		1.00	2.00	3.00
Peak Stress, ksf		0.96	2.03	2.44
Displacement, in.		0.12	0.15	0.15
Ultimate Stress, ksf				
Displacement, in.				
Strain at peak, %		4.8	6.3	6.1

Sample Type:

Description: Silty sand

Specific Gravity= 2.65

Remarks:

Figure ____

Client:

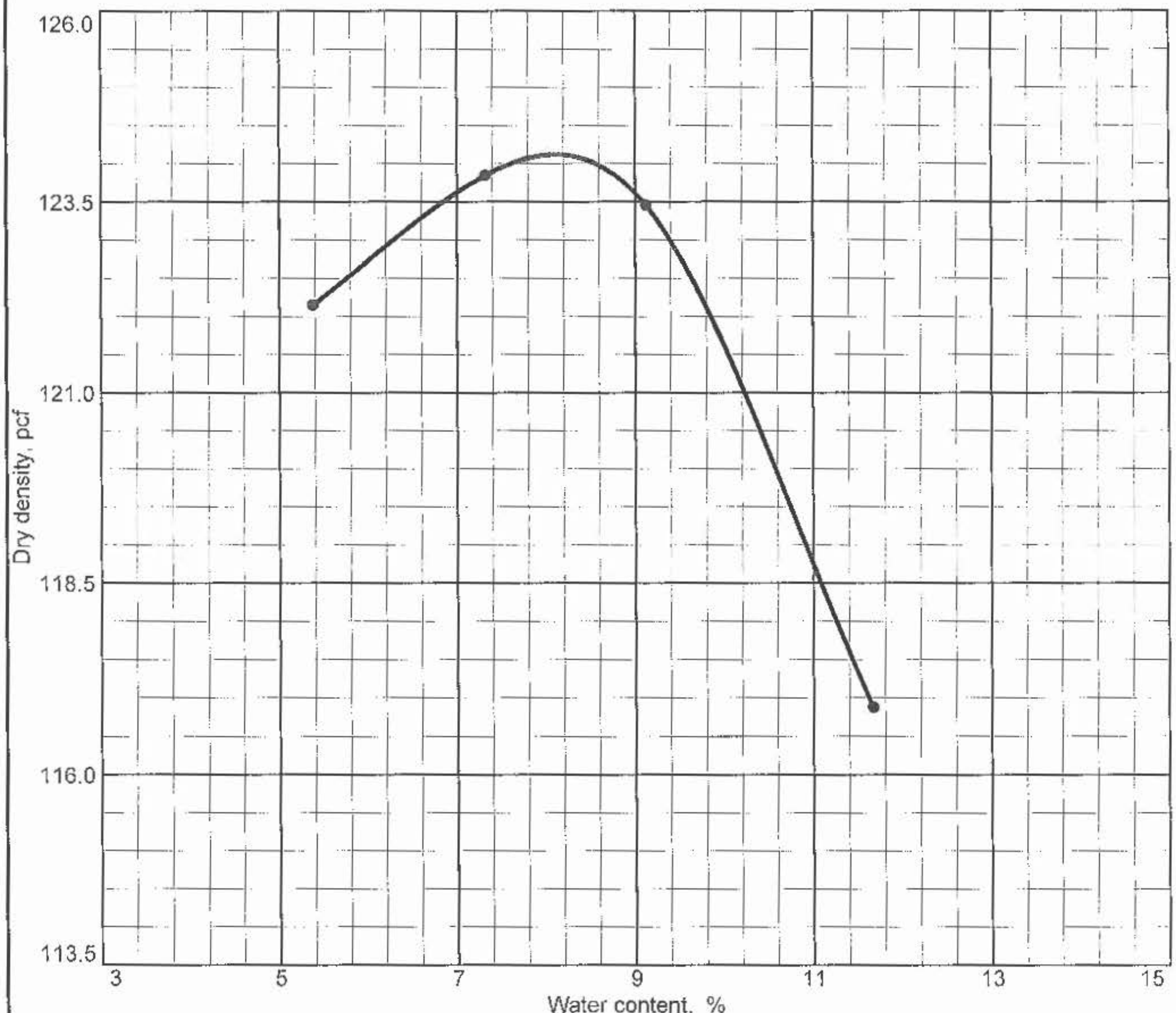
Project: Early Eduation Center, Fowler

Sample Number: B-1 **Depth:** 0-1.5'

Proj. No.: D04505.01 **Date Sampled:** 1/21/19

DIRECT SHEAR TEST REPORT
Moore Twining Associates, Inc.
Fresno, CA

COMPACTION TEST REPORT



Test specification: ASTM D 1557-12 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
1-3'	SM						0.0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 124.1 pcf Optimum moisture = 8.1 %	Silty sand

Project No. D04505.01 **Client:**

Project: Early Eduation Center, Fowler

● **Source:** **Sample No.:** B-5 **Elev./Depth:** 1-3'

Remarks:

Moore Twining Associates, Inc.

Fresno, CA

Figure

MOORE TWINING ASSOCIATES, INC.

EXPANSION INDEX TEST, ASTM D4829

MTA PROJECT NAME:	Early Education Center, Fowler	REPORT DATE:	2/7/2019
		TEST DATE:	2/6/2019
MTA PROJECT NO.:	D04505.01		
SAMPLE I.D.:	B-2 @ 2-5		
SAMPLED BY:	SK		
SAMPLE DATE:	1/21/2019	TESTED BY:	TD
MATERIALS DESCRIPTION:	Silty sand		
% PASSING # 4 SIEVE	100		

Initial Moisture Determination:		Final Moisture Determination:	
Pan + Wet Soil Wt., gm	250.0	Wet Soil Wt., lbs	0.9866
Pan + Dry Soil Wt., gm	230.8	Dry Soil Wt., lbs	0.8504
Pan Wt., gm	0.0		
Initial % Moisture Content	8.3	Final % Moisture Content	16.0

Initial Expansion Data:		**Final Expansion Data:**	
Ring + Sample Wt., lbs	0.9211	Ring + Sample Wt., lbs	0.9866
Ring Wt., lbs	0.0000	Ring Wt., lbs	0.0000
Remolded Wt., lbs	0.9211	Remolded Wt., lbs	0.9866
Remolded Wet Density, pcf	126.7	Remolded Wet Density, pcf	135.6
Remolded Dry Density, pcf	116.9	Remolded Dry Density, pcf	116.9

Expansion Data:		Initial Volume	Final Volume
		0.00727222	0.007277
Initial Gage Reading, in:	0.0500		
Final Gage Reading, in:	0.0507		
Expansion, in:	0.0007		
Expansion Index	1	**Comments:**	**Very Low Expansion Potential**

Classification of Expansive Soils. (Table No.1 From ASTM D4829)

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

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FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

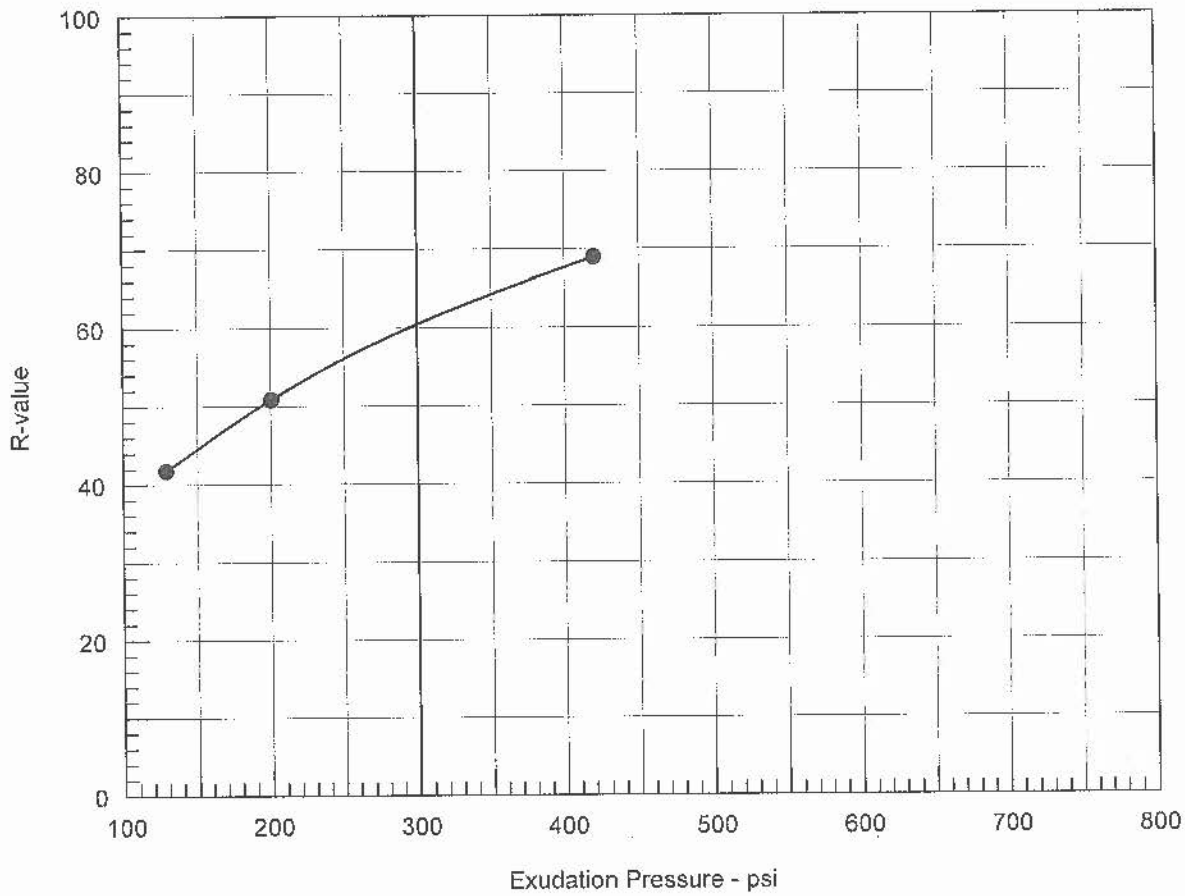
Project Name:	Early Education Center, Fowler	Report Date:	2/7/2019
		Sample Date:	1/21/2019
Project Number:	D04505.01		
		Sampled By:	SK
Subject:	Minimum Resistivity, ASTM G187	Tested By:	TD
Material Description:	Silty sand	Test Date:	2/6/2019
Location:	B-2 @ 2-5'		

Laboratory Test Results, Minimum Resistivity - ASTM G187

Total Water Added, mls	Resistivity, Ohm-cm
50 mls	9,338
100 mls	7,337
150 mls	5,336
200 mls	3,602
250 mls	3,802

Remarks: Min. Resistivity is 3,602 Ohm-cm

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	350	124.0	9.3	0.00	29	2.49	420	69	69
2	350	121.8	10.3	0.00	49	2.53	201	51	51
3	350	121.5	10.8	0.00	60	2.54	129	42	42

Test Results	Material Description
R-value at 300 psi exudation pressure = 60	Silty sand

Project No.: D04505.01

Project: Early Eduation Center, Fowler

Sample Number: B-5 **Depth:** 1-3'

Date: 2/7/2019

Tested by:

Checked by:

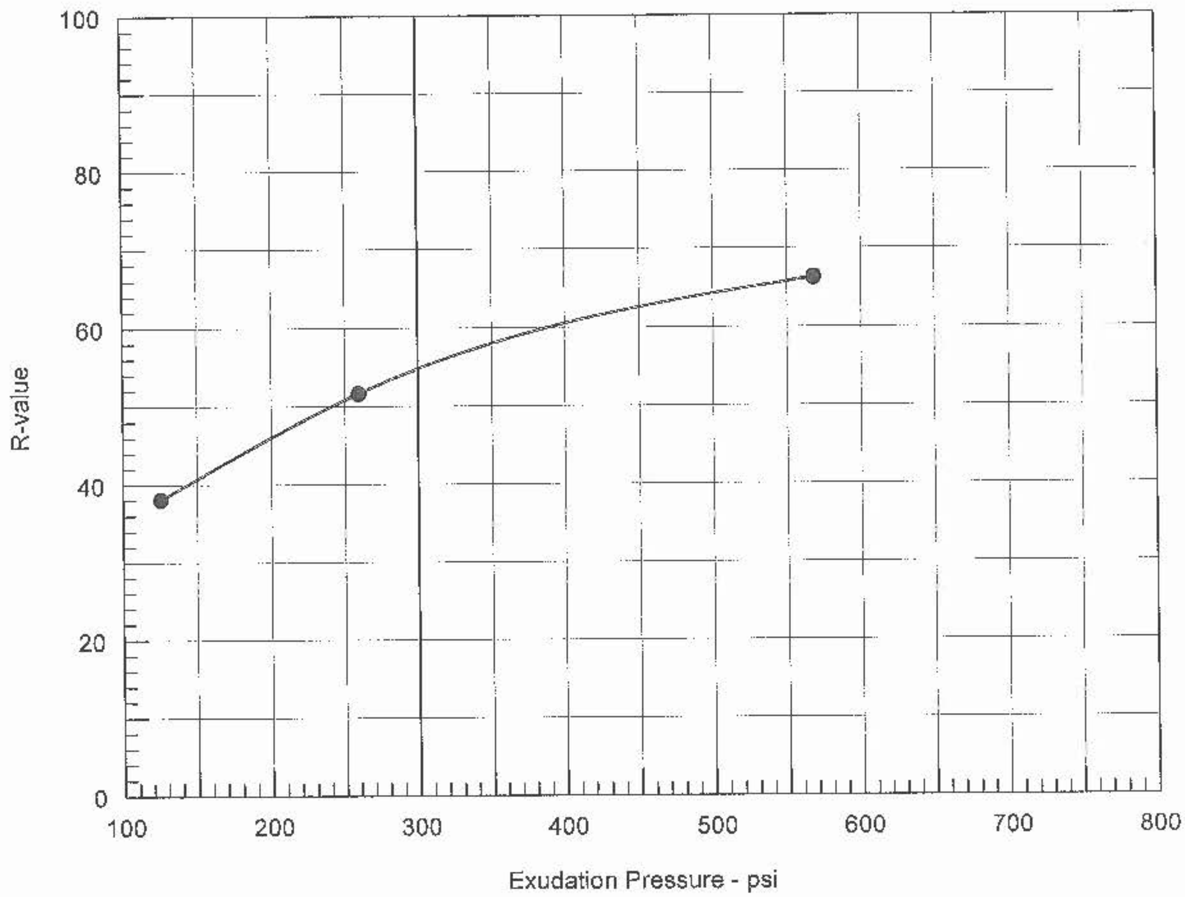
Remarks:

R-VALUE TEST REPORT

Moore Twining Associates, Inc.

Figure ______

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D 2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	350	125.7	9.0	0.00	31	2.48	568	66	66
2	350	124.6	10.0	0.00	47	2.51	259	52	52
3	350	123.3	10.9	0.00	65	2.53	126	38	38

Test Results	Material Description
R-value at 300 psi exudation pressure = 55	Silty sand

Project No.: D04505.01

Project: Early Eduation Center, Fowler

Sample Number: B-6 **Depth:** 2-5'

Date: 2/7/2019

Tested by:

Checked by:

Remarks:

R-VALUE TEST REPORT

Moore Twining Associates, Inc.

Figure ____

MOORE TWINING
ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Geotechnical Division 2527 Fresno Street Fresno CA, 93721	**Project:** Enrly ED. Center Fowler **Project Number:** D04505.01 **Project Manager:** Scott Krauter	**Reported:** 01/29/2019

Analytical Report for the Following Samples

Sample ID	Notes	Laboratory ID	Matrix	Date Sampled	Date Received
B2 @ 2 -5'		FA23002-01	Soil	01/21/19 00:00	01/23/19 09:20

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Geotechnical Division 2527 Fresno Street Fresno CA, 93721	**Project:** Enrly ED. Center Fowler **Project Number:** D04505.01 **Project Manager:** Scott Krauter	**Reported:** 01/29/2019

B2 @ 2 -5'

FA23002-01 (Soil) Sampled: 01/21/19 00:00

Analyte	Flag	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Chloride		ND	6.0	mg/kg	3	B9A2424	01/24/19	01/25/19	ASTM D4327-84
Chloride		ND	0.00060	% by Weight	3	[CALC]	01/25/19	01/25/19	ASTM D4327-84
Sulfate as SO4		**0.0016**	0.00060	% by Weight	3	[CALC]	01/25/19	01/25/19	ASTM D4327-84
pH		**7.6**	0.10	pH Units	1	B9A2424	01/24/19	01/24/19	ASTM D4972-89 Mod
Sulfate as SO4		**16**	6.0	mg/kg	3	B9A2424	01/24/19	01/25/19	ASTM D4327

Notes and Definitions

µg/L	micrograms per liter (parts per billion concentration units)
mg/L	milligrams per liter (parts per million concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

Analysis of pH, filtration, and residual chlorine is to take place immediately after sampling in the field. If the test was performed in the laboratory, the hold time was exceeded. (for aqueous matrices only)

APPENDIX D

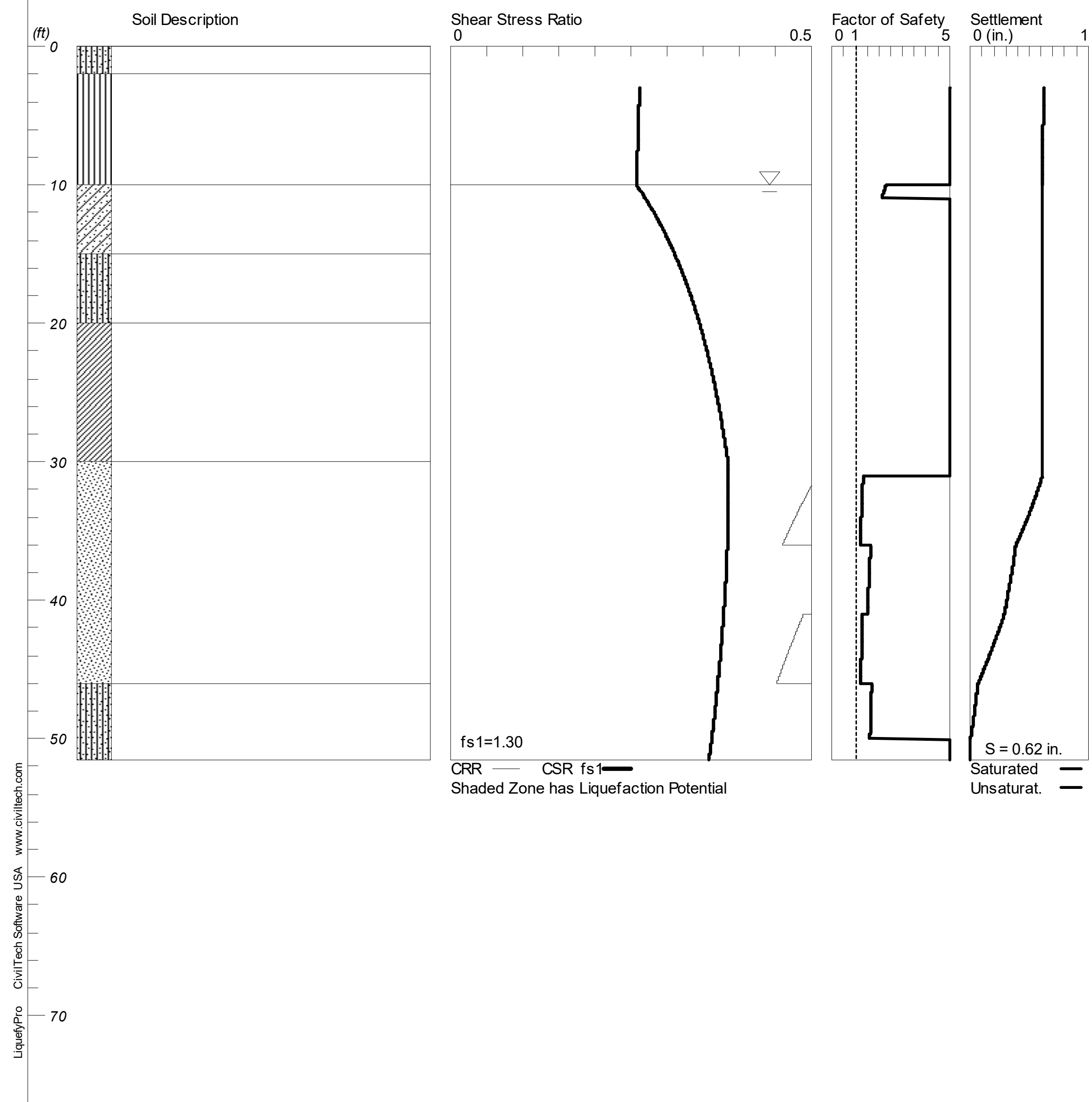
RESULTS OF LIQUEFACTION AND SEISMIC SETTLEMENT ANALYSIS

LIQUEFACTION ANALYSIS

Pre-School Marshall ES Fowler, CA

Hole No.=B-1 Water Depth=10 ft Surface Elev.=305 f

Magnitude=5.3
Acceleration=0.312g



Moore Twining Associates, Inc.

Plate A-1

****

LIQUEFACTION ANALYSIS SUMMARY

****

Font: Courier New, Regular, Size 8 is recommended for this report.

Licensed to ,   3/12/2019   7:47:28 AM

Input File Name: F:\ENG\Geotech\D04505.01 - Early Ed Center -Marshall ES\Liq_Seismic Settlement Calculation B-1.liq

Title: Pre-School Marshall ES Fowler, CA

Surface Elev.=305 f

Hole No.=B-1

Depth of Hole= 51.50 ft

Water Table during Earthquake= 10.00 ft

Water Table during In-Situ Testing= 60.00 ft

Max. Acceleration= 0.31 g

Earthquake Magnitude= 5.30

Input Data:

Surface Elev.=305 f

Hole No.=B-1

Depth of Hole=51.50 ft

Water Table during Earthquake= 10.00 ft

Water Table during In-Situ Testing= 60.00 ft

Max. Acceleration=0.31 g

Earthquake Magnitude=5.30

No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.

2. Settlement Analysis Method: Ishihara / Yoshimine

3. Fines Correction for Liquefaction: Idriss/Seed

4. Fine Correction for Settlement: During Liquefaction*

5. Settlement Calculation in: All zones*

6. Hammer Energy Ratio,   Ce = 1.3

7. Borehole Diameter,   Cb= 1.0

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: No

* Recommended Options

In-Situ Test Data:

Depth	SPT	gamma	Fines
ft		pcf	%
3.00	6.00	115.00	44.00
5.00	8.00	115.00	60.00
11.00	33.00	115.00	40.00
16.00	20.00	115.00	40.00
21.00	30.00	115.00	NoLiq
25.00	26.00	115.00	NoLiq
31.00	16.00	110.00	7.00
36.00	21.00	110.00	8.00
41.00	18.00	110.00	9.00
46.00	24.00	110.00	9.00
50.00	24.00	115.00	30.00

Output Results:

Settlement of Saturated Sands=0.61 in.

Settlement of Unsaturated Sands=0.01 in.

Total Settlement of Saturated and Unsaturated Sands=0.62 in.

Differential Settlement=0.310 to 0.409 in.

Depth	CRRm	CSRfs	F.S.	S_sat.	S_dry	S_all
ft				in.	in.	in.
3.00	0.51	0.26	5.00	0.61	0.01	0.62
3.50	0.51	0.26	5.00	0.61	0.01	0.62
4.00	0.51	0.26	5.00	0.61	0.01	0.62
4.50	0.51	0.26	5.00	0.61	0.01	0.62
5.00	0.65	0.26	5.00	0.61	0.01	0.62
5.50	0.65	0.26	5.00	0.61	0.01	0.62
6.00	0.65	0.26	5.00	0.61	0.01	0.62
6.50	0.65	0.26	5.00	0.61	0.01	0.62
7.00	0.62	0.26	5.00	0.61	0.01	0.61
7.50	0.60	0.26	5.00	0.61	0.00	0.61
8.00	0.58	0.26	5.00	0.61	0.00	0.61
8.50	0.64	0.26	5.00	0.61	0.00	0.61

Depth	CRRm	CSRfs	F.S.	S_sat.	S_dry	S_all
ft				in.	in.	in.
9.00	0.62	0.26	5.00	0.61	0.00	0.61
9.50	0.61	0.26	5.00	0.61	0.00	0.61
10.00	0.59	0.26	2.30	0.61	0.00	0.61
10.50	0.58	0.26	2.19	0.61	0.00	0.61
11.00	4.86	0.27	5.00	0.61	0.00	0.61
11.50	4.86	0.28	5.00	0.61	0.00	0.61
12.00	4.86	0.28	5.00	0.61	0.00	0.61
12.50	4.86	0.29	5.00	0.61	0.00	0.61
13.00	4.86	0.29	5.00	0.61	0.00	0.61
13.50	4.86	0.30	5.00	0.61	0.00	0.61
14.00	4.86	0.30	5.00	0.61	0.00	0.61
14.50	4.86	0.31	5.00	0.61	0.00	0.61
15.00	4.86	0.31	5.00	0.61	0.00	0.61
15.50	4.86	0.31	5.00	0.61	0.00	0.61
16.00	4.86	0.32	5.00	0.61	0.00	0.61
16.50	4.86	0.32	5.00	0.61	0.00	0.61
17.00	4.86	0.33	5.00	0.61	0.00	0.61
17.50	4.86	0.33	5.00	0.61	0.00	0.61
18.00	4.86	0.33	5.00	0.61	0.00	0.61
18.50	4.86	0.34	5.00	0.61	0.00	0.61
19.00	4.86	0.34	5.00	0.61	0.00	0.61
19.50	4.86	0.34	5.00	0.61	0.00	0.61
20.00	4.86	0.34	5.00	0.61	0.00	0.61
20.50	4.86	0.35	5.00	0.61	0.00	0.61
21.00	4.86	0.35	5.00	0.61	0.00	0.61
21.50	2.00	0.35	5.00	0.61	0.00	0.61
22.00	2.00	0.36	5.00	0.61	0.00	0.61
22.50	2.00	0.36	5.00	0.61	0.00	0.61
23.00	2.00	0.36	5.00	0.61	0.00	0.61
23.50	2.00	0.36	5.00	0.61	0.00	0.61
24.00	2.00	0.36	5.00	0.61	0.00	0.61
24.50	2.00	0.37	5.00	0.61	0.00	0.61
25.00	2.00	0.37	5.00	0.61	0.00	0.61
25.50	2.00	0.37	5.00	0.61	0.00	0.61
26.00	2.00	0.37	5.00	0.61	0.00	0.61

Depth	CRRm	CSRfs	F.S.	S_sat.	S_dry	S_all
ft				in.	in.	in.
26.50	2.00	0.37	5.00	0.61	0.00	0.61
27.00	2.00	0.38	5.00	0.61	0.00	0.61
27.50	2.00	0.38	5.00	0.61	0.00	0.61
28.00	2.00	0.38	5.00	0.61	0.00	0.61
28.50	2.00	0.38	5.00	0.61	0.00	0.61
29.00	2.00	0.38	5.00	0.61	0.00	0.61
29.50	2.00	0.38	5.00	0.61	0.00	0.61
30.00	2.00	0.38	5.00	0.61	0.00	0.61
30.50	2.00	0.38	5.00	0.61	0.00	0.61
31.00	2.00	0.38	5.00	0.61	0.00	0.61
31.50	0.50	0.38	1.31	0.59	0.00	0.59
32.00	0.50	0.38	1.29	0.57	0.00	0.57
32.50	0.49	0.38	1.28	0.55	0.00	0.55
33.00	0.49	0.38	1.27	0.53	0.00	0.53
33.50	0.48	0.38	1.26	0.51	0.00	0.51
34.00	0.48	0.38	1.24	0.49	0.00	0.49
34.50	0.47	0.38	1.23	0.46	0.00	0.46
35.00	0.47	0.38	1.22	0.44	0.00	0.44
35.50	0.46	0.38	1.21	0.41	0.00	0.41
36.00	0.46	0.38	1.20	0.39	0.00	0.39
36.50	0.62	0.38	1.63	0.38	0.00	0.38
37.00	0.62	0.38	1.61	0.37	0.00	0.37
37.50	0.61	0.38	1.60	0.36	0.00	0.36
38.00	0.60	0.38	1.58	0.35	0.00	0.35
38.50	0.60	0.38	1.57	0.34	0.00	0.34
39.00	0.59	0.38	1.55	0.33	0.00	0.33
39.50	0.59	0.38	1.54	0.32	0.00	0.32
40.00	0.58	0.38	1.53	0.31	0.00	0.31
40.50	0.57	0.38	1.51	0.30	0.00	0.30
41.00	0.57	0.38	1.50	0.29	0.00	0.29
41.50	0.49	0.38	1.29	0.27	0.00	0.27
42.00	0.48	0.38	1.28	0.25	0.00	0.25
42.50	0.48	0.38	1.27	0.23	0.00	0.23
43.00	0.47	0.38	1.26	0.20	0.00	0.20
43.50	0.47	0.37	1.25	0.18	0.00	0.18

Depth	CRRm	CSRfs	F.S.	S_sat.	S_dry	S_all
ft				in.	in.	in.
44.00	0.47	0.37	1.25	0.16	0.00	0.16
44.50	0.46	0.37	1.24	0.14	0.00	0.14
45.00	0.46	0.37	1.23	0.11	0.00	0.11
45.50	0.46	0.37	1.23	0.09	0.00	0.09
46.00	0.45	0.37	1.22	0.07	0.00	0.07
46.50	0.62	0.37	1.68	0.06	0.00	0.06
47.00	0.61	0.37	1.66	0.05	0.00	0.05
47.50	0.61	0.37	1.65	0.04	0.00	0.04
48.00	0.60	0.37	1.64	0.03	0.00	0.03
48.50	0.60	0.37	1.63	0.03	0.00	0.03
49.00	0.59	0.36	1.62	0.02	0.00	0.02
49.50	0.59	0.36	1.61	0.01	0.00	0.01
50.00	0.58	0.36	1.61	0.00	0.00	0.00
50.50	4.38	0.36	5.00	0.00	0.00	0.00
51.00	4.37	0.36	5.00	0.00	0.00	0.00
51.50	4.36	0.36	5.00	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

TECHNICON
ENGINEERING SERVICES, INC.

PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
MARSHALL ELEMENTARY SCHOOL 3-ACRE SITE ADDITION
NORTH ARMSTRONG AVENUE
FOWLER, CALIFORNIA

Prepared For:

Fowler Unified School District
658 E. Adams Avenue
Fowler, California 93625

February 13, 2019

TES#: 180131.006

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING – CONSTRUCTION TESTING & INSPECTION

February 13, 2019 TES# 180131.006

Mr. Scott Griffin, Superintendent
Fowler Unified School District
658 E. Adams Avenue
Fowler, California 93625
c/o Sharon Ashida; SOMAM, Inc.

SUBJECT: Preliminary Environmental Assessment Report
Marshall Elementary School 3-Acre Site Addition
North Armstrong Avenue
Fowler, California

Mr. Griffin:

In accordance with your request and authorization, **TECHNICON** Engineering Services, Inc., has completed a Preliminary Environmental Assessment (PEA) at the above-referenced site. This report includes a description of the project location, purpose and objective of the investigation, the completed assessment activities and their results.

We appreciate the opportunity to assist you with your project. If you should have questions or require additional information, please contact us at (559) 276-9311.

Respectfully,
TECHNICON Engineering Services, Inc.

Marienel Basiga
Staff Geologist

PROFESSIONAL GEOLOGIST
STEVEN CURRA
No. 7172
12/31/19
STATE OF CALIFORNIA

Steve Curra, PG
Environmental Engineering Division Manager

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PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
MARSHALL ELEMENTARY SCHOOL 3-ACRE SITE ADDITION
NORTH ARMSTRONG AVENUE
FOWLER, CALIFORNIA

1.0 INTRODUCTION

In accordance with your request and authorization, **TECHNICON** Engineering Services, Inc., has completed a Preliminary Environmental Assessment (PEA) at the above-referenced site for the School District. The proposed school site is expected to include approximately three classrooms with 40 to 50 students. The Site will be provided with water from the City of Fowler. This report includes a description of the project location, purpose and objective of the investigation, and completed assessment activities.

The objective of this PEA was to determine whether current or past hazardous material management practices or waste management practices have resulted in a release or threatened release of hazardous materials, or whether naturally occurring hazardous materials, which pose a threat to children's health, children's learning abilities, public health or the environment (Ed. Code, § 17210, subd. (h)) are present. The PEA was conducted in accordance with the procedures and guidelines specified in "Preliminary Endangerment Assessment Guidance Manual (Cal/EPA DTSC, January 1994 (Final- October 2015))" (PEA Manual).

2.0 SITE DESCRIPTION

The subject site encompasses approximately 3 acres of a 39-acre parcel on the north side of Marshall Elementary School on North Armstrong Avenue in Fowler, California. The subject site location and vicinity are presented in Figure 1 (Vicinity Map). The County of Fresno Assessor's Parcel Number (340-130-09) is associated with the subject site. The Site is currently planted in grape vineyard. According to the U.S. Geological Survey (USGS) 7.5-Minute Malaga, California, topographic quadrangle map, dated 1964, photo-revised 1981, the subject site occupies a portion of the south center of Section 10, Township 15 South, Range 21 East, Mount Diablo Baseline and Meridian, at an elevation of approximately 305 feet above the mean sea level.

The contact person for the School District is:

Mr. Scott Griffin, Superintendent
Fowler Unified School District
658 E. Adams Avenue
Fowler, California 93625
Phone: (559)834-6080

3.0 BACKGROUND

On August 7, 2008, the Department of Toxic Substances Control (DTSC) released a document titled "Interim Guidance for Sampling Agricultural Properties (Third Revision) (Cal/EPA DTSC, April 30, 2008)" (Interim Guidance). The purpose of the guidance is to evaluate soil at proposed new school sites and/or new expansion projects that are currently or were previously used for certain agricultural activities where residual agricultural chemicals may pose a threat to human health and the environment. Eligible sites are agricultural lands where pesticides and/or fertilizers were presumably applied, more or less uniformly, for agricultural purposes consistent with normal application practices. Fallow and former agricultural land that is no longer in production and has not been disturbed beyond normal disking and plowing practices is also applicable. Former agricultural land now occupied by urban residential areas requires more biased, discrete sampling due to the disturbance and redistribution of potential agricultural contaminants in the soil.

DTSC has recommended that the only pesticide class requiring analyses at these applicable agricultural properties are organochlorine pesticides (OCPs), such as DDT, Toxaphene, Dieldrin, etc. OCPs are bio-persistent and bio-accumulate in the environment. Most other classes of pesticides have relatively short half-lives and have not been found in the agricultural fields. The only heavy metal required for routine analyses for these properties is arsenic. Arsenic in the form of arsenical herbicides has been applied to many agricultural properties and elevated levels of arsenic have been reported in the evaluation of these properties.

In a May 2, 2018 Scoping Meeting, following their review of a draft sampling plan, DTSC recommended analysis of organochlorine pesticides (OCPs) and CAM 17 Metals. In accordance with DTSC's recommendation, analysis of OCPs and CAM 17 Metals except arsenic consist of screening levels retrieved from the United States Environmental Protection Agency (USEPA) Region 9's Regional Screening Levels and DTSC's Human Health Risk Assessment (HHRA) Note 3. Analysis of arsenic consist of a comparison of background arsenic concentrations from existing nearby sites with similar geology as the subject site.

In June 08, 2018, Technicon prepared a Draft PEA workplan. The workplan was revised to address DTSC comments following which the final revision of the workplan was submitted on July 16, 2018. Revisions of the workplan include additional sampling locations and establishing the action levels using DTSC and USEPA screening levels for both OCPs and CAM 17 metals as well as background concentrations of a nearby school site for arsenic. On August 07, 2018, DTSC approved the revised workplan.

4.0 PURPOSE OF INVESTIGATION

This PEA has been prepared to address the potential presence of environmentally persistent organochlorine pesticides and CAM 17 Metals in the soils due to the former agricultural activities at the Site.

5.0 ENVIRONMENTAL SETTING

5.1 Conceptual Site Model

A Conceptual Site Model (CSM) that depicts the potential contamination sources, exposure routes and media, receptors, and transport pathways is presented in Figure 3.

- The CSM identified the sources of contamination which is the agricultural use of the Site leading to potential arsenic and organochlorine pesticide application. Ingestion, inhalation, and/or dermal contact are potential exposure routes due to contact with affected soil or dust emissions/ particulate matter in the air.
- Due to absence of volatile constituents of concerns, the airborne pathway is limited to dust.
- No significant environmental receptors are present at or in the vicinity of the Site.
- No surface water conduits are present at the Site and so exposure to contaminants in surface water is not a complete pathway.
- The school sites typically place their gardens in the raised beds with imported clean fill at the top. Therefore, exposure to contaminants through the exposed soils in gardens is not considered a complete pathway.
- According to the USEPA Map of Radon zones, Fresno County is located in Zone 2 where the predicted radon levels are between 2 picoCurie per liter (pCi/L) and 4 pCi/L that represents moderate potential radon screening value.
- According to the State of California Air Resources Board, naturally-occurring asbestos occurs most frequently in ultramafic rock that has transformed partially or entirely to serpentinite rock, and in tremolite rock, particularly where it is found near faults. The California Division of Mines and Geology indicates that asbestos occurs naturally in certain geologic settings in

California. Inhalation of asbestos fibers may cause cancer. Most commonly, asbestos occurrences are associated with serpentinite and partially serpentinized ultramafic rocks. The subject site is not located within 10 miles of an area where serpentinite or tremolite rock occurs. Due to the geology of the subject site, it was not anticipated that naturally-occurring asbestos would be detected at levels of any significance on the subject site; therefore, no sampling for asbestos was recommended in site soils.

5.2 Factors Related to Soil Pathways

Topography: The Site is situated at an elevation of approximately 305 feet above mean sea level.

Accessibility: The proposed school facility at the Site is expected to be open for access only to authorized individuals.

Proximity of Other Receptors: The Site is surrounded by agricultural land on the north, a residence and agricultural land on the east, and the Marshall Elementary School on the south.

5.3 Factors Related to Water Pathways

No known release of hazardous substances to water has occurred or identified at the Site.

5.4 Factors Related to Air Pathways

No known release of hazardous substances to air has occurred or identified at the Site. Although construction workers may get exposed to the low arsenic concentrations detected at the Site, proper precautions could be sufficient measure.

6.0 SAMPLING ACTIVITIES AND RESULTS

All work was performed under the direction of a California Registered Geologist and was consistent with generally accepted engineering principles and practices. A summary of the activities performed during this investigation is presented below.

6.1 Summary of Activities

- Prior to beginning field activities, Technicon prepared a Site Health & Safety Plan (SHSP). The SHSP identified the potential hazards to personnel working at the site, protocol for environmental monitoring, personal protective equipment, medical surveillance requirements, site control measures, and emergency procedures.

- Three days prior to the start of field work, all residences and businesses within view of the site were notified of the soil sampling investigation to be conducted at the site. Notification were made on the District's letterhead using a DTSC-recommended format flyer and included District and DTSC contact information.

- Prior to the start of the field work, the DTSC project manager was notified of the start of field work.

- In accordance with the Interim Guidance sampling frequency guidelines, eight discrete samples were collected from the 3-acre subject site. Two of the eight samples collected were duplicate samples for Quality Assurance and Quality Control (QA/QC) purposes. The soil samples were collected from the approximate center of each sample plot location at the surface (0 to 6 inches, below the vegetative layer) as shown in Figure 2.

- Soil samples were collected from the beds and furrows of the vineyard to sufficiently capture high pesticide use areas. One bed sample and one furrow sample were collected at each sample location shown in Figure 2.

- Two duplicate soil samples were collected at sample location A-1 for QA/QC purposes, and one field blank (B-1) was used at sample location A-2.

- The augering and sampling equipment were cleaned using a brush to remove gross contamination and washed in a tri-sodium phosphate (TSP) solution and double-rinsed with clean water between each sampling interval.

- The generated rinsate water were containerized in 55-gallon hazardous waste drums, sealed, labeled, and stored on site in a suitable location while awaiting appropriate disposal.

- The boring locations were backfilled with soil cuttings.

- The soil samples were analyzed for the presence and concentration of organochlorine pesticides (OCPs) by EPA method 8081A or equivalent and CAM 17 Metals by EPA method 6000/7000 with detection limits equal or less than the indicated limits in Table 2 of the Interim Guidance and as presented in Table 1 and 2 at the end of this report. The chemical analyses was conducted in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846 Update IV, January 3, 2008)" by a State-certified analytical laboratory.

6.2 Presentation of Data

Sample Identification

The sample identification summary are included in Table 1 at the end of this report.

Locating Sample Points/ Surveying

A DTSC representative staked the sample locations following sampling. The sample points were surveyed using a hand-held GPS or similar unit, and the coordinates were measured for each sample location are included in Table 1 at the end of this report.

Sample Collection, Packaging, and Shipping

Soil samples were collected into clean glass jars. After sampling, the samples were capped, labeled, placed into a plastic bag, and then placed in an ice chest cooled with synthetic ice for delivery to McCampbell Analytical Inc, a National Environmental Laboratory Accreditation Program (NELAP) accredited analytical laboratory.

Sample Analysis

The soil samples were analyzed for the presence and concentration of organochlorine pesticides (OCPs) by EPA method 8081A and CAM 17 Metals by EPA method 6000/7000 or equivalent with detection limits equal to or less than the indicated limits in the Interim Guidance and as presented in Table 1 and 2 at the end of this report. The chemical analyses was conducted in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846 Update IV, January 3, 2008)" by a State-certified analytical laboratory.

6.3 Discussion of Results

Results of laboratory analyses presented in Table 2 indicate that trace concentrations of the organochlorine pesticides DDE and DDT well below the screening levels were detected in all samples. Trace concentrations of Dieldrin were detected at concentrations well below the screening level in two samples. Results of laboratory analyses presented in Table 3 indicate that concentrations of the CAM 17 Metals except for arsenic are well below the screening levels. Arsenic concentrations ranging between 2.1 and 2.8 mg/kg were detected in the samples.

6.4 Field QA/QC Procedures

Field QA/QC procedures are listed below:

- Sample locations were marked prior to the actual sampling event based on the review of aerial photographs and landmarks which consisted of rows and number of trees as reference points.
- Sample identification, type, collection date/time, sampler and project information, and other pertinent data was recorded on the chain-of-custody (CoC) documentation and the sample label in the field. The CoC accompanied the sample cooler shipment.
- One field blank and two duplicate samples were collected for quality control purposes.

The relative percent difference (RPDs) of the field duplicates were calculated as follows:

$$\frac{(C_2 - C_1)}{(C_1 + C_2) \times \frac{1}{2}} \times 100$$

Where:

C_2 is the higher concentration detected of either of the original sample and the duplicate and C_1 is the lower concentration of the two.

The complete list of the calculated chemical-specific RPDs are presented in Table 4. The RPDs were less than 10 except for A-1b and its duplicate at 15 and 18 RPD for the organochlorine pesticides DDE and DDT respectively. The RPDs for all chemicals are within quality control limits.

No chemicals or metals of concern were detected in the field blanks.

6.5 Laboratory QA/QC Procedures

Laboratory QA/QC procedures are listed below:

- The analyses were performed within the required hold time limits
- Detection and reporting limits recommended in the work plan were achieved
- QA/QC procedures including the method blank data, matrix spike/ matrix spike duplicate results, surrogate recovery, instrument type, reporting limits, dilution factors, etc. are included as part of the signed laboratory report presented in Appendix A. No discrepancies were reported in this report.

7.0 HUMAN HEALTH SCREENING EVALUATION

The Human Health Screening Evaluation (HHSE) was conducted in general accordance with the DTSC Preliminary with the methods outlined in DTSC's PEA Guidance Manual (DTSC, 2015). The screening human health risk evaluation outlined in the PEA Guidance Manual is intended to be a health-conservative evaluation of potential risks posed by chemicals at a site. This evaluation assumes a site will be used for residential purposes regardless of actual or intended land use. Incremental lifetime cancer risks (ILCR) and non-cancer hazard indexes (HI) were calculated as follows:

$$\frac{Maximum\ Concentration}{Screening\ Concentration} \times 10^{-6} = Incremental\ Lifetime\ Cancer\ Risk$$

$$\frac{Maximum\ Concentration}{Screening\ Concentration} = Hazard\ Index$$

Where:

the screening concentrations are based on a target ILCR of one in a million and HI of one.

The screening concentrations used in this evaluation are residential soil screening levels (SLs) based on DTSC-SLs first if available, and USEPA-SLs next if DTSC-SLs are not available. The chemical-specific HIs and ILCRs are summed to estimate the total noncancer hazard index (HI) and total ILCR, respectively. The potential health risks associated with exposure to lead are evaluated separately using DTSC's LeadSpread8. All detected organic chemicals and all inorganic chemicals detected above ambient background concentrations were evaluated consistent with the DTSC PEA guidance manual.

7.1 Exposure Pathway and Media of Concern

Exposure pathway evaluation is presented in Figure 3. The exposure pathways of concern are direct contact, ingestion, and inhalation of arsenic present in the soils impacted due to historical agricultural use of the Site. The transport pathways are dust emissions, physical contact, and particulate matter deposition with the impacted soils. The potential receptors are students, staff, and the visitors.

Based on the historical site use and the results of soil sampling, no impacts to the groundwater beneath the Site are expected to have occurred. No volatile organic constituents of concern are expected to be present at the Site. Due to the geology of the subject site, it is not anticipated that naturally-occurring asbestos would be detected at the subject site.

7.2 Exposure Concentrations and Chemicals

All detected organic chemicals and all inorganic chemicals detected above ambient background concentrations were evaluated consistent with the DTSC PEA guidance manual. Based on comparing site sample data with background metal concentrations (Appendix B), all detected metal concentrations in soil samples except for copper, zinc, and lead were eliminated from further consideration as COPCs. Maximum detected concentrations of the OCPs and metals can be found in Table 5.

7.3 Human Health Screening Levels

The screening concentrations used in this evaluation are residential soil screening levels (SLs) based on DTSC-SLs first if available, and USEPA-SLs next if DTSC-SLs are not available. However, cancer endpoint screening levels were not available for copper and zinc, and therefore, total ILCRs only consist of cumulative ILCR of the OCPs. The HI of lead was evaluated using DTSC's LeadSpread8.

7.4 Toxicity Values

Arsenic is a well-documented human carcinogen affecting numerous organs. Chronic arsenic toxicity results in multisystem disease. The cancer slope factor for arsenic is 9.5 (mg/kg-day)$^{-1}$. The value for inhalation is 12 (mg/kg-day)$^{-1}$ or 3.3E-03 (microgram per cubic meter)$^{-1}$.

7.5 Risk Characterization Summary

All detected organic chemicals and all inorganic chemicals detected above ambient background concentrations were evaluated individually and cumulatively for noncancer HIs and ILCRs. Ambient background concentrations are from a recently completed PEA conducted at the proposed nearby school site located at 5470 East South Avenue approximately 1.4 miles southwest of the subject site. The highest detected background concentration from the nearby site are listed in Table 3. A copy of the background dataset can be found in Appendix B in Table 6 under the heading "Background Samples".

The estimated noncancer HIs and ILCRs for the individual chemicals detected in soil are presented in Table 5. The individual noncancer HIs are all less than the target HI of 1, and the total HI is 0.022, which is also below the target HI or 1. The estimated ILCRs for the individual analyte are well below the target ILCR of 1 x 10^{-6}, with a total of 7.8 x 10^{-8}. However, this number is only the total ILCRs of the OCPs due to no available SLs for cancer risks for copper and zinc. Lead was evaluated separately using the LeadSpread8 model with a target blood level of concern of 1.0 micrograms per deciliter for lead. The HI for lead is 0.1 at both the 90th and 95th percentile, well below the target HI of 1. Based on the risk calculations, the estimated total HI and total ILCR are below the accepted levels under the conditions evaluated.

7.6. Uncertainty Analysis

Human Health Screening Evaluations have some inevitable degree of uncertainty associated with each assumption and this affects the overall risk characterization. Uncertainties originate from site data, exposure assessments, toxicity assessments and risk characterization. These uncertainties may lead to over- or under-estimation of risks. Sample analysis of site samples are subject to uncertainty associated with precision, accuracy, and detection of chemicals at low concentrations. Exposure and toxicity assessments are based on residential exposures and considers both carcinogenic and noncarcinogenic health effects as determined by DTSC. A screening evaluation contains multiple sources of uncertainty, and simplifying assumptions are often made so that health risks can be estimated quantitatively. Since the exact amount of uncertainty cannot be quantified, the screening evaluation is intended to overestimate rather than underestimate probable risk. The results of this assessment, therefore, are likely to be protective of health despite inherent uncertainties in the process.

8.0 ECOLOGICAL SCREENING EVALUATION

Potential exposures to ecological receptors are not expected at the site as no receptors have been identified. Additionally, the site has been historically used for agriculture and recently proposed for development.

8.1 Biological Characterization

Based on the proposed development of a school, no wildlife habitat is expected to be maintained at the Site after development.

8.2 Ecological Pathway Assessment

Ecological pathway assessment is not deemed necessary as no potential wildlife is expected to remain at the Site.

8.3 Ecological Screening Evaluation Summary

An ecological screening evaluation is not deemed necessary because the Site is scheduled for development and is not expected have any wildlife habitat.

9.0 COMMUNITY PROFILE

Based on the information obtained from the available internet resources, the zip code “93625” associated with the Site has an estimated population of 6,042 with an estimated population density of 2,983 people per square mile as of 2014. Approximately 50.6% population was reported to be male whereas 49.4% was reported to be female population. The estimated median house/condo value in 2014 was $233,600. The median resident age for the zip code was reported to be 31.4 years whereas the average adjusted gross income in 2012 (filed in 2013) was $35,900. In accordance with California Education Code Section 17213.1(a) (6) (A) or (B), the draft PEA report was placed for public comments for 30 days.

10.0 OPINION OF ENVIRONMENTAL PROFESSIONAL

Technicon had concluded that no RECs were indicated on the Site. It is Technicon's opinion that further investigation of the site is not warranted.

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 Summary of Conclusions

- Trace concentrations of the organochlorine pesticide DDE, and DDT well below the DTSC and USEPA screening levels were detected in all samples. Trace concentrations of Dieldrin well below the screening levels were detected in two samples.

- Low concentrations of arsenic ranging between 2.1 and 2.8 mg/kg were detected during this investigation. Arsenic concentrations on the nearby site were detected at a maximum of 3.9 mg/kg. The detected arsenic concentration values are below the proposed background arsenic concentration and are consistent with naturally occurring background concentrations.

- Concentrations of copper, zinc and lead were detected above the proposed background concentrations during this investigation. However, based on the risk calculations, the estimated total hazard indexes and total cancer risks are well below the accepted levels under the conditions evaluated. The results of this assessment, therefore, are likely to be protective of health despite inherent uncertainties in the process.

11.2 Recommendations

Based on the results of this PEA, it is Technicon's opinion that no further investigation is warranted and recommends that DTSC provide a "no further action" determination. Any proposed imported fill materials to be utilized at the proposed school site should be evaluated for suitability based on DTSC's October 2001 *Information Advisory, Clean Imported Fill Material.*

11.3 Data Gaps

No significant data gaps were encountered during this PEA.

11.4 Preliminary Scoping Recommendations

Further investigation or cleanup measures are not required based on this study.

12.0 REFERENCES

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United States Geological Survey, Malaga, California, 7.5-minute series topographic quadrangle, 1964, photorevised 1981.

Van Gosen, Bradley S. and John P. Clinkenbeard, Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California (USGS, 2011).

TABLES

Table 1
Sample Summary

Sample Name	Sample Type	Sample Locations	
		Latitude	Longitude
A-1b	Bed Samples	36.636713	-119.675141
A-1db	Duplicate for A-1b	36.636713	-119.675141
A-1f	Furrow Samples	36.636713	-119.675141
A-1df	Duplicate for A-1f	36.636713	-119.675141
B-1	Field Blank	36.6367552	-119.6744853
A-2b & A-2f	Bed & Furrow Samples	36.6367552	-119.6744853
A-3b & A-3f	Bed & Furrow Samples	36.636816	-119.673757

Table 2: Soil Sample Analytical Results - Organochlorine Pesticides (OCPs)

North Armstrong Avenue
Fowler, California
Samples collected August 27, 2018

Organochlorine Pesticide	Reporting Limit (mg/kg)	Residential Soil Screening Levels (mg/kg)				Soil Sample Analytical Results (mg/kg)								
		Cancer Endpoint	Source	Noncancer Endpoint	Source	A-1b	A-1db	A-1f	A-1df	A-2b	A-2f	A-3b	A-3f	Blank
Aldrin	0.0010	0.039	USEPA 2018	2.3	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
a-BHC	0.0010	0.086	USEPA 2018	510	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
b-BHC	0.0010	0.3	USEPA 2018	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
g-BHC (Lindane)	0.0010	0.57	USEPA 2018	21	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
d-BHC	0.0010	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND

Organochlorine Pesticide	Reporting Limit (mg/kg)	Residential Soil Screening Levels (mg/kg)				Soil Sample Analytical Results (mg/kg)								
		Cancer Endpoint	Source	Noncancer Endpoint	Source	A-1b	A-1db	A-1f	A-1df	A-2b	A-2f	A-3b	A-3f	Blank
Total Chlordane	0.025	0.44	DTSC 2018	35	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
DDD	0.0010	2.3	USEPA 2018	1.9	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
DDE	0.0010	2.0	USEPA 2018	23	USEPA 2018	**0.010**	**0.012**	**0.011**	**0.012**	**0.030**	**0.029**	**0.018**	**0.015**	ND
DDT	0.0010	1.9	USEPA 2018	37	USEPA 2018	**0.0024**	**0.0028**	**0.0026**	**0.0027**	**0.0059**	**0.0085**	**0.0037**	**0.0034**	ND
Dieldrin	0.0010	0.034	USEPA 2018	3.2	USEPA 2018	ND	ND	ND	ND	ND	ND	**0.0020**	**0.0010**	ND
Endosulfan I	0.0010	--	--	470	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	0.0010	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	0.0010	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	0.0010	--	--	19	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	0.0010	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	0.0010	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	0.0010	0.13	USEPA 2018	39	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	0.0010	0.07	USEPA 2018	1.0	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloro-benzene (HCB)	0.010	0.21	USEPA 2018	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclo-pentadiene	0.020	--	--	1.8	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	0.0010	--	--	320	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	0.050	0.49	USEPA 2018	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected

Table 3: Soil Sample Analytical Results – CAM 17 Metals

North Armstrong Avenue, Fowler, California
Samples collected August 27, 2018

CAM 17 Metals	Reporting Limit (mg/kg)	Highest Background Concentration From Nearby Site	Residential Soil Screening Levels (mg/kg)				Soil Sample Analytical Results (mg/kg)								
			Cancer Endpoint	Source	Noncancer Endpoint	Source	A-1b	A-1db	A-1f	A-1df	A-2b	A-2f	A-3b	A-3f	Blank
Antimony	0.50	<2	--	--	31	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.50	3.9	0.11	DTSC 2018	0.40	DTSC 2018	**2.1**	**2.2**	**2.2**	**2.3**	**2.9**	**2.9**	**2.5**	**2.8**	ND
Barium	5.0	77	--	--	15,000	USEPA 2018	**38**	**37**	**39**	**41**	**46**	**46**	**47**	**47**	ND
Beryllium	0.50	<0.4	1,600	USEPA 2018	15	DTSC 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.25	<0.4	2,100	USEPA 2018	5.2	DTSC 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.50	10	--	--	36,000	DTSC 2018	**7.4**	**7.7**	**7.6**	**8.0**	**9.3**	**9.8**	**9.9**	**10**	ND
Cobalt	0.50	4.2	420	USEPA 2018	23	USEPA 2018	**3.3**	**3.3**	**3.2**	**3.5**	**3.6**	**3.7**	**3.6**	**3.8**	ND
Copper	0.50	14	--	--	3,100	USEPA 2018	**19**	**21**	**25**	**27**	**25**	**27**	**29**	**27**	ND
Lead	0.50	4.7	64	USEPA 2018	80	DTSC 2018	**4.8**	**4.9**	**5.2**	**5.3**	**7.4**	**7.7**	**8.2**	**8.2**	ND
Mercury	0.050	<0.04	--	--	1.0	DTSC 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum	0.50	<2	--	--	390	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	0.50	8.8	15,000	USEPA 2018	490	DTSC 2018	**5.3**	**5.8**	**5.7**	**6.1**	**6.6**	**7.3**	**6.8**	**7.1**	ND
Selenium	0.50	<5	--	--	390	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	0.50	<2	--	--	390	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	0.50	<5	--	--	0.78	USEPA 2018	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.50	39	--	--	390	USEPA 2018	**28**	**30**	**27**	**29**	**31**	**32**	**31**	**31**	ND
Zinc	5.0	40	--	--	23,000	USEPA 2018	**38**	**41**	**43**	**48**	**46**	**49**	**52**	**51**	ND

Table 4: Relative Percent Differences

North Armstrong Avenue, Fowler, California
Samples collected August 27, 2018

Organochlorine Pesticides	**Soil Sample Analytical Results (mg/kg)**				**Relative Percent Differences**	
	A-1b	**A-1db**	**A-1f**	**A-1df**	**A-1b & A-1db**	**A-1f & A-1df**
DDE	0.01	0.012	0.011	0.012	18	9
DDT	0.0024	0.0028	0.0026	0.0027	**15**	**4**
CAM 17 Metals	**Soil Sample Analytical Results (mg/kg)**				**Relative Percent Differences**	
	A-1b	**A-1db**	**A-1f**	**A-1df**	**A-1b & A-1db**	**A-1f & A-1df**
Arsenic	2.1	2.2	2.2	2.3	5	4
Barium	38	37	39	41	3	5
Chromium	7.4	7.7	7.6	8	4	5
Cobalt	3.3	3.3	3.2	3.5	0	9
Copper	19	21	25	27	10	8
Lead	4.8	4.9	5.2	5.3	2	2
Nickel	5.3	5.8	5.7	6.1	9	7
Vanadium	28	30	27	29	7	7
Zinc	38	41	43	48	8	10

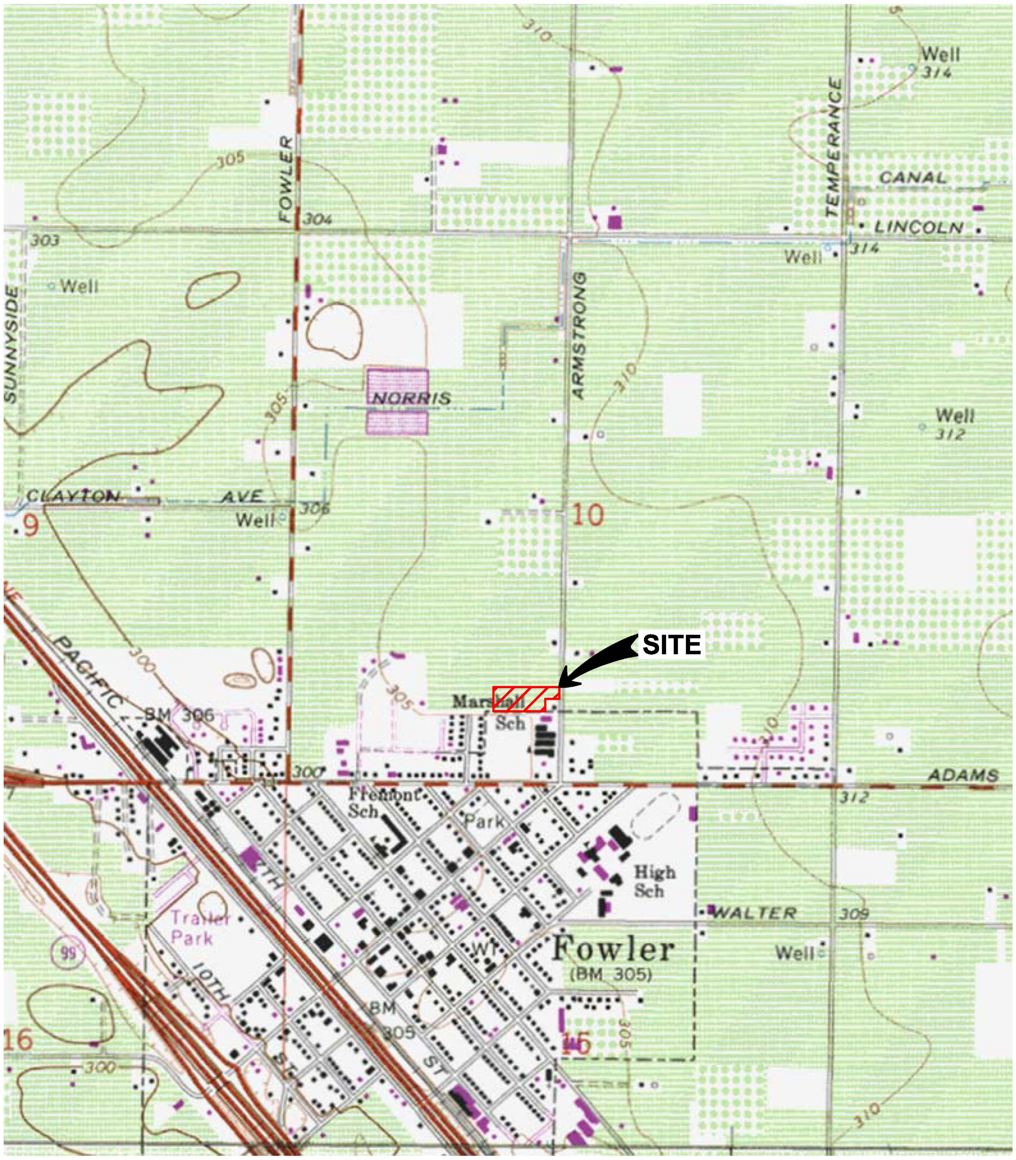
Table 5: Risk Calculations

North Armstrong Avenue, Fowler, California
Samples collected August 27, 2018

Organochlorine Pesticides	Maximum Concentration (mg/kg)	Residential Soil Screening Levels (mg/kg)				Incremental Lifetime Cancer Risks (ILCR)	Non-cancer Hazard Indexes (HI)
		Cancer Endpoint	Source	Noncancer Endpoint	Source		
DDE	0.03	2	USEPA 2018	23	USEPA 2018	1.5E-8	1.3E-3
DDT	0.0085	1.9	USEPA 2018	37	USEPA 2018	4.5E-9	2.3E-4
Dieldrin	0.002	0.034	USEPA 2018	3.2	USEPA 2018	5.9E-8	6.3E-4
CAM 17 Metals	**Maximum Concentration (mg/kg)**	**Residential Soil Screening Levels (mg/kg)**				**Incremental Lifetime Cancer Risks (ILCR)**	**Non-cancer Hazard Indexes (HI)**
		Cancer Endpoint	**Source**	**Noncancer Endpoint**	**Source**		
Copper	29	--	--	3,100	USEPA 2018	N/A	9.4E-9
Zinc	52	--	--	23,000	USEPA 2018	N/A	2.3E-9
					Total Risks	7.8E-08*	0.0022
DTSC LeadSpread 8	**Max. Concentration (mg/kg)**	**Residential Soil Screening Levels (mg/kg)**				**Percentile Estimate of Blood Pb (ug/dl)**	
		Cancer Endpoint	**Source**	**Noncancer Endpoint**	**Source**	**90th**	**95th**
Lead	8.2	64	USEPA 2018	80	DTSC 2018	0.1	0.1

N/A = Not Applicable
*** =** ILCR does not include metals without cancer endpoint-based residential soil screening levels

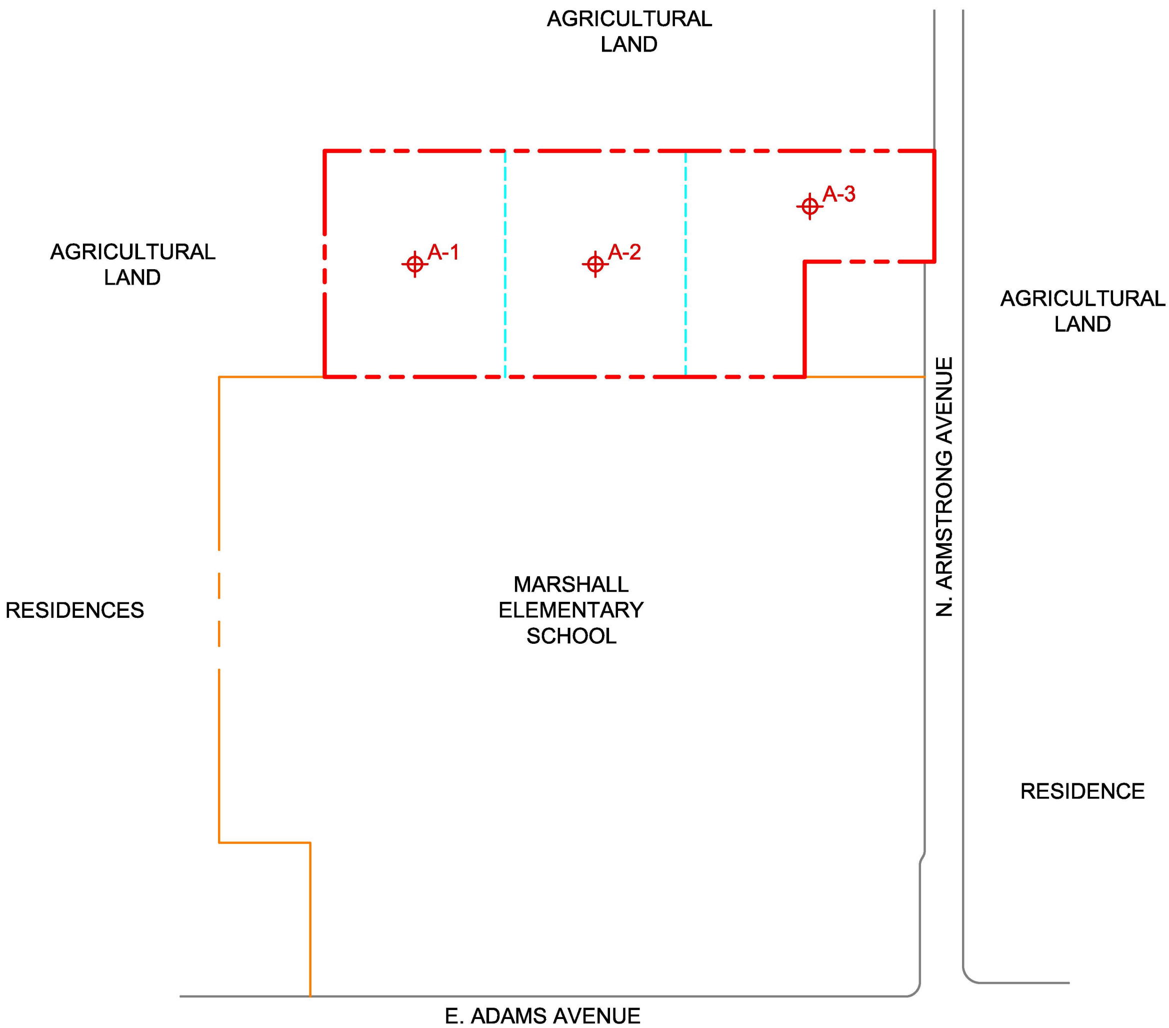
FIGURES



LAT.: 36.6367°N, LONG.: 119.6745°W, 10-T15S-R21E, MDB&M, USGS MAP: MALAGA, DATE: 1964, PHOTO REV.: 1981

NORTH

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	VICINITY MAP MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 1
	SOURCE: USGS TOPOGRAPHIC MAPS		NTS



=DISCRETE SOIL SAMPLE LOCATIONS; ONE BED SAMPLE AND ONE FURROW SAMPLE WERE COLLECTED AT EACH LOCATION

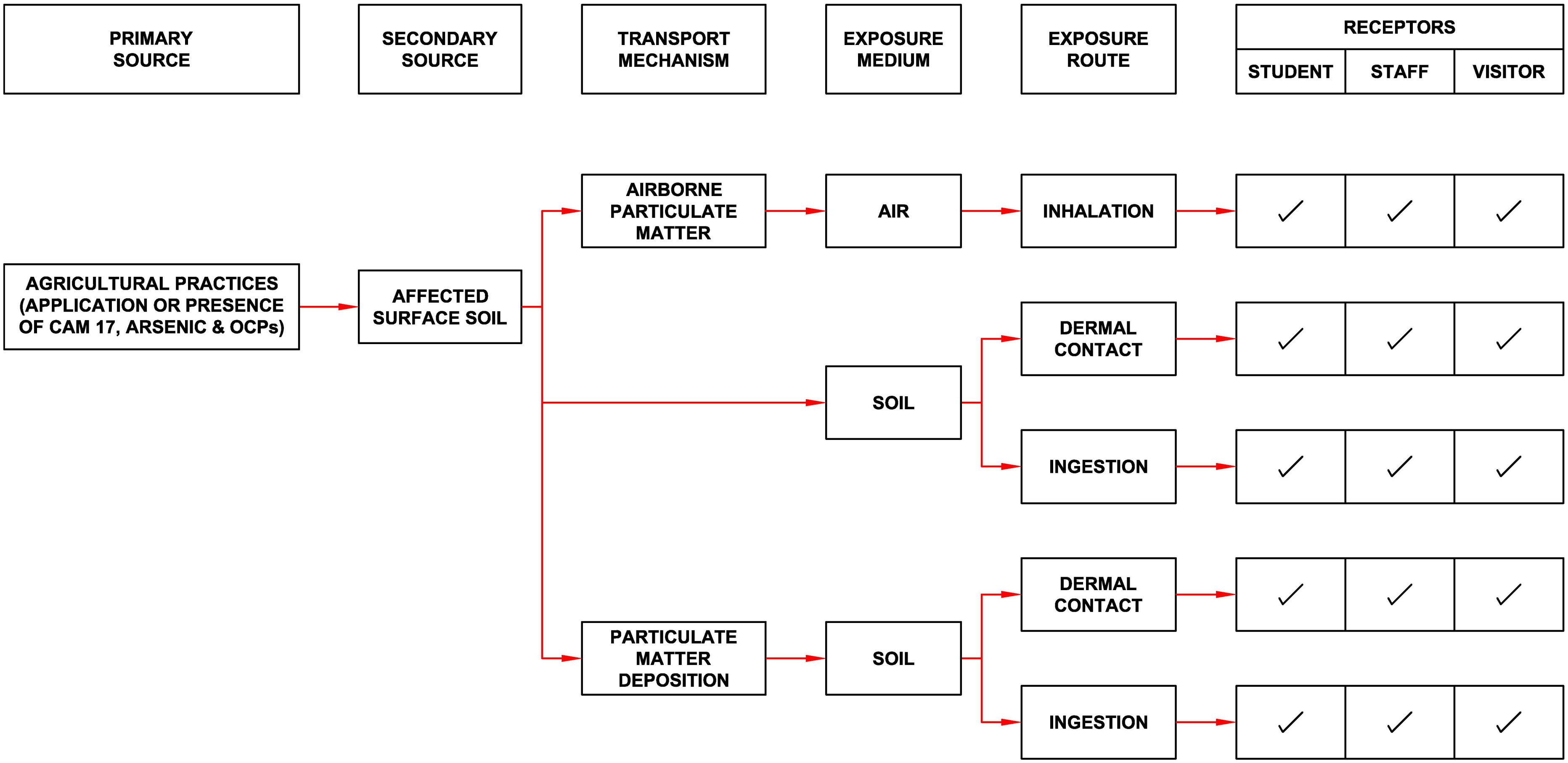
NORTH

SCALE: 1"=200'

0' 100' 200'

TECHNICON ENGINEERING SERVICES, INC.

PROJECT: 180131	SITE MAP MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 2
CAD BY: MH		



OCPs =ORGANOCHLORINE PESTICIDES

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 180131	DATE: 7/13/18	CONCEPTUAL SITE MODEL MARSHALL ELEMENTARY SCHOOL 3 ACRE SITE ADDITION 142 N. ARMSTRONG AVENUE FOWLER, CALIFORNIA	FIGURE 3
	CAD BY: MH	APPROVED BY: MB		

APPENDIX A

Laboratory Analytical Reports and Chain of Custody Documentation

CASTLE ANALYTICAL LABORATORY

Analytical Report

Laboratory WorkOrder: 1808087

Project ID: 180131

Reported Created for: Technicon Engineering
4539 N. Brawley Ave. Suite 108
Fresno, CA 93722

Project Contact: Marienel Basiga

Received Date: 08/28/2018

Report Approved and Released: 09/06/2018
09/07/2018 Amended[A]

Report Release Authorization: Clari J. Cone

James C. Phillips - Laboratory Director or
Clari J. Cone - Laboratory Manager

Glossary of Terms

ND indicates analyte values below the Practical Quanitation Limit PQL for the matrix.
* indicates a footnote is present.
LCS- Laboratory Control Sample
MS / MSD - Matrix Spike / Matix Spike Duplicate

[A] 8081 Results for sample A-1b corrected.

The results are summarized on the following pages.
Please feel free to call if you have any questions concerning these results.

Castle Analytical Laboratory - 2333 Shuttle Drive, Atwater, CA 95301
Phone: 209-384-2930 Fax: 209-384-1507
www.Castle-Lab.com E-mail: main@castle-lab.com
ELAP Certification #2480

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder:	1808D07	**Amended:**	09/06/2018

Report Created for: Castle Analytical Laboratory

2333 Shuttle Drive Bldg 908/909
Atwater, CA 95301

Project Contact: Clari Cone
Project P.O.:
Project: 1808087/180131

Project Received: 08/29/2018

Analytical Report reviewed & approved for release on 09/05/2018 by:

Heidi Fruhlinger

Heidi Fruhlinger
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

NELAP ACCREDITED TNI LABORATORY

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Glossary of Terms & Qualifier Definitions

Client: Castle Analytical Laboratory
Project: 1808087/180131
WorkOrder: 1808D07

Glossary Abbreviation

95% Interval	95% Confident Interval
c	Serial Dilution Percent Difference
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1b	**1808D07-001A**	**Soil**	**08/27/2018 07:40**	**GC40 08291813.d**	**164067**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 17:47
a-BHC	ND	0.0010	1	08/29/2018 17:47
b-BHC	ND	0.0010	1	08/29/2018 17:47
d-BHC	ND	0.0010	1	08/29/2018 17:47
g-BHC	ND	0.0010	1	08/29/2018 17:47
Chlordane (Technical)	ND	0.025	1	08/29/2018 17:47
a-Chlordane	ND	0.0010	1	08/29/2018 17:47
g-Chlordane	ND	0.0010	1	08/29/2018 17:47
p,p-DDD	ND	0.0010	1	08/29/2018 17:47
p,p-DDE	**0.010**	0.0010	1	08/29/2018 17:47
p,p-DDT	**0.0024**	0.0010	1	08/29/2018 17:47
Dieldrin	ND	0.0010	1	08/29/2018 17:47
Endosulfan I	ND	0.0010	1	08/29/2018 17:47
Endosulfan II	ND	0.0010	1	08/29/2018 17:47
Endosulfan sulfate	ND	0.0010	1	08/29/2018 17:47
Endrin	ND	0.0010	1	08/29/2018 17:47
Endrin aldehyde	ND	0.0010	1	08/29/2018 17:47
Endrin ketone	ND	0.0010	1	08/29/2018 17:47
Heptachlor	ND	0.0010	1	08/29/2018 17:47
Heptachlor epoxide	ND	0.0010	1	08/29/2018 17:47
Hexachlorobenzene	ND	0.010	1	08/29/2018 17:47
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 17:47
Methoxychlor	ND	0.0010	1	08/29/2018 17:47
Toxaphene	ND	0.050	1	08/29/2018 17:47

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	123	70-130	08/29/2018 17:47

Analyst(s): LT

(Cont.)

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1db	1808D07-002A	Soil	08/27/2018 07:40	GC40 08291814.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 18:01
a-BHC	ND	0.0010	1	08/29/2018 18:01
b-BHC	ND	0.0010	1	08/29/2018 18:01
d-BHC	ND	0.0010	1	08/29/2018 18:01
g-BHC	ND	0.0010	1	08/29/2018 18:01
Chlordane (Technical)	ND	0.025	1	08/29/2018 18:01
a-Chlordane	ND	0.0010	1	08/29/2018 18:01
g-Chlordane	ND	0.0010	1	08/29/2018 18:01
p,p-DDD	ND	0.0010	1	08/29/2018 18:01
p,p-DDE	**0.012**	0.0010	1	08/29/2018 18:01
p,p-DDT	**0.0028**	0.0010	1	08/29/2018 18:01
Dieldrin	ND	0.0010	1	08/29/2018 18:01
Endosulfan I	ND	0.0010	1	08/29/2018 18:01
Endosulfan II	ND	0.0010	1	08/29/2018 18:01
Endosulfan sulfate	ND	0.0010	1	08/29/2018 18:01
Endrin	ND	0.0010	1	08/29/2018 18:01
Endrin aldehyde	ND	0.0010	1	08/29/2018 18:01
Endrin ketone	ND	0.0010	1	08/29/2018 18:01
Heptachlor	ND	0.0010	1	08/29/2018 18:01
Heptachlor epoxide	ND	0.0010	1	08/29/2018 18:01
Hexachlorobenzene	ND	0.010	1	08/29/2018 18:01
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 18:01
Methoxychlor	ND	0.0010	1	08/29/2018 18:01
Toxaphene	ND	0.050	1	08/29/2018 18:01

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	122	70-130		08/29/2018 18:01

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1f	1808D07-003A	Soil	08/27/2018 08:04	GC40 08291815.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 18:15
a-BHC	ND	0.0010	1	08/29/2018 18:15
b-BHC	ND	0.0010	1	08/29/2018 18:15
d-BHC	ND	0.0010	1	08/29/2018 18:15
g-BHC	ND	0.0010	1	08/29/2018 18:15
Chlordane (Technical)	ND	0.025	1	08/29/2018 18:15
a-Chlordane	ND	0.0010	1	08/29/2018 18:15
g-Chlordane	ND	0.0010	1	08/29/2018 18:15
p,p-DDD	ND	0.0010	1	08/29/2018 18:15
p,p-DDE	**0.011**	0.0010	1	08/29/2018 18:15
p,p-DDT	**0.0026**	0.0010	1	08/29/2018 18:15
Dieldrin	ND	0.0010	1	08/29/2018 18:15
Endosulfan I	ND	0.0010	1	08/29/2018 18:15
Endosulfan II	ND	0.0010	1	08/29/2018 18:15
Endosulfan sulfate	ND	0.0010	1	08/29/2018 18:15
Endrin	ND	0.0010	1	08/29/2018 18:15
Endrin aldehyde	ND	0.0010	1	08/29/2018 18:15
Endrin ketone	ND	0.0010	1	08/29/2018 18:15
Heptachlor	ND	0.0010	1	08/29/2018 18:15
Heptachlor epoxide	ND	0.0010	1	08/29/2018 18:15
Hexachlorobenzene	ND	0.010	1	08/29/2018 18:15
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 18:15
Methoxychlor	ND	0.0010	1	08/29/2018 18:15
Toxaphene	ND	0.050	1	08/29/2018 18:15

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	116	70-130		08/29/2018 18:15

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1df	1808D07-004A	Soil	08/27/2018 08:04	GC40 08291816.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 18:29
a-BHC	ND	0.0010	1	08/29/2018 18:29
b-BHC	ND	0.0010	1	08/29/2018 18:29
d-BHC	ND	0.0010	1	08/29/2018 18:29
g-BHC	ND	0.0010	1	08/29/2018 18:29
Chlordane (Technical)	ND	0.025	1	08/29/2018 18:29
a-Chlordane	ND	0.0010	1	08/29/2018 18:29
g-Chlordane	ND	0.0010	1	08/29/2018 18:29
p,p-DDD	ND	0.0010	1	08/29/2018 18:29
p,p-DDE	**0.012**	0.0010	1	08/29/2018 18:29
p,p-DDT	**0.0027**	0.0010	1	08/29/2018 18:29
Dieldrin	ND	0.0010	1	08/29/2018 18:29
Endosulfan I	ND	0.0010	1	08/29/2018 18:29
Endosulfan II	ND	0.0010	1	08/29/2018 18:29
Endosulfan sulfate	ND	0.0010	1	08/29/2018 18:29
Endrin	ND	0.0010	1	08/29/2018 18:29
Endrin aldehyde	ND	0.0010	1	08/29/2018 18:29
Endrin ketone	ND	0.0010	1	08/29/2018 18:29
Heptachlor	ND	0.0010	1	08/29/2018 18:29
Heptachlor epoxide	ND	0.0010	1	08/29/2018 18:29
Hexachlorobenzene	ND	0.010	1	08/29/2018 18:29
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 18:29
Methoxychlor	ND	0.0010	1	08/29/2018 18:29
Toxaphene	ND	0.050	1	08/29/2018 18:29

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	119	70-130		08/29/2018 18:29

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-2b	1808D07-005A	Soil	08/27/2018 08:24	GC40 08291817.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 18:43
a-BHC	ND	0.0010	1	08/29/2018 18:43
b-BHC	ND	0.0010	1	08/29/2018 18:43
d-BHC	ND	0.0010	1	08/29/2018 18:43
g-BHC	ND	0.0010	1	08/29/2018 18:43
Chlordane (Technical)	ND	0.025	1	08/29/2018 18:43
a-Chlordane	ND	0.0010	1	08/29/2018 18:43
g-Chlordane	ND	0.0010	1	08/29/2018 18:43
p,p-DDD	ND	0.0010	1	08/29/2018 18:43
p,p-DDE	**0.030**	0.0010	1	08/29/2018 18:43
p,p-DDT	**0.0059**	0.0010	1	08/29/2018 18:43
Dieldrin	ND	0.0010	1	08/29/2018 18:43
Endosulfan I	ND	0.0010	1	08/29/2018 18:43
Endosulfan II	ND	0.0010	1	08/29/2018 18:43
Endosulfan sulfate	ND	0.0010	1	08/29/2018 18:43
Endrin	ND	0.0010	1	08/29/2018 18:43
Endrin aldehyde	ND	0.0010	1	08/29/2018 18:43
Endrin ketone	ND	0.0010	1	08/29/2018 18:43
Heptachlor	ND	0.0010	1	08/29/2018 18:43
Heptachlor epoxide	ND	0.0010	1	08/29/2018 18:43
Hexachlorobenzene	ND	0.010	1	08/29/2018 18:43
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 18:43
Methoxychlor	ND	0.0010	1	08/29/2018 18:43
Toxaphene	ND	0.050	1	08/29/2018 18:43

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	118	70-130		08/29/2018 18:43

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-2f	**1808D07-006A**	**Soil**	**08/27/2018 08:40**	**GC40 08291818.d**	**164067**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 18:57
a-BHC	ND	0.0010	1	08/29/2018 18:57
b-BHC	ND	0.0010	1	08/29/2018 18:57
d-BHC	ND	0.0010	1	08/29/2018 18:57
g-BHC	ND	0.0010	1	08/29/2018 18:57
Chlordane (Technical)	ND	0.025	1	08/29/2018 18:57
a-Chlordane	ND	0.0010	1	08/29/2018 18:57
g-Chlordane	ND	0.0010	1	08/29/2018 18:57
p,p-DDD	ND	0.0010	1	08/29/2018 18:57
p,p-DDE	**0.029**	0.0010	1	08/29/2018 18:57
p,p-DDT	**0.0085**	0.0010	1	08/29/2018 18:57
Dieldrin	ND	0.0010	1	08/29/2018 18:57
Endosulfan I	ND	0.0010	1	08/29/2018 18:57
Endosulfan II	ND	0.0010	1	08/29/2018 18:57
Endosulfan sulfate	ND	0.0010	1	08/29/2018 18:57
Endrin	ND	0.0010	1	08/29/2018 18:57
Endrin aldehyde	ND	0.0010	1	08/29/2018 18:57
Endrin ketone	ND	0.0010	1	08/29/2018 18:57
Heptachlor	ND	0.0010	1	08/29/2018 18:57
Heptachlor epoxide	ND	0.0010	1	08/29/2018 18:57
Hexachlorobenzene	ND	0.010	1	08/29/2018 18:57
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 18:57
Methoxychlor	ND	0.0010	1	08/29/2018 18:57
Toxaphene	ND	0.050	1	08/29/2018 18:57

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	116	70-130		08/29/2018 18:57

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-3b	1808D07-008A	Soil	08/27/2018 09:14	GC40 08291819.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 19:11
a-BHC	ND	0.0010	1	08/29/2018 19:11
b-BHC	ND	0.0010	1	08/29/2018 19:11
d-BHC	ND	0.0010	1	08/29/2018 19:11
g-BHC	ND	0.0010	1	08/29/2018 19:11
Chlordane (Technical)	ND	0.025	1	08/29/2018 19:11
a-Chlordane	ND	0.0010	1	08/29/2018 19:11
g-Chlordane	ND	0.0010	1	08/29/2018 19:11
p,p-DDD	ND	0.0010	1	08/29/2018 19:11
p,p-DDE	**0.018**	0.0010	1	08/29/2018 19:11
p,p-DDT	**0.0037**	0.0010	1	08/29/2018 19:11
Dieldrin	**0.0020**	0.0010	1	08/29/2018 19:11
Endosulfan I	ND	0.0010	1	08/29/2018 19:11
Endosulfan II	ND	0.0010	1	08/29/2018 19:11
Endosulfan sulfate	ND	0.0010	1	08/29/2018 19:11
Endrin	ND	0.0010	1	08/29/2018 19:11
Endrin aldehyde	ND	0.0010	1	08/29/2018 19:11
Endrin ketone	ND	0.0010	1	08/29/2018 19:11
Heptachlor	ND	0.0010	1	08/29/2018 19:11
Heptachlor epoxide	ND	0.0010	1	08/29/2018 19:11
Hexachlorobenzene	ND	0.010	1	08/29/2018 19:11
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 19:11
Methoxychlor	ND	0.0010	1	08/29/2018 19:11
Toxaphene	ND	0.050	1	08/29/2018 19:11

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	121	70-130		08/29/2018 19:11

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3550B
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-3f	1808D07-009A	Soil	08/27/2018 09:25	GC40 08291820.d	164067

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	08/29/2018 19:25
a-BHC	ND	0.0010	1	08/29/2018 19:25
b-BHC	ND	0.0010	1	08/29/2018 19:25
d-BHC	ND	0.0010	1	08/29/2018 19:25
g-BHC	ND	0.0010	1	08/29/2018 19:25
Chlordane (Technical)	ND	0.025	1	08/29/2018 19:25
a-Chlordane	ND	0.0010	1	08/29/2018 19:25
g-Chlordane	ND	0.0010	1	08/29/2018 19:25
p,p-DDD	ND	0.0010	1	08/29/2018 19:25
p,p-DDE	**0.015**	0.0010	1	08/29/2018 19:25
p,p-DDT	**0.0034**	0.0010	1	08/29/2018 19:25
Dieldrin	**0.0010**	0.0010	1	08/29/2018 19:25
Endosulfan I	ND	0.0010	1	08/29/2018 19:25
Endosulfan II	ND	0.0010	1	08/29/2018 19:25
Endosulfan sulfate	ND	0.0010	1	08/29/2018 19:25
Endrin	ND	0.0010	1	08/29/2018 19:25
Endrin aldehyde	ND	0.0010	1	08/29/2018 19:25
Endrin ketone	ND	0.0010	1	08/29/2018 19:25
Heptachlor	ND	0.0010	1	08/29/2018 19:25
Heptachlor epoxide	ND	0.0010	1	08/29/2018 19:25
Hexachlorobenzene	ND	0.010	1	08/29/2018 19:25
Hexachlorocyclopentadiene	ND	0.020	1	08/29/2018 19:25
Methoxychlor	ND	0.0010	1	08/29/2018 19:25
Toxaphene	ND	0.050	1	08/29/2018 19:25

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	127	70-130		08/29/2018 19:25

Analyst(s): LT

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3510C
Date Prepared:	8/29/18	**Analytical Method:**	SW8081A
Project:	1808087/180131	**Unit:**	µg/L

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1	**1808D07-007A**	**Water**	**08/27/2018 08:53**	**GC20 08291827.D**	**164098**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0050	1	08/29/2018 19:14
a-BHC	ND	0.010	1	08/29/2018 19:14
b-BHC	ND	0.0050	1	08/29/2018 19:14
d-BHC	ND	0.0050	1	08/29/2018 19:14
g-BHC	ND	0.020	1	08/29/2018 19:14
Chlordane (Technical)	ND	0.10	1	08/29/2018 19:14
a-Chlordane	ND	0.050	1	08/29/2018 19:14
g-Chlordane	ND	0.050	1	08/29/2018 19:14
p,p-DDD	ND	0.010	1	08/29/2018 19:14
p,p-DDE	ND	0.010	1	08/29/2018 19:14
p,p-DDT	ND	0.010	1	08/29/2018 19:14
Dieldrin	ND	0.010	1	08/29/2018 19:14
Endosulfan I	ND	0.020	1	08/29/2018 19:14
Endosulfan II	ND	0.020	1	08/29/2018 19:14
Endosulfan sulfate	ND	0.050	1	08/29/2018 19:14
Endrin	ND	0.010	1	08/29/2018 19:14
Endrin aldehyde	ND	0.050	1	08/29/2018 19:14
Endrin ketone	ND	0.050	1	08/29/2018 19:14
Heptachlor	ND	0.010	1	08/29/2018 19:14
Heptachlor epoxide	ND	0.010	1	08/29/2018 19:14
Hexachlorobenzene	ND	0.50	1	08/29/2018 19:14
Hexachlorocyclopentadiene	ND	1.0	1	08/29/2018 19:14
Methoxychlor	ND	0.10	1	08/29/2018 19:14
Toxaphene	ND	0.50	1	08/29/2018 19:14

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	121	70-130	08/29/2018 19:14

Analyst(s): CK

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1b	**1808D07-001A**	**Soil**	**08/27/2018 07:40**	**ICP-MS1 133SMPL.D**	**164065**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:19
Arsenic	**2.1**	0.50	1	08/30/2018 00:19
Barium	**38**	5.0	1	08/30/2018 00:19
Beryllium	ND	0.50	1	08/30/2018 00:19
Cadmium	ND	0.25	1	08/30/2018 00:19
Chromium	**7.4**	0.50	1	08/30/2018 00:19
Cobalt	**3.3**	0.50	1	08/30/2018 00:19
Copper	**19**	0.50	1	08/30/2018 00:19
Lead	**4.8**	0.50	1	08/30/2018 00:19
Mercury	ND	0.050	1	08/30/2018 00:19
Molybdenum	ND	0.50	1	08/30/2018 00:19
Nickel	**5.3**	0.50	1	08/30/2018 00:19
Selenium	ND	0.50	1	08/30/2018 00:19
Silver	ND	0.50	1	08/30/2018 00:19
Thallium	ND	0.50	1	08/30/2018 00:19
Vanadium	**28**	0.50	1	08/30/2018 00:19
Zinc	**38**	5.0	1	08/30/2018 00:19

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	92	70-130	08/30/2018 00:19

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1db	**1808D07-002A**	**Soil**	**08/27/2018 07:40**	**ICP-MS1 134SMPL.D**	**164065**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:25
Arsenic	**2.2**	0.50	1	08/30/2018 00:25
Barium	**37**	5.0	1	08/30/2018 00:25
Beryllium	ND	0.50	1	08/30/2018 00:25
Cadmium	ND	0.25	1	08/30/2018 00:25
Chromium	**7.7**	0.50	1	08/30/2018 00:25
Cobalt	**3.3**	0.50	1	08/30/2018 00:25
Copper	**21**	0.50	1	08/30/2018 00:25
Lead	**4.9**	0.50	1	08/30/2018 00:25
Mercury	ND	0.050	1	08/30/2018 00:25
Molybdenum	ND	0.50	1	08/30/2018 00:25
Nickel	**5.8**	0.50	1	08/30/2018 00:25
Selenium	ND	0.50	1	08/30/2018 00:25
Silver	ND	0.50	1	08/30/2018 00:25
Thallium	ND	0.50	1	08/30/2018 00:25
Vanadium	**30**	0.50	1	08/30/2018 00:25
Zinc	**41**	5.0	1	08/30/2018 00:25

Surrogates	REC (%)	Limits		
Terbium	95	70-130		08/30/2018 00:25

Analyst(s): ND

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1f	**1808D07-003A**	**Soil**	**08/27/2018 08:04**	**ICP-MS1 135SMPL.D**	**164065**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:32
Arsenic	**2.2**	0.50	1	08/30/2018 00:32
Barium	**39**	5.0	1	08/30/2018 00:32
Beryllium	ND	0.50	1	08/30/2018 00:32
Cadmium	ND	0.25	1	08/30/2018 00:32
Chromium	**7.6**	0.50	1	08/30/2018 00:32
Cobalt	**3.2**	0.50	1	08/30/2018 00:32
Copper	**25**	0.50	1	08/30/2018 00:32
Lead	**5.2**	0.50	1	08/30/2018 00:32
Mercury	ND	0.050	1	08/30/2018 00:32
Molybdenum	ND	0.50	1	08/30/2018 00:32
Nickel	**5.7**	0.50	1	08/30/2018 00:32
Selenium	ND	0.50	1	08/30/2018 00:32
Silver	ND	0.50	1	08/30/2018 00:32
Thallium	ND	0.50	1	08/30/2018 00:32
Vanadium	**27**	0.50	1	08/30/2018 00:32
Zinc	**43**	5.0	1	08/30/2018 00:32

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	89	70-130	08/30/2018 00:32

Analyst(s): ND

(Cont.)

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Analytical Report

Client: Castle Analytical Laboratory
Date Received: 8/29/18 10:38
Date Prepared: 8/29/18
Project: 1808087/180131

WorkOrder: 1808D07
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-1df	1808D07-004A	Soil	08/27/2018 08:04	ICP-MS1 136SMPL.D	164065

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:38
Arsenic	**2.3**	0.50	1	08/30/2018 00:38
Barium	**41**	5.0	1	08/30/2018 00:38
Beryllium	ND	0.50	1	08/30/2018 00:38
Cadmium	ND	0.25	1	08/30/2018 00:38
Chromium	**8.0**	0.50	1	08/30/2018 00:38
Cobalt	**3.5**	0.50	1	08/30/2018 00:38
Copper	**27**	0.50	1	08/30/2018 00:38
Lead	**5.3**	0.50	1	08/30/2018 00:38
Mercury	ND	0.050	1	08/30/2018 00:38
Molybdenum	ND	0.50	1	08/30/2018 00:38
Nickel	**6.1**	0.50	1	08/30/2018 00:38
Selenium	ND	0.50	1	08/30/2018 00:38
Silver	ND	0.50	1	08/30/2018 00:38
Thallium	ND	0.50	1	08/30/2018 00:38
Vanadium	**29**	0.50	1	08/30/2018 00:38
Zinc	**48**	5.0	1	08/30/2018 00:38

Surrogates	REC (%)	Limits	
Terbium	99	70-130	08/30/2018 00:38

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-2b	**1808D07-005A**	**Soil**	**08/27/2018 08:24**	**ICP-MS1 137SMPL.D**	**164065**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:44
Arsenic	**2.9**	0.50	1	08/30/2018 00:44
Barium	**46**	5.0	1	08/30/2018 00:44
Beryllium	ND	0.50	1	08/30/2018 00:44
Cadmium	ND	0.25	1	08/30/2018 00:44
Chromium	**9.3**	0.50	1	08/30/2018 00:44
Cobalt	**3.6**	0.50	1	08/30/2018 00:44
Copper	**25**	0.50	1	08/30/2018 00:44
Lead	**7.4**	0.50	1	08/30/2018 00:44
Mercury	ND	0.050	1	08/30/2018 00:44
Molybdenum	ND	0.50	1	08/30/2018 00:44
Nickel	**6.6**	0.50	1	08/30/2018 00:44
Selenium	ND	0.50	1	08/30/2018 00:44
Silver	ND	0.50	1	08/30/2018 00:44
Thallium	ND	0.50	1	08/30/2018 00:44
Vanadium	**31**	0.50	1	08/30/2018 00:44
Zinc	**46**	5.0	1	08/30/2018 00:44

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	98	70-130	08/30/2018 00:44

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-2f	**1808D07-006A**	**Soil**	**08/27/2018 08:40**	**ICP-MS1 138SMPL.D**	**164065**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:50
Arsenic	**2.9**	0.50	1	08/30/2018 00:50
Barium	**46**	5.0	1	08/30/2018 00:50
Beryllium	ND	0.50	1	08/30/2018 00:50
Cadmium	ND	0.25	1	08/30/2018 00:50
Chromium	**9.8**	0.50	1	08/30/2018 00:50
Cobalt	**3.7**	0.50	1	08/30/2018 00:50
Copper	**27**	0.50	1	08/30/2018 00:50
Lead	**7.7**	0.50	1	08/30/2018 00:50
Mercury	ND	0.050	1	08/30/2018 00:50
Molybdenum	ND	0.50	1	08/30/2018 00:50
Nickel	**7.3**	0.50	1	08/30/2018 00:50
Selenium	ND	0.50	1	08/30/2018 00:50
Silver	ND	0.50	1	08/30/2018 00:50
Thallium	ND	0.50	1	08/30/2018 00:50
Vanadium	**32**	0.50	1	08/30/2018 00:50
Zinc	**49**	5.0	1	08/30/2018 00:50

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	08/30/2018 00:50

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-3b	**1808D07-008A**	**Soil**	**08/27/2018 09:14**	**ICP-MS1 110SMPL.D**	**164097**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/29/2018 21:56
Arsenic	**2.5**	0.50	1	08/29/2018 21:56
Barium	**47**	5.0	1	08/29/2018 21:56
Beryllium	ND	0.50	1	08/29/2018 21:56
Cadmium	ND	0.25	1	08/29/2018 21:56
Chromium	**9.9**	0.50	1	08/29/2018 21:56
Cobalt	**3.6**	0.50	1	08/29/2018 21:56
Copper	**29**	0.50	1	08/29/2018 21:56
Lead	**8.2**	0.50	1	08/29/2018 21:56
Mercury	ND	0.050	1	08/29/2018 21:56
Molybdenum	ND	0.50	1	08/29/2018 21:56
Nickel	**6.8**	0.50	1	08/29/2018 21:56
Selenium	ND	0.50	1	08/29/2018 21:56
Silver	ND	0.50	1	08/29/2018 21:56
Thallium	ND	0.50	1	08/29/2018 21:56
Vanadium	**31**	0.50	1	08/29/2018 21:56
Zinc	**52**	5.0	1	08/29/2018 21:56

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	98	70-130	08/29/2018 21:56

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	SW3050B
Date Prepared:	8/29/18	**Analytical Method:**	SW6020
Project:	1808087/180131	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
A-3f	**1808D07-009A**	**Soil**	**08/27/2018 09:25**	**ICP-MS1 139SMPL.D**	**164097**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	08/30/2018 00:56
Arsenic	**2.8**	0.50	1	08/30/2018 00:56
Barium	**47**	5.0	1	08/30/2018 00:56
Beryllium	ND	0.50	1	08/30/2018 00:56
Cadmium	ND	0.25	1	08/30/2018 00:56
Chromium	**10**	0.50	1	08/30/2018 00:56
Cobalt	**3.8**	0.50	1	08/30/2018 00:56
Copper	**27**	0.50	1	08/30/2018 00:56
Lead	**8.2**	0.50	1	08/30/2018 00:56
Mercury	ND	0.050	1	08/30/2018 00:56
Molybdenum	ND	0.50	1	08/30/2018 00:56
Nickel	**7.1**	0.50	1	08/30/2018 00:56
Selenium	ND	0.50	1	08/30/2018 00:56
Silver	ND	0.50	1	08/30/2018 00:56
Thallium	ND	0.50	1	08/30/2018 00:56
Vanadium	**31**	0.50	1	08/30/2018 00:56
Zinc	**51**	5.0	1	08/30/2018 00:56

Surrogates	REC (%)	Limits		
Terbium	98	70-130		08/30/2018 00:56

Analyst(s): ND

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Analytical Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Received:	8/29/18 10:38	**Extraction Method:**	E200.8
Date Prepared:	8/31/18	**Analytical Method:**	E200.8
Project:	1808087/180131	**Unit:**	µg/L

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-1	1808D07-007B	Water	08/27/2018 08:53	ICP-MS1 028SMPL.D	164268

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	09/04/2018 12:09
Arsenic	ND	0.50	1	09/04/2018 12:09
Barium	ND	5.0	1	09/04/2018 12:09
Beryllium	ND	0.50	1	09/04/2018 12:09
Cadmium	ND	0.25	1	09/04/2018 12:09
Chromium	ND	0.50	1	09/04/2018 12:09
Cobalt	ND	0.50	1	09/04/2018 12:09
Copper	ND	2.0	1	09/04/2018 12:09
Lead	ND	0.50	1	09/04/2018 12:09
Mercury	ND	0.050	1	09/04/2018 12:09
Molybdenum	ND	0.50	1	09/04/2018 12:09
Nickel	ND	0.50	1	09/04/2018 12:09
Selenium	ND	0.50	1	09/04/2018 12:09
Silver	ND	0.19	1	09/04/2018 12:09
Thallium	ND	0.50	1	09/04/2018 12:09
Vanadium	ND	0.50	1	09/04/2018 12:09
Zinc	ND	15	1	09/04/2018 12:09

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	103	70-130	09/04/2018 12:09

Analyst(s): JC

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/28/18	**BatchID:**	164067
Date Analyzed:	8/29/18	**Extraction Method:**	SW3550B
Instrument:	GC40	**Analytical Method:**	SW8081A
Matrix:	Soil	**Unit:**	mg/kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164067

QC Summary Report for SW8081A

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0010	-	-	-
a-BHC	ND	0.0010	-	-	-
b-BHC	ND	0.0010	-	-	-
d-BHC	ND	0.0010	-	-	-
g-BHC	ND	0.0010	-	-	-
Chlordane (Technical)	ND	0.025	-	-	-
a-Chlordane	ND	0.0010	-	-	-
g-Chlordane	ND	0.0010	-	-	-
p,p-DDD	ND	0.0010	-	-	-
p,p-DDE	ND	0.0010	-	-	-
p,p-DDT	ND	0.0010	-	-	-
Dieldrin	ND	0.0010	-	-	-
Endosulfan I	ND	0.0010	-	-	-
Endosulfan II	ND	0.0010	-	-	-
Endosulfan sulfate	ND	0.0010	-	-	-
Endrin	ND	0.0010	-	-	-
Endrin aldehyde	ND	0.0010	-	-	-
Endrin ketone	ND	0.0010	-	-	-
Heptachlor	ND	0.0010	-	-	-
Heptachlor epoxide	ND	0.0010	-	-	-
Hexachlorobenzene	ND	0.010	-	-	-
Hexachlorocyclopentadiene	ND	0.020	-	-	-
Methoxychlor	ND	0.0010	-	-	-
Toxaphene	ND	0.050	-	-	-
Surrogate Recovery					
Decachlorobiphenyl	0.0626		0.050	125	70-130

(Cont.)

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/28/18	**BatchID:**	164067
Date Analyzed:	8/29/18	**Extraction Method:**	SW3550B
Instrument:	GC40	**Analytical Method:**	SW8081A
Matrix:	Soil	**Unit:**	mg/kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164067

QC Summary Report for SW8081A

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	0.0602	0.0609	0.050	120	122	70-130	1.18	20
a-BHC	0.0597	0.0604	0.050	119	121	70-130	1.12	20
b-BHC	0.0570	0.0586	0.050	114	117	70-130	2.63	20
d-BHC	0.0609	0.0619	0.050	122	124	70-130	1.61	20
g-BHC	0.0585	0.0593	0.050	117	119	70-130	1.45	20
a-Chlordane	0.0554	0.0562	0.050	111	112	70-130	1.49	20
g-Chlordane	0.0581	0.0589	0.050	116	118	70-130	1.37	20
p,p-DDD	0.0511	0.0512	0.050	102	102	70-130	0	20
p,p-DDE	0.0582	0.0592	0.050	116	118	70-130	1.83	20
p,p-DDT	0.0525	0.0551	0.050	105	110	70-130	4.93	20
Dieldrin	0.0624	0.0634	0.050	125	127	70-130	1.57	20
Endosulfan I	0.0562	0.0573	0.050	112	115	70-130	1.92	20
Endosulfan II	0.0526	0.0535	0.050	105	107	70-130	1.73	20
Endosulfan sulfate	0.0518	0.0532	0.050	104	106	70-130	2.51	20
Endrin	0.0580	0.0591	0.050	116	118	70-130	1.97	20
Endrin aldehyde	0.0553	0.0560	0.050	111	112	70-130	1.23	20
Endrin ketone	0.0493	0.0496	0.050	99	99	70-130	0	20
Heptachlor	0.0599	0.0616	0.050	120	123	70-130	2.86	20
Heptachlor epoxide	0.0540	0.0548	0.050	108	110	70-130	1.60	20
Hexachlorobenzene	0.0540	0.0549	0.050	108	110	50-150	1.68	20
Hexachlorocyclopentadiene	0.0463	0.0506	0.050	93	101	50-150	8.69	20
Methoxychlor	0.0562	0.0595	0.050	112	119	70-130	5.69	20
Surrogate Recovery								
Decachlorobiphenyl	0.0540	0.0540	0.050	108	108	70-130	0	20

Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/29/18	**BatchID:**	164098
Date Analyzed:	8/29/18	**Extraction Method:**	SW3510C
Instrument:	GC20	**Analytical Method:**	SW8081A
Matrix:	Water	**Unit:**	µg/L
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164098

QC Summary Report for SW8081A

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0050	-	-	-
a-BHC	ND	0.010	-	-	-
b-BHC	ND	0.0050	-	-	-
d-BHC	ND	0.0050	-	-	-
g-BHC	ND	0.020	-	-	-
Chlordane (Technical)	ND	0.10	-	-	-
a-Chlordane	ND	0.050	-	-	-
g-Chlordane	ND	0.050	-	-	-
p,p-DDE	ND	0.010	-	-	-
p,p-DDT	ND	0.010	-	-	-
Dieldrin	ND	0.010	-	-	-
Endosulfan I	ND	0.020	-	-	-
Endosulfan II	ND	0.010	-	-	-
Endosulfan sulfate	ND	0.050	-	-	-
Endrin	ND	0.010	-	-	-
Endrin aldehyde	ND	0.050	-	-	-
Endrin ketone	ND	0.050	-	-	-
Heptachlor	ND	0.010	-	-	-
Heptachlor epoxide	ND	0.010	-	-	-
Hexachlorobenzene	ND	0.50	-	-	-
Hexachlorocyclopentadiene	ND	1.0	-	-	-
Methoxychlor	ND	0.10	-	-	-
Toxaphene	ND	0.50	-	-	-
Surrogate Recovery					
Decachlorobiphenyl	1.44		1.25	115	70-130

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/29/18	**BatchID:**	164098
Date Analyzed:	8/29/18	**Extraction Method:**	SW3510C
Instrument:	GC20	**Analytical Method:**	SW8081A
Matrix:	Water	**Unit:**	µg/L
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164098

QC Summary Report for SW8081A

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	1.42	1.40	1.25	113	112	70-130	1.31	20
a-BHC	1.51	1.52	1.25	121	122	70-130	0.596	20
b-BHC	1.26	1.18	1.25	101	94	70-130	6.93	20
d-BHC	1.50	1.39	1.25	120	111	70-130	7.76	20
g-BHC	1.57	1.49	1.25	126	120	70-130	4.95	20
a-Chlordane	1.41	1.34	1.25	113	107	70-130	5.01	20
g-Chlordane	1.36	1.30	1.25	109	104	70-130	4.65	20
p,p-DDD	1.33	1.30	1.25	106	104	70-130	2.70	20
p,p-DDE	1.45	1.40	1.25	116	112	70-130	3.57	20
p,p-DDT	1.36	1.33	1.25	109	106	70-130	2.53	20
Dieldrin	1.49	1.49	1.25	119	119	70-130	0	20
Endosulfan I	1.28	1.32	1.25	102	105	70-130	3.02	20
Endosulfan II	1.27	1.26	1.25	102	101	70-130	0.527	20
Endosulfan sulfate	1.35	1.29	1.25	108	104	70-130	4.15	20
Endrin	1.39	1.41	1.25	111	113	70-130	1.71	20
Endrin aldehyde	0.844	0.914	1.25	68, F2	73	70-130	7.96	20
Endrin ketone	1.22	1.25	1.25	98	100	70-130	2.73	20
Heptachlor	1.37	1.39	1.25	109	111	70-130	1.93	20
Heptachlor epoxide	1.21	1.24	1.25	97	99	70-130	2.22	20
Hexachlorobenzene	1.43	1.36	1.25	114	109	70-130	5.10	20
Hexachlorocyclopentadiene	1.52	1.60	1.25	122	128	50-150	5.23	20
Methoxychlor	1.51	1.44	1.25	121	115	70-130	4.72	20
Surrogate Recovery								
Decachlorobiphenyl	1.26	1.21	1.25	101	97	70-130	4.38	20

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/28/18	**BatchID:**	164065
Date Analyzed:	8/29/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164065

QC Summary Report for Metals

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.50	-	-	-
Arsenic	ND	0.50	-	-	-
Barium	ND	5.0	-	-	-
Beryllium	ND	0.50	-	-	-
Cadmium	ND	0.25	-	-	-
Chromium	ND	0.50	-	-	-
Cobalt	ND	0.50	-	-	-
Copper	ND	0.50	-	-	-
Lead	ND	0.50	-	-	-
Mercury	ND	0.050	-	-	-
Molybdenum	ND	0.50	-	-	-
Nickel	ND	0.50	-	-	-
Selenium	ND	0.50	-	-	-
Silver	ND	0.50	-	-	-
Thallium	ND	0.50	-	-	-
Vanadium	ND	0.50	-	-	-
Zinc	ND	5.0	-	-	-
Surrogate Recovery					
Terbium	516		500	103	70-130

(Cont.)

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/28/18	**BatchID:**	164065
Date Analyzed:	8/29/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164065

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	52.5	53.5	50	105	107	75-125	1.79	20
Arsenic	51.6	51.2	50	103	102	75-125	0.603	20
Barium	499	510	500	100	102	75-125	2.08	20
Beryllium	51.9	52.2	50	104	104	75-125	0	20
Cadmium	50.2	50.0	50	100	100	75-125	0	20
Chromium	51.2	51.4	50	102	103	75-125	0.429	20
Cobalt	49.9	50.2	50	100	100	75-125	0	20
Copper	50.1	50.8	50	100	102	75-125	1.31	20
Lead	49.7	51.2	50	99	102	75-125	3.05	20
Mercury	1.22	1.24	1.25	97	99	75-125	1.71	20
Molybdenum	49.7	50.6	50	99	101	75-125	1.89	20
Nickel	50.5	51.1	50	101	102	75-125	1.12	20
Selenium	50.2	51.5	50	100	103	75-125	2.54	20
Silver	49.5	49.9	50	99	100	75-125	0.946	20
Thallium	46.6	48.0	50	93	96	75-125	3.07	20
Vanadium	51.0	51.0	50	102	102	75-125	0	20
Zinc	502	508	500	100	102	75-125	1.35	20
Surrogate Recovery								
Terbium	498	506	500	100	101	70-130	1.43	20

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/29/18	**BatchID:**	164097
Date Analyzed:	8/29/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164097 1808D07-008AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.50	-	-	-
Arsenic	ND	0.50	-	-	-
Barium	ND	5.0	-	-	-
Beryllium	ND	0.50	-	-	-
Cadmium	ND	0.25	-	-	-
Chromium	ND	0.50	-	-	-
Cobalt	ND	0.50	-	-	-
Copper	ND	0.50	-	-	-
Lead	ND	0.50	-	-	-
Mercury	ND	0.050	-	-	-
Molybdenum	ND	0.50	-	-	-
Nickel	ND	0.50	-	-	-
Selenium	ND	0.50	-	-	-
Silver	ND	0.50	-	-	-
Thallium	ND	0.50	-	-	-
Vanadium	ND	0.50	-	-	-
Zinc	ND	5.0	-	-	-
Surrogate Recovery					
Terbium	470		500	94	70-130

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/29/18	**BatchID:**	164097
Date Analyzed:	8/29/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164097 1808D07-008AMS/MSD

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	49.5	50.0	50	99	100	75-125	0.925	20
Arsenic	47.9	47.4	50	96	95	75-125	1.09	20
Barium	472	482	500	94	96	75-125	1.95	20
Beryllium	47.1	46.7	50	94	93	75-125	0.960	20
Cadmium	46.9	47.0	50	94	94	75-125	0	20
Chromium	48.2	47.8	50	96	96	75-125	0	20
Cobalt	47.0	46.8	50	94	94	75-125	0	20
Copper	48.1	47.8	50	96	96	75-125	0	20
Lead	47.3	47.2	50	95	94	75-125	0.127	20
Mercury	1.16	1.15	1.25	92	92	75-125	0	20
Molybdenum	46.9	47.2	50	94	94	75-125	0	20
Nickel	48.5	47.9	50	97	96	75-125	1.25	20
Selenium	47.5	47.9	50	95	96	75-125	0.755	20
Silver	46.6	46.9	50	93	94	75-125	0.599	20
Thallium	44.2	44.5	50	88	89	75-125	0.721	20
Vanadium	48.3	47.5	50	97	95	75-125	1.65	20
Zinc	469	472	500	94	94	75-125	0	20
Surrogate Recovery								
Terbium	479	482	500	96	96	70-130	0	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	48.9	54.9	50	ND	97	110	75-125	11.7	20
Arsenic	48.1	53.8	50	2.522	91	102	75-125	11.1	20
Barium	517	583	500	46.98	94	107	75-125	12.1	20
Beryllium	45.5	50.6	50	ND	91	101	75-125	10.5	20
Cadmium	46.2	51.2	50	ND	92	102	75-125	10.3	20
Chromium	56.4	63.2	50	9.881	93	107	75-125	11.3	20
Cobalt	48.0	53.7	50	3.593	89	100	75-125	11.1	20
Copper	72.8	83.5	50	29.15	87	109	75-125	13.7	20
Lead	53.8	61.4	50	8.206	91	106	75-125	13.2	20
Mercury	1.15	1.27	1.25	ND	92	101	75-125	10.0	20
Molybdenum	46.7	52.0	50	ND	93	103	75-125	10.7	20
Nickel	53.6	59.9	50	6.779	94	106	75-125	11.2	20
Selenium	45.3	50.7	50	ND	91	101	75-125	11.3	20
Silver	45.7	51.3	50	ND	91	103	75-125	11.6	20

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/29/18	**BatchID:**	164097
Date Analyzed:	8/29/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164097 1808D07-008AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Thallium	43.6	49.3	50	ND	87	98	75-125	12.3	20
Vanadium	76.8	87.2	50	30.73	92	113	75-125	12.8	20
Zinc	501	564	500	51.96	90	102	75-125	11.8	20
Surrogate Recovery									
Terbium	476	530	500		95	106	70-130	10.6	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.5	0.1889	-	-
Arsenic	2.88	2.522	14.2	-
Barium	46.3	46.98	1.45	-
Beryllium	ND<2.5	0.1783	-	-
Cadmium	ND<1.2	0	-	-
Chromium	9.58	9.881	3.05	-
Cobalt	3.71	3.593	3.26	-
Copper	28.1	29.15	3.60	20
Lead	8.16	8.206	0.561	-
Mercury	ND<0.25	0	-	-
Molybdenum	ND<2.5	0.2693	-	-
Nickel	7.10	6.779	4.74	-
Selenium	ND<2.5	0	-	-
Silver	ND<2.5	0	-	-
Thallium	ND<2.5	0.1242	-	-
Vanadium	30.9	30.73	0.553	20
Zinc	50.2	51.96	3.39	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/31/18	**BatchID:**	164268
Date Analyzed:	8/31/18	**Extraction Method:**	E200.8
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164268

QC Summary Report for Metals

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Antimony	ND	0.50	-	-	-
Arsenic	ND	0.50	-	-	-
Barium	ND	5.0	-	-	-
Beryllium	ND	0.50	-	-	-
Cadmium	ND	0.25	-	-	-
Chromium	ND	0.50	-	-	-
Cobalt	ND	0.50	-	-	-
Copper	ND	2.0	-	-	-
Lead	ND	0.50	-	-	-
Mercury	ND	0.050	-	-	-
Molybdenum	ND	0.50	-	-	-
Nickel	ND	0.50	-	-	-
Selenium	ND	0.50	-	-	-
Silver	ND	0.19	-	-	-
Thallium	ND	0.50	-	-	-
Vanadium	ND	0.50	-	-	-
Zinc	ND	15	-	-	-
Surrogate Recovery					
Terbium	745		750	99	70-130

(Cont.)

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Quality Control Report

Client:	Castle Analytical Laboratory	**WorkOrder:**	1808D07
Date Prepared:	8/31/18	**BatchID:**	164268
Date Analyzed:	8/31/18	**Extraction Method:**	E200.8
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	1808087/180131	**Sample ID:**	MB/LCS/LCSD-164268

QC Summary Report for Metals

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Antimony	52.4	53.8	50	105	108	85-115	2.54	20
Arsenic	48.8	50.1	50	98	100	85-115	2.67	20
Barium	503	512	500	101	102	85-115	1.75	20
Beryllium	47.7	49.3	50	95	99	85-115	3.22	20
Cadmium	47.5	48.3	50	95	97	85-115	1.71	20
Chromium	46.1	47.3	50	92	95	85-115	2.42	20
Cobalt	47.0	48.3	50	94	97	85-115	2.79	20
Copper	47.9	48.8	50	96	98	85-115	1.84	20
Lead	47.2	48.5	50	94	97	85-115	2.78	20
Mercury	1.16	1.22	1.25	93	97	85-115	4.45	20
Molybdenum	48.0	48.8	50	96	98	85-115	1.59	20
Nickel	48.0	49.1	50	96	98	85-115	2.23	20
Selenium	48.8	50.2	50	98	100	85-115	2.85	20
Silver	46.6	47.6	50	93	95	85-115	2.25	20
Thallium	45.7	47.2	50	91	94	85-115	3.36	20
Vanadium	46.4	47.5	50	93	95	85-115	2.30	20
Zinc	489	502	500	98	100	85-115	2.63	20
Surrogate Recovery								
Terbium	734	751	750	98	100	70-130	2.30	20

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1808D07 **ClientCode: CALA**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:
Clari Cone
Castle Analytical Laboratory
2333 Shuttle Drive Bldg 908/909
Atwater, CA 95301
(209) 384-2930 FAX: (209) 384-1507

Email: main@castle-lab.com; clari.cone@gmail.co
cc/3rd Party:
PO:
Project: 1808087/180131

Bill to:
Accounts Payable
Castle Analytical Laboratory
2333 Shuttle Drive Bldg 908/909
Atwater, CA 95301

Requested TAT: **5 days;**

Date Received: **08/29/2018**
Date Logged: **08/29/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1808D07-001	A-1b	Soil	8/27/2018 07:40	☐	A		A									
1808D07-002	A-1db	Soil	8/27/2018 07:40	☐	A		A									
1808D07-003	A-1f	Soil	8/27/2018 08:04	☐	A		A									
1808D07-004	A-1df	Soil	8/27/2018 08:04	☐	A		A									
1808D07-005	A-2b	Soil	8/27/2018 08:24	☐	A		A									
1808D07-006	A-2f	Soil	8/27/2018 08:40	☐	A		A									
1808D07-007	B-1	Water	8/27/2018 08:53	☐		A		B								
1808D07-008	A-3b	Soil	8/27/2018 09:14	☐	A		A									
1808D07-009	A-3f	Soil	8/27/2018 09:25	☐	A		A									

Test Legend:

1	8081_S	2	8081_W	3	CAM17MS_TTLC_S	4	CAM17MS_TTLC_W
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: CASTLE ANALYTICAL LABORATORY **Project:** 1808087/180131 **Work Order:** 1808D07
Client Contact: Clari Cone **QC Level:** LEVEL 2
Contact's Email: main@castle-lab.com; clari.cone@gmail.com **Comments:** **Date Logged:** 8/29/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808D07-001A	A-1b	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 7:40	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-002A	A-1db	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 7:40	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-003A	A-1f	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 8:04	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-004A	A-1df	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 8:04	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-005A	A-2b	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 8:24	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-006A	A-2f	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 8:40	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1808D07-007A	B-1	Water	SW8081A (OC Pesticides)	1	1LA Narrow Mouth, Unpres	☐	8/27/2018 8:53	5 days	None	☐	
1808D07-007B	B-1	Water	E200.8 (CAM 17)	1	500mL HDPE, unprsv.	☐	8/27/2018 8:53	5 days	None	☐	
1808D07-008A	A-3b	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 9:14	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

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WORK ORDER SUMMARY

Client Name: CASTLE ANALYTICAL LABORATORY **Project:** 1808087/180131 **Work Order:** 1808D07
Client Contact: Clari Cone **QC Level:** LEVEL 2
Contact's Email: main@castle-lab.com; clari.cone@gmail.com **Comments:** **Date Logged:** 8/29/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1808D07-009A	A-3f	Soil	SW6020 (CAM 17)	1	8OZ GJ, Unpres	☐	8/27/2018 9:25	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

SUBCONTRACT ORDER

Castle Analytical Laboratory

Project ID: 1808087 / 180131

Package 1 of 2

1808D07

SENDING LABORATORY:

Castle Analytical Laboratory
2333 Shuttle Drive
Atwater, CA 95301
Phone: 209.384.2930
Fax: 209.384.1507
Project Manager: Clari J. Cone

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565
Phone :(877) 252-9262
Fax: (925) 252-9269

Analysis	Expires	Comments
Sample ID: A-1b **Soil** **Sampled: 08/27/18 07:40** **Lab ID: 1808087-01**		
CAM 17	02/23/19 07:40	
8081A	09/03/18 07:40	
Containers Supplied: 8 oz. Glass Jar (A)		
Sample ID: A-1db **Soil** **Sampled: 08/27/18 07:40** **Lab ID: 1808087-02**		
8081A	09/03/18 07:40	
CAM 17	02/23/19 07:40	
Containers Supplied: 8 oz. Glass Jar (A)		
Sample ID: A-1f **Soil** **Sampled: 08/27/18 08:04** **Lab ID: 1808087-03**		
8081A	09/03/18 08:04	
CAM 17	02/23/19 08:04	
Containers Supplied: 8 oz. Glass Jar (A)		
Sample ID: A-1df **Soil** **Sampled: 08/27/18 08:04** **Lab ID: 1808087-04**		
CAM 17	02/23/19 08:04	
8081A	09/03/18 08:04	
Containers Supplied: 8 oz. Glass Jar (A)		

Released By	Date	Received By	Date
[signature]	8-28-18 15:00	Agustina V.	8/29/18 1038A

UPS: 1ZX93R350391239232

*PH HAD TO BE ADJUSTED.

SUBCONTRACT ORDER

Castle Analytical Laboratory

Project ID: 1808087 / 180131

Analysis		**Expires**	**Comments**
Sample ID: A-2b	**Soil**	**Sampled: 08/27/18 08:24 Lab ID: 1808087-05**	
CAM 17		02/23/19 08:24	
8081A		09/03/18 08:24	
Containers Supplied:			
8 oz. Glass Jar (A)			
Sample ID: A-2f	**Soil**	**Sampled: 08/27/18 08:40 Lab ID: 1808087-06**	
8081A		09/03/18 08:40	
CAM 17		02/23/19 08:40	
Containers Supplied:			
8 oz. Glass Jar (A)			
Sample ID: B-1 K	**Water**	**Sampled: 08/27/18 08:53 Lab ID: 1808087-07**	
8081A		09/03/18 08:53	
CAM 17		02/23/19 08:53	
Containers Supplied:			
00_1 L Amber Glass Unpı 01_500mL Plastic Cool to			
Sample ID: A-3b	**Soil**	**Sampled: 08/27/18 09:14 Lab ID: 1808087-08**	
8081A		09/03/18 09:14	
CAM 17		02/23/19 09:14	
Containers Supplied:			
8 oz. Glass Jar (A)			
Sample ID: A-3f	**Soil**	**Sampled: 08/27/18 09:25 Lab ID: 1808087-09**	
CAM 17		02/23/19 09:25	
8081A		09/03/18 09:25	
Containers Supplied:			
8 oz. Glass Jar (A)			

Released By	Date	Received By	Date
[signature]	8-28-18 15:00	Agustina V.	8/28/18 1038A

Released By Date Received By Date

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McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	**Castle Analytical Laboratory**	Date and Time Received	**8/29/2018 10:38**
Project:	**1808087/180131**	Date Logged:	**8/29/2018**
		Received by:	Agustina Venegas
WorkOrder №:	**1808D07** Matrix: Soil/Water	Logged by:	Agustina Venegas
Carrier:	UPS		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	✔	☐	
Chain of custody signed when relinquished and received?	✔	☐	
Chain of custody agrees with sample labels?	✔	☐	
Sample IDs noted by Client on COC?	✔	☐	
Date and Time of collection noted by Client on COC?	✔	☐	
Sampler's name noted on COC?	☐	✔	
COC agrees with Quote?	☐	☐	✔

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☐	☐	✔
Shipping container/cooler in good condition?	✔	☐	
Samples in proper containers/bottles?	✔	☐	
Sample containers intact?	✔	☐	
Sufficient sample volume for indicated test?	✔	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	✔	☐	☐
Samples Received on Ice?	✔	☐	
(Ice Type: BLUE ICE)			
Sample/Temp Blank temperature	Temp: 5.6°C		☐
Water - VOA vials have zero headspace / no bubbles?	☐	☐	✔
Sample labels checked for correct preservation?	✔	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	☐	✔	☐
UCMR Samples:			
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	☐	☐	✔
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	☐	☐	✔

Comments: pH adjusted in Lab.

CASTLE ANALYTICAL LABORATORY

CHAIN OF CUSTODY

Location: 2333 Shuttle Drive, Bldg 908/909, Atwater, CA 95301
Mailing Address: 2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930 - Fax: (209) 384-1507

Certificate No. 2480

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Customer: Technicon Engineering Services
Address: 4539 N. Brawley Ave, Suite 108
City/State/ZIP: Fresno CA 93722
Phone / FAX: 559-276-9311 / 559-276-9344
Proj# / PO# /Global ID: 180131
Report Attention: Marjenel Basiga
Sampler Signature: [signature]
Sampler Printed: Jonathan Cayabam

Method of Shipment:

Notes:

REQUESTED ANALYSES: BTEX/MTBE/TPH-GAS 8021/8015; TPH-DIESEL - 8015; TRPH 418.1M / SM5520C & F; Oxy's / EDB / DCA by 8260; 8260 - full list; PCBs - 8082; OCP by 8081A; CAM 17 by 6000/7000; Electronic Deliverables (EDF)

Lab ID#	SAMPLE ID	DATE	TIME	DESCRIPTION/LOCATION	SAMPLE TYPE composite(c) discrete/grab(d)	SAMPLE MATRIX soil(s) liquid(l) vapor(v) other (o)	BTEX/MTBE/TPH-GAS 8021/8015	TPH-DIESEL - 8015	TRPH 418.1M / SM5520C & F	Oxy's / EDB / DCA by 8260	8260 - full list	PCBs - 8082	OCP by 8081A	CAM 17 by 6000/7000			Electronic Deliverables (EDF)	NUMBER OF CONTAINERS	OBSERVATIONS/REMARKS
1808087-01	A-1b	8-27-18	7:40	A-1 Bed	d	s							↓	↓				1	
-02	A-1db	↓	7:40	Duplicate for A-1b	↓	↓							↓	↓				1	
-03	A-1f	↓	8:04	A-1 furrow	↓	↓							↓	↓				1	
-04	A-1df	↓	8:04	Duplicate for A-1f	↓	↓							↓	↓				1	
-05	A-2b	↓	8:24	Bed	↓	↓							↓	↓				1	
-06	A-2f	↓	8:40	Furrow	↓	↓							↓	↓				1	
-07	B-1	↓	8:53	Field Blank	d	l							↓	↓				2	
-08	A-3b	↓	9:14	Bed	d	s							↓	↓				1	
-09	A-3f	↓	9:25	Furrow	↓	↓							↓	↓				1	

10 Total number of containers submitted to the laboratory

	Signature	Printed Name	Date	Time	Company Name
Relinquished by:	[signature]	Jonathan Cayaban			
Received by:	[signature]	Allison P Tobin	8-28-18	9:27	Castle Analytical
Relinquished by:					
Received by:					
Relinquished by:					
Received by:					

Turn Around Time:

- 24 Hour ☐
- 48 Hour ☐
- 3 Day ☐
- 5 Day (Normal) ☒
- Special:

APPENDIX B

SOURCE FOR BACKGROUND DATASET

MOORE TWINING ASSOCIATES, INC.
EST. 1898

GEOTECHNICAL ENGINEERING • DRILLING SERVICES
CONSTRUCTION INSPECTION • MATERIALS TESTING
ENVIRONMENTAL SERVICES • ANALYTICAL CHEMISTRY

SUPPLEMENTAL SITE INVESTIGATION

PROPOSED SCHOOL SITE
FOWLER UNIFIED SCHOOL DISTRICT
5470 EAST SOUTH AVENUE
FOWLER, CALIFORNIA

Prepared for:

Fowler Unified School District
658 East Adams Avenue
Fowler, California 93625

Prepared By:

Moore Twining Associates, Inc.
2527 Fresno Street
Fresno, California 93721

December 24, 2008

D04503.02

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TABLES

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EXECUTIVE SUMMARY

Moore Twining Associates, Inc. (Moore Twining) was contracted by the Fowler Unified School District (FUSD) to conduct a Supplemental Site Investigation (SSI) for the proposed school site located at 5470 East South Avenue in Fowler, California (site). Prior to the SSI, Moore Twining conducted a Phase I Environmental Site Assessment Update (Phase I Update) dated January 24, 2006 and a subsequent Preliminary Environmental Assessment (PEA) report dated November 30, 2007.

Based on findings of the PEA Investigation, an accumulative cancer risk of 4.8 $\times 10^{-5}$ and an accumulative hazard quotient of 1.9 were calculated for the site. The cancer risk estimation was greater than 10^{-6} and the hazard quotient was greater than 1.0 indicating the presence of contamination that may pose a threat to human health. Generally, the chemicals of concern (COCs) that drove the cancer risk estimation to exceed 10^{-6} and the hazard quotient to exceed 1.0 were found in near surface soils in the area of the former structure driplines and the fire burn pit. These COCs were identified as chlordane (n.o.s.), DDE, and DDT in the area of the former structure driplines and PAH compounds at the former fire burn pit. The PEA report recommended that this SSI be conducted to further investigate the areas containing elevated concentration of these COCs which were generally found to be present in the vicinity of the onsite fire burn pit and structure driplines.

Additionally, this SSI was conducted to assess near surface and subsurface soil conditions in the area of the onsite dry wells, mechanics pit, and sump which were uncovered and/or exposed during the recent demolition and underground storage tank removal activities at the site. These activities uncovered seven (7) dry wells under asphalt pavements, one mechanics pit, and one sump at the site. The dry wells appear to have been associated with the onsite residential septic system and metal warehouse surface drainage and septic systems.

Analytical results and findings of this SSI indicate that COCs identified at the site are limited to three general areas of concern (AOCs). These areas of concern are: 1) former structure driplines, 2) former fire burn pit, and 3) selected dry wells. The risk driving COCs consist of chlordane (n.o.s) in the area of the driplines, PAH compounds in the area of the fire burn pit, and chlordane (n.o.s.), copper, and PAH compounds at selected dry wells.

The lateral and vertical extent of elevated COCs above residential CHHSLs present in near surface soils in the areas of the structural driplines and fire burn pit have been adequately defined during this investigation. Generally, selected soils in the upper 1 to 1.5 feet in these areas of concern (structure drip lines and fire burn pit) are impacted with elevated concentrations of COCs above residential CHHSL values. As such, the removal of these elevated concentrations of COCs at these locations are recommended to achieve an acceptable risk level relative to human health and environment for the site. The volume of soil to be removed is estimated at approximately 30 cubic yards. Following soil removal activities, confirmation soil samples should be collected and analyzed for COCs to confirm the removal of COC-impacted soil and that an acceptable risk level has been achieved. A remedial action plan (RAP) will be prepared and submitted to DTSC for approval prior to performing the removal activities. A RAP can be prepared within two (2) months of approval of this SSI Report.

The vertical extent of COCs found in dry well DW-1 and DW-3 have not been defined, however, since these COCs are not near the surface, risk to sensitive species and human health via dermal contact is not a concern. Nevertheless, our firm recommends that the upper 4 feet of soil in dry wells DW-1, DW-2 and DW-3 be removed utilizing a bucket auger or standard augering techniques so as to prevent the potential migration of elevated concentrations of COCs to groundwater. The volume of soil to be removed is estimated at approximately 6 cubic yards. Confirmation sampling can be performed at that time to confirm the concentrations of COCs left inplace. Following excavation and confirmation soil sampling, Moore Twining recommends that the dry wells be properly abandoned per applicable city, county, and state guidelines. Details of the proposed removal and abandonment activities will be incorporated into the RAP to be prepared for the site prior to conducting the work.

Based on the findings of this investigation, Moore Twining recommends that a "No Further Action" status be issued by the DTSC regarding the agricultural fields, the sump, mechanics pit, and former USTs at the site.

SUPPLEMENTAL SITE INVESTIGATION

PROPOSED SCHOOL SITE
FOWLER UNIFIED SCHOOL DISTRICT
5470 EAST SOUTH AVENUE
FOWLER, CALIFORNIA

1.0 INTRODUCTION

Moore Twining Associates, Inc. (Moore Twining) has prepared this Supplemental Site Investigation (SSI) report to document the methods, procedures, and results of a supplemental site investigation performed at the Fowler Unified School District (FUSD) proposed school site located at 5470 East South Avenue in Fowler, California (site). This supplemental site investigation included the additional sampling of soils impacted with elevated concentrations of chemicals of concern (COCs) as identified in the Preliminary Environmental Assessment (PEA) performed at the referenced site. Based on findings from our "Final Draft Preliminary Environmental Assessment Report" dated November 30, 2007, risk to human health and the environment was not found to be within acceptable levels. Therefore, it was recommended that this SSI be conducted to further investigate the areas containing elevated concentrations of COCs which were generally found to be present in the vicinity of the onsite fire burn pit and structure driplines. This SSI was performed per Moore Twining's "Supplemental Site Investigation Technical Memorandum" dated March 7, 2008 and approved by the DTSC in a letter March 13, 2008.

This SSI report also includes the results of the investigation conducted for the onsite dry wells, mechanics pit, and sump which were uncovered and/or exposed during the recent demolition and underground storage tank removal activities at the site. These activities uncovered seven (7) dry wells under asphalt pavements, one mechanics pit, and one sump at the site. The dry wells appear to have been associated with the onsite residential septic system and metal warehouse surface drainage and septic systems. The investigation of the dry wells, mechanics pit, and sump was conducted at the request and in accordance with the DTSC as outlined in our "Technical Memorandum for Dry Well, Mechanics Pit, and Sump Investigation" dated March 31, 2008.

This work was performed to comply with the requirements of the "Environmental Oversight Agreement" between FUSD and the DTSC.

2.0 PREVIOUS FINDINGS

Our firm performed a PEA Investigation in May 2007 to investigate the environmental concerns associated with the potential accumulation of pesticides, metals and/or petroleum hydrocarbons as a result of the former farming operations at the site. This work was conducted to comply with the requirements of the Department of Toxic Substance Control (DTSC) for proposed school sites. Based on the results presented in the PEA report, a risk assessment was performed on identified COCs. These COCs are listed in the PEA report in Tables 12 and 13. The risk assessment was performed per the guidelines specified in the DTSC PEA guidance document for soil and groundwater samples. The soil vapor sample analytical results were used in the Johnson and Ettinger

Model to calculate risk associated with indoor air quality at the site. The maximum contaminant value for each COC was utilized in the risk calculations. Soil, air, and water exposure pathways were utilized in the risk assessment with regard to dermal absorption, ingestion, and inhalation. Findings from the risk assessment depicting cumulative risk and hazard associated with these identified COCs were presented in the PEA report in Table 14.

Based on the findings of the risk assessment, an accumulative cancer risk of 4.8×10^{-5} and an accumulative hazard quotient of 1.9 were calculated for the site. The cancer risk estimation was greater than 10^{-6} and the hazard quotient was greater than 1.0 indicating the presence of contamination that may pose a threat to human health. Generally, the COCs that drove the cancer risk estimation to exceed 10^{-6} and the hazard quotient to exceed 1.0 were found in near surface soils in the area of the structure driplines and the fire burn pit at the locations shown on Drawing 2. Specifically, the driving constituents were:

- Chlordane (n.o.s.) detected above the California Human Health Screening Level (CHHSL) for chlordane of 0.43 mg/kg in samples collected from the perimeter of the onsite structure driplines at sample locations L1, L2, and L7 (Drawing 2); and

- Polyaromatic hydrocarbons (PAHs) detected in the surface soil sample collected from the fire burn pit (sample location F1). The following is a list of the specific PAHs detected and their respective concentrations: phenanthrene at 0.20 µg/g, fluoranthene at 1.1 µg/g, pyrene at 0.94 µg/g, benzo(a)anthracene at 0.31 µg/g, chrysene at 0.46 µg/g, benzo(b)fluoranthene at 0.42 µg/g, benzo(k)fluoranthene at 0.26 µg/g, benzo(a)pyrene at 0.58 µg/g, benzo(ghi)perylene at 0.44 µg/g, and indeno (1 2 3-Cd)pyrene at 0.50 µg/g.

During the PEA investigation at the site, soil samples analyzed for organochlorine pesticides (OCPs) under laboratory work order 7F27002 (discrete sample locations S-1A, S-1B, S-2A, S-2B in the northwest corner of the agricultural field) were analyzed past EPA recommended holding times. As a result, in order to further assess the presence of OCPs in the area, it was recommended that confirmation soil samples be collected at these locations during a supplemental site investigation.

During demolition and underground storage tank (UST) removal activities at the site in March 2008, seven (7) dry wells, one mechanics pit, and one sump were uncovered as shown on Drawing 2. The dry wells appear to have been associated with the onsite residential septic system and metal warehouse surface drainage and septic systems. In March and April of 2008, a technical memorandum was submitted to DTSC outlining the proposed investigation of the dry wells, mechanics pit, and sump. DTSC approved the technical memorandum. Results of this investigation are included in this SSI report.

3.0 INVESTIGATION METHODS AND PROCEDURES

Soil sampling protocols for this additional work were conducted in accordance with Moore Twining's Standard Operating Procedures as presented in Appendix A and as outlined in the "Technical Memorandum for Dry Well, Mechanics Pit, and Sump Investigation" dated March 31, 2008, the SSI Technical Memorandum dated March 7, 2008, and the PEA Work Plan dated January 23, 2007. A detailed description of the SSI investigation procedures for each area of concern is presented in the following subsections. For each area of concern, surface and near surface soil samples were collected using a hand auger device. Surface samples were collected by clearing off the loose surface soil and then driving a pre-cleaned stainless steel sampling tube into the soil to a depth of 6 inches. Subsurface samples were collected by hand-augering to the appropriate depth and then driving a pre-cleaned stainless steel sampling tube approximately 6 inches to collect the sample. After collecting the sample, the tubes were covered with teflon sheets and plastic end caps. Each tube was labeled with a distinct sample number including the depth of the sample, and the date and time that the sample was collected. The samples were stored in an ice cooled chest and transported to Moore Twining's analytical laboratory for analysis under chain-of-custody documentation.

3.1 **Driplines**: On March 24, 2008, our firm collected additional samples in and around previous sample locations L1, L2, and L7. Three (3) soil samples were collected at depths of 1.5 to 2.0 feet bsg along structure driplines at previous sample locations L1, L2 and L7 to assess the vertical extent of elevated chlordane (n.o.s.) concentrations detected in the near surface soils at these locations. To determine the lateral extent of elevated chlordane concentrations at previous sample locations L1, L2, and L7, soil samples were collected at three (3) step-outs from each location (a total of nine sample locations identified as F17 through F25 on Drawing 2) at incremental distances of 5, 10, and 15 feet. At these step-outs, soil samples were collected at the surface (0 to 6 inches bsg) and at 1.5 to 2.0 feet bsg. The near surface and subsurface soil samples collected in the area of the structure driplines were analyzed for OCPs using United States Environmental Protection Agency (US EPA) Method 8081A.

3.2 **Former Burn Pit**: On March 24, 2008, subsurface soil samples were collected at the previous sample location F1 at depths of 1.5 to 2.0 feet and 3.0 to 3.5 feet bsg in order to determine the vertical extent of PAH compounds detected at the previous sample location F1 (area of the former fire burn pit). To determine the lateral extent of PAH compounds detected at the previous sample location F1, soil samples were collected at the surface (0 to 6 inches bsg) and at 1.5 to 2.0 feet bsg at four (4) step-out locations (F2 through F5) from the previous sample location F1 as shown on Drawing 2. Step-out locations identified as F2, F3, F4, and F5 are located 5 feet north, 10 feet east, 15 feet west, and 20 feet south of previous sample location F1, respectively. Surface and subsurface soil samples collected from the area of the fire burn pit were analyzed for PAH compounds using US EPA Method 8310. To confirm the presence of dioxins and furans at location F1, the subsurface soil sample collected at a depth of 1.5 to 2.0 feet bsg was analyzed for dioxins and furans using US EPA Method 8290.

3.3 **Agricultural Field Confirmation Sampling**: On March 24, 2008, discrete confirmation soil samples were collected from the northwest corner of the agricultural field at sample locations S-1A, S-1B, S-2A, and S-2B at depths of 0 to 0.5 feet and 2.5 to 3 feet BSG. These soil sample locations are illustrated on Drawing 1. The soil samples were analyzed for OCPs by EPA Method 8081A.

3.4 **Dry Well Investigation**: As discussed with Ms. Kamili Siglowide from the DTSC, four of the seven dry wells were investigated. As shown on Drawing 2, these wells were designated as DW-1, DW-2, DW-3, and DW-4. The dry wells are brick lined and are approximately 4 feet in diameter and ranged from approximately 15 to 20 feet in depth. The top of each dry well was capped with a concrete dome that was buried approximately 2 feet bsg. On April 3, 2008, soil samples were collected from the bottom of dry wells DW-1 (DW1-14'), DW-3 (DW3-21'), and DW-4 (DW4-14.5') with a hand auger and from the bottom of DW-2 (DW2-15'). Soil samples were collected at depths of 21 feet bsg, 26 feet bsg, and 36 feet bsg from DW-2 with a CME 75 drill rig equipped with 6-inch outside diameter auger. Due to unsafe drilling conditions at the time of the investigation caused by the large diameter of the open dry wells, nearby stockpiled soil, and open trenches, soil samples could not be collected from depths below the surface of DW-1, DW-3, and DW-4 utilizing a mobile drilling rig or hand auger equipment. Soil samples collected from the dry well locations on this day were analyzed for TPH-g, BTEX, Carbon Chain Speciation (C_6-C_{12}, C_{13}-C_{22}, and C_{23}-C_{32}), DBCP, OCPs, and CAM 17 metals. Soil samples for analysis of TPH-g, BTEX and DBCP were collected using EnCore® sampling devices. The EnCore® samplers were used to sub-core a soil filled stainless steel sleeve. The sub-core was collected from the soil exposed in the central portion from the deeper end of the sleeve. The Encore ® samples were then placed in an ice-cooled chest and delivered to Sierra Analytical Laboratory where they were prepared and analyzed within 48 hours of collection in accordance with EPA Methods 5035 and 8260. After completion of the soil sampling in DW-2, the boring was backfilled with a neat cement slurry. The slurry was pumped through the annulus in the hollow-stem augers. Backfill was placed in one continuous operation from the bottom to the top of the borehole. When the annulus filled with the slurry, auger flights were removed (10 feet at a time) from the borehole, allowing the slurry to uniformly fill the borehole to the surface. Drill cuttings from soil borings and rinseate from the decontamination of drill tools were sealed in United States Department of Transportation (DOT) approved 55-gallon drums, labeled, and stored on-site in an area inaccessible to the public.

As a result of poor drilling conditions on April 3, 2008, insufficient soil was collected for analysis of PAHs and semi-volatile organic constituents (SVOCs). Our firm returned to the site on July 30, 2008 and collected additional soil samples from the bottoms of dry wells DW-1 (DW1-14'), DW-2 (DW2-15'), DW-3 (DW3-21'), and DW-4 (DW4-14.5') with a hand auger for analysis of PAHs by EPA Method 8310 and SVOCs by EPA Method 8270. Moore Twining's Standard Operating Procedures (SOPs) for soil sample collection are included in Appendix A.

3.5 **Mechanics Pit and Sump Investigation**: Two discrete soil samples were collected at the bottom of the mechanics pit (0 to 0.5 feet below the bottom of pit) utilizing hand auger equipment. The two soil samples were analyzed for TPH-g, BTEX, Carbon Chain Speciation (C_6-C_{12}, C_{13}-C_{22}, and C_{23}-C_{32}), PAH, and CAM 17 metals.

Discrete soil samples were collected at the sump at depths of 0 to 0.5 feet below the bottom of the sump and 2.5 to 3 feet below the bottom of the sump. The soil samples were analyzed for TPH-g, BTEX, Carbon Chain Speciation (C_6-C_{12}, C_{13}-C_{22}, and C_{23}-C_{32}), PAH, and CAM 17 metals.

4.0 ANALYTICAL RESULTS AND FINDINGS

Historical and recent laboratory analytical results are summarized in Tables 1 through 6 and are discussed in the following subsections. Laboratory analytical reports for samples collected during the SSI investigation are included in Appendix B.

4.1 Structure Driplines: Historical and recent laboratory analytical results of OCPs are presented in Table 1. Structure dripline sample locations L1, L2, L7, and L17 through L25 are shown on Drawing 2. As presented in Table 1, generally, the elevated concentrations of chlordane (n.o.s.) above residential California Human Health Screening Levels (CHHSLs) in surface soil at locations L1, L2, and L7 showed a vertical attenuation to negligible or none detectable concentrations at a depth of about 1.5 feet bsg. Step-out samples collected at these locations (L17 through L25) show a limited lateral extent of elevated concentrations of chlordane above the residential CHHSL value of 0.43 mg/kg at locations L1, L2, and L7. The lateral extent of elevated chlordane above the residential CHHSL value in surface soil appears to have been adequately defined at location L1, L2 and L7. However, step-out sample locations around L2 revealed chlordane in the samples from L20@1.5-2.0' (0.37 mg/kg) and L21@0-0.5' (0.27 mg/kg) at concentrations approaching the residential CHHSL value of 0.43 mg/kg. Historical and recent analytical results show relatively low concentrations of 4,4-DDE and 4,4-DDT detected in near surface soils in the area of the driplines below the residential CHHSL value of 1.6 mg/kg.

4.2 Former Burn Pit: Recent laboratory analytical results of the subsurface samples collected from the center of the former burn pit (F1@1.5-2.0' and F1@3.0-3.5') showed no detectible concentrations of PAH compounds. These data indicate a vertical attenuation of elevated PAH compounds to non detectable concentrations at a depth of 1.5 feet below the center of the former burn pit. As presented in Table 2, detectible concentrations of PAHs were reported in surface soil samples collected at step-out locations from the center of the former burn pit (F2 through F4). The most significant concentrations were reported in surface sample F2@0-0.5' located approximately 5 feet north of the center of the burn pit (location L1) where benzo (a) pyrene was detected at 0.54 mg/kg. In the subsurface samples collected from 1.5 to 2 feet bsg at step-out locations F2 through F4 only one detection of PAHs was reported. Benzo (a) pyrene was detected at 0.00016 mg/kg at location F5@1.5-2.0' (15 feet south of the center of the burn pit). This concentration is well below the CHHSL value of 0.038 mg/kg.

To confirm the presence of dioxins and furans at location F1, our firm analyzed the subsurface soil sample collected at a depth of 1.5 to 2.0 feet bsg for dioxins and furans using US EPA Method 8290. Laboratory analytical results of dioxins and furans are summarized in Table 3. Results showed very low concentrations of total heptachlordibenzofuran (HpCDF) of 0.0011 μg/kg and total heptachlorodibenzodioxin (HpCDD) of 0.0022 μg/kg. The laboratory report indicates that the detection of these constituents have a total 2,3,7,8-tetrachlorodibenzodioxin (2,3,7,8-TCDD) toxic equivalent of 0.000029 μg/kg. This concentration is well below the residential CHHSL value for 2,3,7,8-TCDD of 4.5 μg/kg. Based on the negligible concentrations present at 1.5 feet bsg at location F1, dioxins and furans are not considered COCs for this site.

4.3 **Agricultural Field Confirmation Sampling**: OCP analytical results from the confirmation sampling in the agricultural field are summarized in Table 1. The results of these tests indicate that OCPs were detected in all confirmation samples collected from surface soils. However, all of these detections, which included 4,4-DDE, 4,4-DDT, and chlordane (n.o.s.), were well below the CHHSL and residential PRGs values for soil. No detectable concentrations of OCPs were reported in any of the subsurface soil samples collected at the depth interval 2.5 to 3.0 feet bsg.

4.4 **Dry Well Investigation**: Analytical results of the soil samples collected from the dry wells are summarized in Tables 1, 2, 4, 5, and 6. As shown in Table 1, chlordane was detected above the CHHSL value of 0.43 mg/kg in soil collected from the bottom of dry well DW-1 (DW1-14') at a concentration of 2.0 mg/kg. No other significant detections of OCPs or DBCP were reported in soil samples collected from dry wells DW-1 through DW-4.

As summarized in Table 2, some PAH compounds were detected in near surface soil samples from dry wells DW-1 through DW-4. The most significant detections were reported in sample DW3-21' where benzo (a) pyrene was reported at 0.13 mg/kg which is above the CHHSL value of 0.038 mg/kg. This is the only detection of PAH compounds from the dry well soil samples that was above CHHSL or PRG values.

Analytical results of hydrocarbon chain speciation (Table 4) indicate that diesel and/or motor oil range petroleum hydrocarbon chains were detected in soil samples collected from the bottom of dry wells DW-1, DW-2, DW-3, and DW-4, the most significant of which were reported in DW1-14' (C_{13}-C_{22} 300 mg/kg and C_{23}-C_{32} 270 mg/kg) and DW3-21' (C_{13}-C_{22} 26 mg/kg and C_{23}-C_{32} 79 mg/kg). Non-detect to non-significant concentrations were reported in the remaining soil samples. Negligible concentrations of TPHg were reported in samples DW1-14' (0.79 mg/kg) and DW3-21' (0.1 mg/kg).

As summarized in Table 5, no detectable concentrations of DBCP or other VOCs were reported in any soil samples collected from dry wells DW-1 through DW-4, with the exception of a naphthalene detected at a concentration of 9.2 mg/kg in sample DW1-14'.

No detectable concentrations of SVOCs were reported in any of the soil samples collected from the bottom of dry wells DW-1 through DW-4. Results of the SVOC analysis are included in the laboratory analytical reports in Appendix B.

As summarized in Table 6, total inorganic metals were detected in soil samples collected from dry wells DW-1 through DW-4, the most significant detections of which were copper (2,500 mg/kg), lead (37 mg/kg), molybdenum (27 mg/kg), zinc (120 mg/kg), and arsenic (4.9 mg/kg) in sample DW1-14'. Of these detections, copper and zinc were well above the background concentrations determined for the site during the PEA. Arsenic was marginally higher than the reported background concentration. The remaining metal concentrations detected from the other dry wells appeared to be within the background levels determined during the PEA investigation.

Please note that well DW-2 was the only well accessible with an auger drill rig at the time of the investigation. A boring was drilled to a total depth of 36 feet bsg (approximately 20 feet below the bottom of well DW-2) in well DW-2. Soils encountered during drilling activities included a layer of waste oil sludge to a depth of about 2 feet below the bottom of the well underlain by silty sands to a depth of 10 feet below the well bottom underlain by poorly graded sands to a depth of 20 feet below the bottom of the well, the maximum depth explored. A boring log for the drilling performed at DW-2 is presented in Appendix E.

4.5 **Mechanics Pit and Sump Investigation**: Analytical results of the samples collected from the mechanics pit and sump investigation are summarized in Tables 2, 4, and 5. Based on these results, no detectible concentrations of PAHs were reported in subsurface soil samples collected from the sump or mechanics pit areas. No detectible concentrations of DBCP or other VOCs were reported in subsurface soil samples collected from the sump or mechanics pit areas. Hydrocarbon chain speciation analytical results indicate that non-detect to non-significant light and heavy petroleum hydrocarbon chains were present in the samples collected from the sump and mechanics pit.

4.6 **UST Removal Activities**: Underground storage tank (UST) removal and confirmation soil sampling were performed in accordance with the Fresno County Environmental Health Department's (FCEHD) requirements and procedures. Non-detect to non-significant concentrations of petroleum hydrocarbon constituents were reported in soil samples collected from below the USTs. Results of the UST removal activities were previously submitted in a March 23, 2008 report titled "*Soil Sample Analyses for UST Removal Activities*". A copy of this report is included in Appendix C.

4.7 **Building and Sample Point Survey**: On July 10, 2008, Lars Andersen and Associates, Inc. (Lars Andersen) surveyed for longitude, latitude, and elevation important site features, buildings, and sample locations in areas of concern so that areas identified for further work could be easily located after demolition activities. A copy of the survey information provided by Lars Andersen and Associates, Inc. is included in Appendix D.

5.0 QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

Quality Assurance/Quality Control (QA/QC) procedures were implemented as part of the sampling and analytical procedures.

Field QA/QC procedures were performed at the time of the field activities and consisted of the following:

- Samples were marked and labeled at the time of collection, and returned to the laboratory under chain-of-custody documentation;

- Duplicate samples were collected during each stage of the sampling procedures; and
- Equipment blanks were collected half-way through the sampling activities and analyzed for the same constituents as the soil samples.

Laboratory QA/QC procedures consisted of the following:

- A matrix spike/matrix spike duplicate sample was preformed on one sample per batch of samples to confirm the accuracy and precision of the analytical methods used; and
- Method blanks were run during the analysis of the soil samples to check for contamination from equipment used in the laboratory.

Samples were analyzed for the specified suite of analyses presented in the SSI and Dry Well Investigation Technical Memorandums. Data from the analyses and the project as a whole were evaluated with respect to accuracy, precision, sensitivity, and completeness.

Discrepancies in the sampling procedures were noted under the following Chain-of-Custodies:

Chain-of-Custody 8C24025: Only slight discrepancies existed in the analytical results of the duplicate samples collected from sample locations L18@0-0.5' and F2@0-0.5'. Such anomalies are likely due to a lack of homogenization of the sample during analysis. Benzo (a) pyrene was detected in the Equipment Blank #2 sample at a concentration of 0.24 μg/L or 0.00024 mg/L. This equipment blank sample was collected following the collection of soil sample F4@0-0.5' which had no detectable concentrations of benzo (a) pyrene. The soil sample collected following the equipment blank sample was F4@1.5-2' which also had no detectable concentrations of benzo (a) pyrene. Thus sample integrity appears to not be significantly affected by the detections of this equipment blank sample. There were some specific matrix interferences noted in some of the matrix spikes and matrix spike duplicates for this work order. However, the laboratory report indicates that this should not affect the quality of the analytical results of the entire batch of samples because the blank spikes and blank spike duplicate results were within acceptable quality control limits.

Chain 8D04017: Slight discrepancies existed in the analytical results of the duplicate samples collected from sample location DW2-26'. Such anomalies are likely due to a lack of homogenization of the sample during analysis. There were some specific matrix interferences noted in some of the matrix spikes and matrix spike duplicates for this work order. However, the laboratory report indicates that this should not affect the quality of the analytical results of the entire batch of samples because the blank spikes and blank spike duplicate results were within acceptable quality control limits.

Chain-of-Custody 8G30031: Only slight discrepancies existed in the analytical results of the duplicate sample collected from sample location DW2-15' sampled on July 30, 2008. Such anomalies are likely due to a lack of homogenization of the sample during analysis. Benzo (a) pyrene was detected in the Equipment Blank sample at an estimated concentration below the reporting limit (0.0095 µg/L or 0.0000095 mg/L). This low detection of benzo (a) pyrene is relatively insignificant regarding the integrity of the soil samples collected at the site. There were some specific matrix interferences noted in some of the matrix spikes and matrix spike duplicates for this work order. However, the laboratory report indicates that this should not affect the quality of the analytical results of the entire batch of samples because the blank spikes and blank spike duplicate results were within acceptable quality control limits

The results of the laboratory QA/QC procedures are presented in Appendix B along with the laboratory analytical reports and signed statements from the laboratories regarding the QA/QC procedures used for the analysis.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this SSI investigation, our firm provides the following conclusions and recommendations:

- It appears that COCs identified at the site are limited to three general areas of concern (AOCs). These areas of concern are: 1) former structure driplines, 2) former fire burn pit, and 3) selected dry wells as identified on Drawing 3. The risk driving COCs consist of chlordane (n.o.s) in the area of the driplines, PAH compounds in the area of the fire burn pit, and chlordane (n.o.s.), copper, and PAH compounds at selected dry wells.

- The lateral and vertical extent of elevated COCs above residential CHHSLs present in near surface soils in the areas of the structural driplines and fire burn pit have been adequately defined during this investigation. Generally, soils in the upper 1 to 1.5 feet in these areas of concern (structure drip lines and fire burn pit) are impacted with elevated concentrations of COCs above residential CHHSL values. As such, the removal of these elevated concentrations of COCs at these locations are recommended to achieve an acceptable risk level relative to human health and environment for the site. The volume of soil to be removed is estimated at approximately 30 cubic yards. Following soil removal activities, confirmation soil samples should be collected and analyzed for COCs to confirm the removal of COC-impacted soil and that an acceptable risk level has been achieved. A map depicting areas recommended for near surface soil removal is included as Drawing 3. A remedial action plan (RAP) will be prepared and submitted to DTSC for approval prior to performing the removal activities.

- The vertical extent of COCs found in dry well DW-1 and DW-3 have not been defined, however, since these COCs are not near the surface, risk to sensitive species and human health via dermal contact is not a concern. Nevertheless, our firm recommends that the upper

4 feet of soil in dry wells DW-1, DW-2 and DW-3 be removed utilizing a bucket auger or standard augering techniques so as to prevent the potential migration of elevated concentrations of COCs to groundwater. The volume of soil to be removed is estimated at approximately 6 cubic yards. Confirmation sampling can be performed at that time to confirm the concentrations of COCs left inplace. Following excavation and confirmation soil sampling, Moore Twining recommends that the dry wells be properly abandoned per applicable city, county, and state guidelines. Details of the proposed removal and abandonment activities will be incorporated into the RAP to be prepared for the site prior to conducting the work. A RAP can be prepared within two (2) months of approval of this SSI Report.

- Based on the findings of this investigation, Moore Twining recommends that a "No Further Action" status be issued by the DTSC regarding the agricultural fields, the sump, mechanics pit, and former USTs at the site.

7.0 LIMITATIONS

This Supplemental Site Investigation report has been prepared on behalf of the Fowler Unified School District for the California Department of Toxic Substances Control describing the findings of a soil sampling program conducted at the proposed School Site located at 5470 East South Avenue in Fowler, California. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. This work was carried out in conformance with our "Supplemental Site Investigation Technical Memorandum" dated March 7, 2008 and "Technical Memorandum for Dry Well, Mechanics Pit, and Sump Investigation" dated March 31, 2008.

Conditions of interest may exist at the site that cannot be identified by visual observation alone. Where subsurface exploratory work is performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions or unsampled locations. If conditions of interest are not identified during performance of the work, such a finding should not be construed as a guarantee that such conditions do not exist at the site. The professional services were performed, the findings obtained, and the conclusions prepared in accordance with generally-accepted engineering principles and practices in Fresno County at the time the work was performed. This report was prepared for the sole use of the client and appropriate regulatory agencies. Any reliance on this report by a third party is at such party's sole risk. This warranty is in lieu of all other warranties either expressed or implied.

8.0 CLOSING

Moore Twining appreciates the opportunity to present this SSI Report to the DTSC. If you have questions regarding this report, please contact our office at (559) 268-7021.

Sincerely,

MOORE TWINING ASSOCIATES, INC.
Environmental & Geological Services Division

Keith Mayes, PG No. 7555
Senior Geologist

PROFESSIONAL GEOLOGIST
Ex. 10/31/10
KEITH MAYES
No. 7555
STATE OF CALIFORNIA

CC: Ms. Kamili Siglowide, Department of Toxic Substance Control-Sacramento
Ms. Sharon Ashida, Integrated Design by SOMAM - Fresno

TABLES

TABLE 1
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYTICAL RESULTS
ORGANOCHLORINE PESTICIDES - METHOD 8081 and DIBROMOCHLOROPROPANE (DBCP) - METHOD 8260
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample ID and Depth	Sample Date	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha BHC	alpha-Chlordane	beta BHC	Chlordane (n.o.s.)	delta BHC	Dieldrin	Trifluralin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	gamma BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy-chlor	Toxaphene	DBCP
Agricultural Field Composite Samples (milligrams per kilogram)																								
Composite #1 [S-1A, S-1B, S-2A, S-2B]	5/9/07	<0.030	**0.038**	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #2 [S-1C, S-1D, S-2C, S-2D]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #3 [S-1E, S-1F, S-2E, S-2F]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #4 [S-3A, S-3B, S-4A, S-4B]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #5 [S-3C, S-3D, S-4C, S-4D]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #6 [S-3E, S-3F, S-4E, S-4F]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #7 [S-5A, S-5B, S-6A, S-6B]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #8 [S-5C, S-5D, S-6C, S-6D]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #9 [S-5E, S-5F, S-6E, S-7E]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Composite #10 [S-7A, S-7B, S-7C, S-7D]	5/9/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
Agricultural Field Discrete Samples (milligrams per kilogram)																								
S-2B @ 0'	5/8/07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
S-2E @ 0'	5/8/07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
S-6B @ 0'	5/8/07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
S-6E @ 0'	5/8/07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
S-1A @ 0' *	5/8/07	<0.030	**0.053**	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-1A @ 3' *	5/8/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-1B @ 0' *	5/8/07	<0.030	**0.036**	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-1B @ 3' *	5/8/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-2A @ 0' *	5/8/07	<0.030	**0.035**	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-2A @ 3' *	5/8/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-2B @ 0' *	5/8/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-2B @ 3' *	5/8/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
S-1A @ 0 -0.5'	3/24/08	<0.001	**0.033**	**0.003 J**	<0.005	<0.005	**0.0022 J**	<0.002	**0.038**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-1A @ 2.5-3.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-1B @ 0 -0.5'	3/24/08	<0.001	**0.031**	**0.0037 J**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-1B @ 2.5-3.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-2A @ 0 -0.5'	3/24/08	<0.001	**0.025**	<0.003	<0.005	<0.005	<0.002	<0.002	**0.032**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-2A @ 2.5-3.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-2B @ 0 -0.5'	3/24/08	<0.001	**0.012**	**0.0037 J**	<0.005	<0.005	<0.002	<0.002	**0.033**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
S-2B @ 2.5-3.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
Structure Dripline Samples (milligrams per kilogram)																								
L1@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**1.9**	<0.030	**3.4**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**1.5**	<0.030	<0.030	<0.030	<0.30	NA
L1@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	**0.0028 J**	<0.002	**0.037**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L2@0-0.5'	5/10/07	<0.030	**0.17**	<0.030	<0.030	<0.030	**1.4**	<0.030	**2.5**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**1.1**	<0.030	<0.030	<0.030	<0.30	NA
L2@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L3@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L4@0-0.5'	5/10/07	<0.030	**0.10**	**0.031**	<0.030	<0.030	**0.14**	<0.030	**0.25**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.11**	<0.030	<0.030	<0.030	<0.30	NA
L5@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L6@0-0.5'	5/10/07	<0.030	**0.12**	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L7@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.37**	<0.030	**0.7**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.33**	<0.030	<0.030	<0.030	<0.30	NA
Screening Levels (milligrams per kilogram)																								
Soil Residential CHHSL		2.3	1.6	1.6	0.033	----	----	----	0.43	----	0.035	----	----	----	----	21	----	0.5	----	0.13	----	340	0.46	----
Soil Residential PRG		2.4	1.7	1.7	0.029	90	1.6	0.32	1.6	----	0.03	63	370	370	----	18	----	0.44	1.6	0.11	0.053	310	0.44	0.03

TABLE 1
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYTICAL RESULTS
ORGANOCHLORINE PESTICIDES - METHOD 8081 and DIBROMOCHLOROPROPANE (DBCP) - METHOD 8260
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample ID and Depth	Sample Date	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha BHC	alpha-Chlordane	beta BHC	Chlordane (n.o.s.)	delta BHC	Dieldrin	Trifluralin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	gamma BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy-chlor	Toxaphene	DBCP
L7@1.5-2.0'	3/24/08	<0.001	**0.011**	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L8@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L9@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.057**	<0.030	**0.096**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.039**	<0.030	<0.030	<0.030	<0.30	NA
L10@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.060**	<0.030	**0.094**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.034**	<0.030	<0.030	<0.030	<0.30	NA
L11@0-0.5'	5/10/07	<0.030	**0.085**	**0.11**	<0.030	<0.030	**0.14**	<0.030	**0.25**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.11**	<0.030	<0.030	<0.030	<0.30	NA
L12@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.068**	<0.030	**0.129**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.061**	<0.030	<0.030	<0.030	<0.30	NA
L13@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.046**	<0.030	**0.082**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.036**	<0.030	<0.030	<0.030	<0.30	NA
L14@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L15@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.088**	<0.030	**0.176**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.088**	<0.030	<0.030	<0.030	<0.30	NA
L16@0-0.5'	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.30	NA
L17@0-0.5'	3/24/08	<0.001	**0.018**	**0.011**	<0.005	<0.005	**0.0033 J**	<0.002	**0.046**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.0027 J**	<0.008	<0.002	<0.002	<0.005	NA
L17@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L18@0-0.5'	3/24/08	<0.001	**0.047**	**0.023**	<0.005	<0.005	**0.082**	<0.002	**1.0**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.05**	<0.008	<0.002	<0.002	<0.005	NA
L18@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L19@0-0.5'	3/24/08	<0.001	**0.008 J**	<0.003	<0.005	<0.005	**0.0023 J**	<0.002	**0.036**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L19@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L20@0-0.5'	3/24/08	<0.001	**0.024**	**0.011**	<0.005	<0.005	**0.011**	<0.002	**0.16**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.0063 J**	<0.008	<0.002	<0.002	<0.005	NA
L20@1.5-2.0'	3/24/08	<0.001	**0.015**	**0.016**	<0.005	<0.005	**0.032**	<0.002	**0.37**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.023**	<0.008	<0.002	<0.002	<0.005	NA
L21@0-0.5'	3/24/08	<0.001	**0.092**	**0.023**	<0.005	<0.005	**0.021**	<0.002	**0.27**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.012**	<0.008	<0.002	<0.002	<0.005	NA
L21@1.5-2.0'	3/24/08	<0.001	**0.034**	**0.006 J**	<0.005	<0.005	**0.0052 J**	<0.002	**0.064**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.0035 J**	<0.008	<0.002	<0.002	<0.005	NA
L22@0-0.5'	3/24/08	<0.001	**0.024**	**0.0032 J**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L22@1.5-2.0'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L23@0-0.5'	3/24/08	<0.001	<0.002	<0.003	<0.005	<0.005	**0.0035 J**	<0.002	**0.039**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.0028 J**	<0.008	<0.002	<0.002	<0.005	NA
L23@1.5-2.0'	3/24/08	<0.001	**0.013**	**0.018**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L24@0-0.5'	3/24/08	<0.001	**0.0083**	<0.0083	<0.005	<0.005	**0.0027 J**	<0.002	**0.035**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.0023 J**	<0.008	<0.002	<0.002	<0.005	NA
L24@1.5-2.0'	3/24/08	<0.001	**0.0068 J**	**0.0032 J**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L25@0-0.5'	3/24/08	<0.001	**0.010**	**0.0062 J**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
L25@1.5-2.0'	3/24/08	<0.001	**0.018**	**0.0048 J**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
Dry Well Samples (milligrams per kilogram)																								
DW1-14'	4/3/08	<0.001	**0.043**	**0.074**	<0.005	<0.005	**0.13**	<0.002	**2.0**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.17**	<0.008	<0.002	<0.002	<0.005	NA
DW2-15'	4/3/08	**0.0012 J**	**0.012**	<0.0083	<0.005	<0.005	<0.002	<0.002	**0.081**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
DW2-21'	4/3/08	<0.001	**0.003 J**	<0.0083	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
DW2-26'	4/3/08	<0.001	<0.002	<0.0083	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
DW2-36'	4/3/08	<0.001	<0.002	<0.0083	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
DW3-21'	4/3/08	**0.018**	**0.029**	**0.063**	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
DW4-14.5'	4/3/08	<0.001	**0.025**	<0.0083	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
Duplicate Samples (milligrams per kilogram)																								
Duplicate (Composite #7)	5/8/07	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.3	<0.03	<0.03	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.3	NA
Duplicate (L10@0-0.5')	5/10/07	<0.030	<0.030	<0.030	<0.030	<0.030	**0.060**	<0.030	**0.092**	<0.030	<0.030	<0.050	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**0.032**	<0.030	<0.030	<0.030	<0.30	NA
Duplicate #2 (L18@0-0.5')	3/24/08	<0.001	**0.054**	**0.03**	<0.005	<0.005	**0.098**	<0.002	**1.1**	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	**0.067**	<0.008	<0.002	<0.002	<0.005	NA
Duplicate (DW2-26')	4/3/2008	<0.001	<0.002	<0.0083	<0.005	<0.005	<0.002	<0.002	<0.030	<0.002	<0.002	<0.003	<0.002	<0.002	<0.001	<0.003	<0.002	<0.006	<0.002	<0.008	<0.002	<0.002	<0.005	NA
Groundwater Sample (Results in micrograms per Liter)																								
U1	5/9/07	<0.05	<0.05	<0.01	<0.005	<0.01	<0.1	<0.005	<0.1	<0.005	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.01	<0.02	<0.1	<0.01	<0.01	<10	<0.5	<0.01
Trip and Equipment Blanks (micrograms per Liter)																								
Equipment Blank	5/8/07	<0.004	<0.002	<0.004	<0.003	<0.004	<0.002	<0.004	<0.002	<0.003	<0.002	<0.003	<0.003	<0.002	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.004	<0.006	<0.1	NA
Equipment Blank #1	3/24/08	<0.004	<0.002	<0.004	<0.003	<0.004	<0.002	<0.004	<0.002	<0.003	<0.002	<0.003	<0.003	<0.002	<0.003	<0.003	<0.004	<0.003	<0.002	<0.002	<0.004	<0.006	<0.1	NA
Travel Blank	3/24/08	<0.004	<0.002	<0.004	<0.003	<0.004	<0.002	<0.004	<0.002	<0.003	<0.002	<0.003	<0.003	<0.002	<0.003	<0.003	<0.004	<0.003	<0.002	<0.002	<0.004	<0.006	<0.1	NA
Equipment Blank	4/3/08	<0.004	<0.002	<0.004	<0.003	<0.004	<0.002	<0.004	<0.002	<0.003	<0.002	<0.003	<0.003	<0.002	<0.003	<0.003	<0.004	<0.003	<0.002	<0.002	<0.004	<0.006	<0.1	NA
Screening Levels (milligrams per kilogram)																								
Soil Residential CHHSL		2.3	1.6	1.6	0.033	----	----	----	0.43	----	0.035	----	----	----	----	21	----	0.5	----	0.13	----	340	0.46	----
Soil Residential PRG		2.4	1.7	1.7	0.029	90	1.6	0.32	1.6	----	0.03	63	370	370	----	18	----	0.44	1.6	0.11	0.053	310	0.44	0.03

Notes:
* = this sample was analyzed past EPA recommended holding time to assess the presence of OCPs from Composite #1
NA = not analyzed
CHHSLs = California Human Health Screening Levels (Office of Environmental Health Hazard Assessment, January 2005 revision)
PRG = Region 9 Preliminary Remediation Goals Established by the Environmental Protection Agency
J = An estimated concentration between the method detection limit and reporting limit (or lower quantitation limit, LQL)

Chlordane (n.o.s.) = chlordane (not otherwise specified)
< 0.5 = less than followed by the reported laboratory detection limit (not detected)
DBCP = 1,2-Dibromo-3-chloropropane
---- = dashed where screening levels are not available.

TABLE 2
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) METHOD 8310
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample ID and Depth	Sample Date	Results in milligrams per kilogram (mg/kg)															
		Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) Pyrene	Naphthalene	Phenanthrene	Pyrene
Fire Pit (milligrams per kilogram)																	
F1 @ 0'	5/8/07	<0.50	<0.25	<0.05	**0.31**	**0.58**	**0.42**	**0.44**	**0.26**	**0.46**	<1.0	**1.1**	<0.05	**0.50**	<0.25	**0.20**	**0.94**
F1@1.5-2.0'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
F1@3.0-3.5'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
A2 @ 1'	5/9/07	<0.50	<0.25	<0.01	<0.025	<0.025	<0.01	<0.04	<0.01	<0.025	<0.1	<0.025	<0.05	<0.025	<0.25	<0.02	<0.05
A2 @ 5'	5/9/07	<0.50	<0.25	<0.01	<0.025	<0.025	<0.01	<0.04	<0.01	<0.025	<0.1	<0.025	<0.05	<0.025	<0.25	<0.02	<0.05
F2@0-0.5'	3/24/08	<0.75	<0.56	<0.35	**0.22 J**	**0.54 J**	<0.046	<0.06	**0.24 J**	**0.78 J**	<0.10	**1.2**	<0.36	<0.039	<0.58	**0.58 J**	**1.2**
F2@1.5-2.0'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
F3@0-0.5'	3/24/08	<0.0075	<0.0056	<0.0035	<0.0003	<0.00084	<0.00046	<0.0006	<0.00058	**0.013**	<0.001	**0.011**	<0.0036	<0.00039	<0.0058	<0.0044	<0.00059
F3@1.5-2.0'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	**0.0001 J**	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	**0.0005 J**	<0.000059
F4@0-0.5'	3/24/08	<0.03	<0.023	<0.014	<0.0012	<0.0034	<0.0018	<0.0024	<0.0023	**0.037 J**	<0.0042	<0.001	<0.015	<0.0016	<0.023	<0.018	**0.04**
F4@1.5-2.0'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
F5@0-0.5'	3/24/08	<0.075	<0.056	<0.035	**0.043 J**	<0.0084	<0.0046	<0.006	**0.035 J**	**0.12**	<0.010	**0.16**	<0.036	<0.0039	<0.058	**0.070 J**	**0.14**
F5@1.5-2.0'	3/24/08	<0.00075	<0.00056	<0.00035	<0.00003	**0.00016 J**	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
Sump and Mechanics Pit (milligrams per kilogram)																	
SM1-3'	4/3/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
MP1-5'	4/3/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
MP2-5'	4/3/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.000060	<0.000058	<0.000043	<0.00010	<0.000025	<0.00036	<0.000039	<0.00058	<0.00044	<0.000059
Dry Wells (milligrams per kilogram)																	
DW1-14'	7/30/08	<0.0075	<0.0056	<0.0035	<0.0003	<0.00084	<0.00046	<0.00060	<0.00058	<0.00043	<0.0010	<0.00025	<0.0036	<0.00039	<0.0058	**0.34**	<0.00059
DW2-15'	7/30/08	<0.00075	<0.00056	<0.00035	<0.00003	<0.000084	<0.000046	<0.00006	<0.000058	<0.000043	<0.0001	<0.000025	<0.00036	<0.000039	<0.00058	**0.0088 J**	<0.000059
DW3-21'	7/30/08	<0.00075	<0.00056	<0.00035	**0.061**	**0.13**	<0.000046	**0.039**	<0.030	**0.087**	<0.0001	**0.073**	<0.00036	**0.065**	<0.00058	<0.00044	<0.000059
DW4-14.5'	7/30/08	<0.00075	<0.00056	<0.00035	<0.00003	**0.004**	<0.000046	<0.00006	<0.000058	**0.00065 J**	<0.0001	**0.0008 J**	<0.00036	**0.0026**	<0.00058	**0.00081 J**	<0.000059
Duplicate Samples (milligrams per kilogram)																	
Duplicate #1 (F2@0-0.5')	3/24/08	<0.75	<0.56	<0.35	**0.26 J**	<0.084	<0.046	<0.06	<0.058	**0.92 J**	<0.10	**1.2**	<0.36	<0.039	<0.58	**0.49 J**	**1.1**
Duplicate (DW2-15')	7/30/08	<0.0075	<0.0056	<0.0035	<0.0003	<0.00084	<0.00046	<0.0006	<0.00058	<0.00043	<0.0001	<0.00025	<0.0036	<0.00039	<0.0058	<0.0044	<0.00059
Equipment Blank (micrograms per liter)																	
Equipment Blank #2	3/24/08	<0.009	<0.006	<0.001	<0.001	**0.24**	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.001	<0.005	<0.006	<0.001
Travel Blank	3/24/08	<0.009	<0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.001	<0.005	<0.006	<0.001
Equipment Blank	4/3/08	<0.10	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.10	<0.010	<0.10	<0.10	<0.01
Equipment Blank	7/30/08	<0.009	<0.006	<0.001	<0.001	**0.0095 J**	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.001	<0.005	<0.006	<0.001
Soil Screening Levels (milligrams per kilogram)																	
Residential Soil CHHSL		----	----	----	----	**0.038**	----	----	----	----	----	----	----	----	----	----	----
Residential Soil PRG		**3,700**	----	**22,000**	**0.62**	**0.062**	**0.62**	----	**6.2**	**62**	**0.062**	**2,300**	**2,700**	**0.62**	**56**	----	**2,300**

Notes:
< 0.5 = less than followed by the reported laboratory detection limit (not detected)
NE = not established
CHHSLs = California Human Health Screening Levels (Office of Environmental Health Hazard Assessment, January 2005 revision)
PRG = Region 9 Preliminary Remediation Goals Established by the Environmental Protection Agency
J = An estimated concentration between the method detection limit and reporting limit (or lower quantitation limit, LQL)
---- = dashed where screening levels are not available.

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
Dioxins and Furans - Method 8280A and 8290
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample ID and Depth	Date	Results in micrograms per kilogram (µg/kg)																								
		2,3,7,8-TCDF	Total TCDF	2,3,7,8-TCDD	Total TCDD	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	Total PeCDF	1,2,3,7,8-PeCDD	Total PeCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	Total HxCDF	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	Total HxCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	1,2,3,4,6,7,8-HpCDD	Total HpCDD	OCDF	OCDD
Fire Burn Pit Samples																										
F1@0'	5/8/07	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.8	<2.8	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0	<5.0
F1@1.5-2'	3/24/08	<0.00019	<0.00019	<0.00019	<0.00019	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	<0.00096	**0.0011 J**	<0.00096	**0.0011 J**	**0.0012 J**	**0.0022 J**	<0.0019	**0.0062 J**
Soil Screening Levels (micrograms per kilogram)																										
Residential Soil CHHSL		----	----	0.0046	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Residential Soil PRGs		----	----	0.0039	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Notes:
< 0.5 = less than followed by the reported laboratory detection limit (not detected)
TCDF = tetrachlorodibenzofuran
TCDD = tetrachlorodibenzodioxin
J = an estimated concentration below the calibration range
Note: the laboratory report indicates totals include 2,3,7,8-substituted isomers

PeCDF = pentachlorodibenzofuran
PeCDD = pentachlorodibenzodioxin
HxCDF = hexachlorodibenzofuran

HxCDD = hexachlorodibenzodioxin
HpCDF = heptachlordibenzofuran
HpCDD = heptachlorodibenzodioxin

OCDF = octachlorodibenzofuran
OCDD = octachlorodibenzodioxin

TABLE 4
SUMMARY OF SOIL AND GROUNWATER SAMPLE ANALYTICAL RESULTS
Hydrocarbon Chain Speciation, TPH-g, BTEX, and MTBE - Method 8021 and 8015
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample Identification and Depth	Date	C_6-C_{12}	C_{13}-C_{22}	C_{23}-C_{32}	TPH-g (C_4-C_{12})	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
Fire Burn Pit Samples (milligrams per kilogram)										
F1 @ 0'	5/8/2007	<3.5	**20**	**20**	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
Aboveground Storage Tank Samples (milligrams per kilogram)										
A1 @ 1'	5/10/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A1 @ 5'	5/10/2007	<3.5	<5	**9.2**	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A2 @ 1'	5/9/2007	<3.5	<5	**2.6**	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A2 @ 5'	5/9/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A3 @ 1'	5/10/2007	<3.5	<5	**3.2**	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A3 @ 5'	5/10/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A4 @ 1'	5/10/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
A4 @ 5'	5/10/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
Underground Storage Tank (Results in milligrams per kilogram)										
U1 @ 10'	5/9/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
U1 @ 15'	5/9/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
U2 @ 10'	5/9/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
U2 @ 15'	5/9/2007	<3.5	<5	<2.5	<0.05	<0.003	<0.003	<0.003	<0.003	<0.005
UST Removal Soil Samples (milligrams per kilogram)										
T1@8'	3/21/2008	<3.5	<5	<2.7	<0.050	NA	NA	NA	NA	NA
T2@8'	3/21/2008	<3.5	<5	<2.7	<0.050	NA	NA	NA	NA	NA
Dry Wells (milligrams per kilogram)										
DW1-14'	4/3/08	<20	**300**	**270**	**0.79**	NA	NA	NA	NA	NA
DW2-15'	4/3/08	<2.0	**6**	**17**	<0.050	NA	NA	NA	NA	NA
DW2-21'	4/3/08	<2.0	<2.0	**8.2**	<0.050	NA	NA	NA	NA	NA
DW2-26'	4/3/08	<2.0	<2.0	**5.2**	<0.050	NA	NA	NA	NA	NA
DW2-36'	4/3/08	<2.0	<2.0	**4.1**	<0.050	NA	NA	NA	NA	NA
DW3-21'	4/3/08	<2.0	**26**	**79**	**0.1**	NA	NA	NA	NA	NA
DW4-14.5'	4/3/08	<2.0	**2.1 J**	**11**	<0.050	NA	NA	NA	NA	NA
Screening Levels (milligrams per kilogram)										
Residential Soil CHHSL		----	----	----	----	----	----	----	----	----
Residential Soil PRG		----	----	----	----	0.64	520	400	270	32

TABLE 4
SUMMARY OF SOIL AND GROUNWATER SAMPLE ANALYTICAL RESULTS
Hydrocarbon Chain Speciation, TPH-g, BTEX, and MTBE - Method 8021 and 8015
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample Identification and Depth	Date	C_6-C_{12}	C_{13}-C_{22}	C_{23}-C_{32}	TPH-g (C_4-C_{12})	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
Sump and Mechanics Pit (milligrams per kilogram)										
SM1-3'	4/3/08	<2.0	<2.0	**2.4 J**	<0.050	NA	NA	NA	NA	NA
MP1-5'	4/3/08	<2.0	<2.0	**3.0**	<0.050	NA	NA	NA	NA	NA
MP2-5'	4/3/08	<2.0	<2.0	**2.9**	<0.050	NA	NA	NA	NA	NA
Duplicate Samples (milligrams per kilogram)										
Duplicate (A4 @ 1')	5/10/2007	<3.5	<5	<2.5	<0.050	<0.003	<0.003	<0.003	<0.003	<0.005
Duplicate (T1@8')	3/21/2008	<3.5	<5	<2.7	<0.050	NA	NA	NA	NA	NA
Duplicate (DW2-26')	4/3/2008	<2.0	<2.0	<2.0	<0.050	NA	NA	NA	NA	NA
Groundwater Sample, Trip Blanks, and Equipment Blanks (micrograms per liter)										
U1	5/9/2007	**67**	**370**	**520**	<50	<0.5	<0.5	<0.5	<2	<1
Trip Blank	5/8/2007	<25	<100	<50	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Trip Blank	5/10/2007	<25	<100	<50	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Trip Blank	3/21/2008	NA	**NA**	NA	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Equipment Blank	5/8/2007	<25	<100	<50	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Equipment Blank	5/9/2007	<25	<100	<50	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Equipment Blank	5/10/2007	<25	<100	<50	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Equipment Blank	4/3/2008	**41 J**	**18 J**	**53 J**	<50	<0.5	<0.5	<0.5	<1.5	<2.5
Screening Levels (milligrams per kilogram)										
Residential Soil CHHSL		----	----	----	----	----	----	----	----	----
Residential Soil PRG		----	----	----	----	0.64	520	400	270	32

Notes:
* = Composite sample. Discrete samples were obtained at a depth of 2 to 2.5 feet below site grade
** = Chromatographic pattern atypical of TPH-d hydrocarbon fuel
< 0.5 = less than followed by the reported laboratory detection limit (not detected)
TPH-g = Total petroleum hydrocarbons as referenced as gasoline
CHHSLs = California Human Health Screening Levels (Office of Environmental Health Hazard Assessment, January 2005 revision)
PRG = Region 9 Preliminary Remediation Goals Established by the Environmental Protection Agency
J = an estimated concentration between the method detection limit and reporting limit (or lower quantitation limit, LQL)
---- = dashed where screening levels are not available.

TABLE 5
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYTICAL RESULTS
DBCP AND OTHER VOLATILE ORGANIC COMPUNDS - METHOD 8260B
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample Identification and Depth	Date	DBCP	B	T	E	X	MTBE	PCE	TCE	Naphthalene	1,2,4-Trimethyl benzene	Other VOCs
Agricultural Field Samples (micrograms per kilogram)												
S-2B @ 0'	5/8/07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
S-2E @ 0'	5/8/07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
S-6B @ 0'	5/8/07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
S-6E @ 0'	5/8/07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
UST Tank Removal Samples (micrograms per kilogram)												
T1@8'	3/21/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
T2@8'	3/21/08	<0.61	**0.89**	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
Dry Wells (micrograms per kilogram)												
DW1-14'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	**9.2**	<0.76	ND
DW2-15'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
DW2-21'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
DW2-26'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
DW2-36'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
DW3-21'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
DW4-14.5'	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
Sump and Mechanics Pit (micrograms per kilogram)												
SM1-3'	4/3/08	NA	<0.72	<1.0	<0.99	<2.42	<2.1	NA	NA	NA	NA	NA
MP1-5'	4/3/08	NA	<0.72	<1.0	<0.99	<2.42	<2.1	NA	NA	NA	NA	NA
MP2-5'	4/3/08	NA	<0.72	<1.0	<0.99	<2.42	<2.1	NA	NA	NA	NA	NA
Duplicate Samples (micrograms per kilogram)												
Duplicate (S-6B @ 0')	5/8/07	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Duplicate (T1@8')	3/21/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
Duplicate (DW2-26')	4/3/08	<0.61	<0.72	<1.0	<0.99	<1.42	<2.1	<1.1	<1.0	<0.83	<0.76	ND
Groundwater Sample, Trip Blanks, and Equipment Blanks (micrograms per liter)												
U1	5/9/07	<5.0	<0.5	<0.5	<0.5	<2.0	<1	<1.0	<0.5	<0.5	**2.2**	ND
Trip Blank	3/21/08	<1.6	<1.6	<0.57	<0.48	<0.92	<0.42	<0.49	<0.31	<0.32	<0.25	ND
Trip Blank	4/3/08	<1.6	<1.6	<0.48	<0.38	<0.92	<0.42	<0.49	<0.31	<0.32	<0.25	ND
Soil Screening Levels (micrograms per kilogram)												
Residential Soil CHHSL		----	----	----	----	----	----	----	----	----	----	----
Residential Soil PRG		460	640	520,000	400,000	270,000	32,000	480	53	56,000	52,000	NA

BTEX = benzene, toluene, ethylbenzene, xylenes
DBCP = Dibromochloropropane
MTBE = methyl tert-butyl ether
PCE = tetrachloroethene
TCE = trichloroethene
MCL = California Maximum Contaminant Level for drinking water, August 2007
CHHSLs = California Human Health Screening Levels (Office of Environmental Health Hazard Assessment, January 2005 revision)
PRG = Region 9 Preliminary Remediation Goals Established by the Environmental Protection Agency
---- = dashed where screening levels are not available.
< 0.5 = less than followed by the reported laboratory detection limit (not detected)
Note: see laboratory report for complete list of VOC compounds analyzed

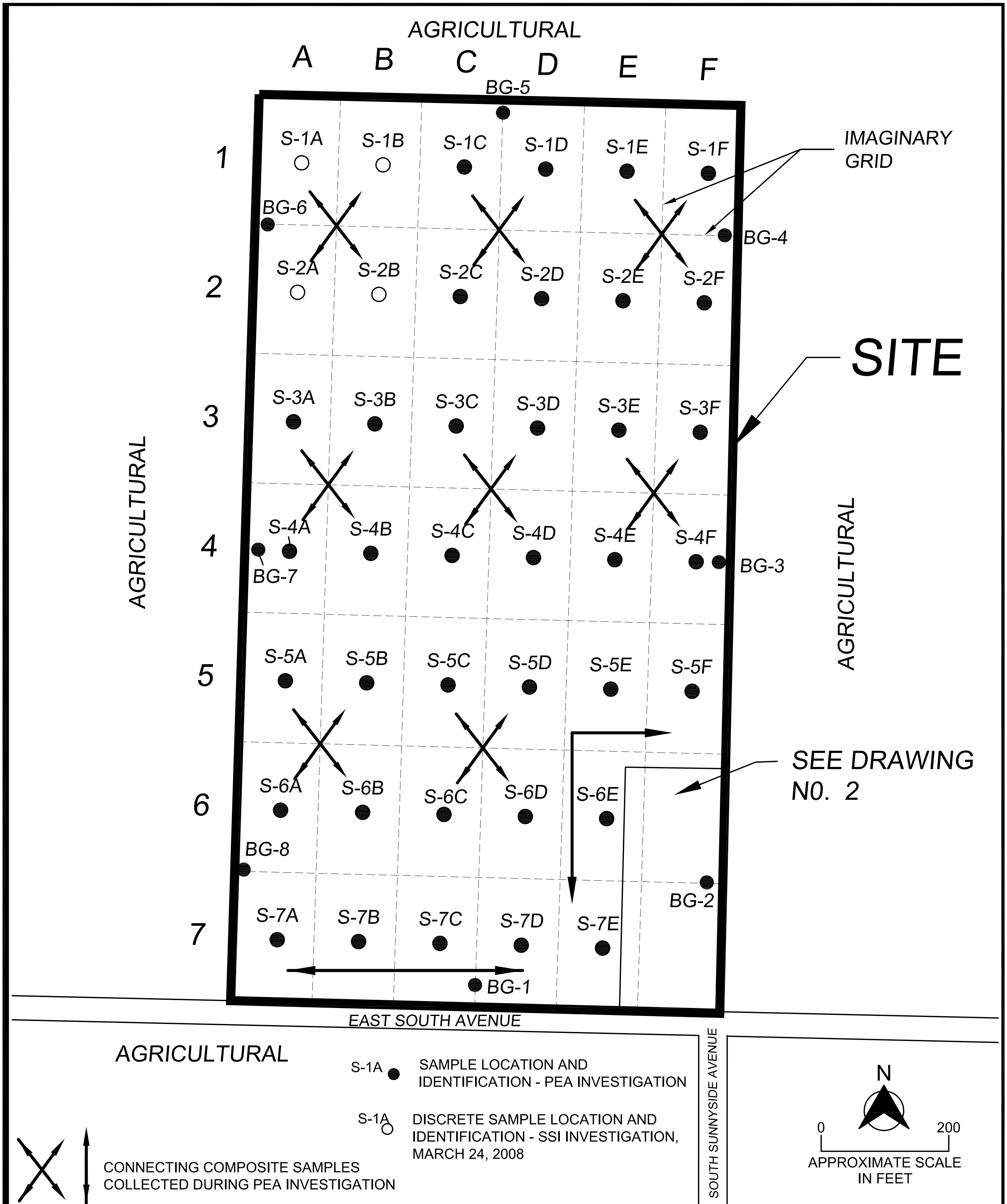
TABLE 6
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
CAM 17 METALS - METHOD 6010/7471
PEA AND SSI INVESTIGATIONS
Fowler Unified School District - 5470 East South Avenue, Fowler, California

Sample Identification and Depth	Date	Antimony	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molyb-denum	Nickel	Silver	Thallium	Vanadium	Zinc	Arsenic	Mercury	Selenium
Agricultural Field Samples (milligrams per kilogram)																		
S-2D @ 0'	5/8/07	<2	62	<0.4	<0.4	9.8	3.5	45	7.9	<2	6.8	<2	<5	33	58	2.6	<0.04	<5
S-4C @ 0'	5/8/07	<2	50	<0.4	<0.4	9.0	3.3	48	5.8	<2	6.9	<2	<5	29	49	2.4	<0.04	<5
S-6B @ 0'	5/8/07	<2	51	<0.4	<0.4	8.6	3.1	41	8.7	<2	6.7	<2	<5	27	50	3.1	<0.04	<5
S-6E @ 0'	5/8/07	<2	51	<0.4	<0.4	10	3.1	46	7.0	<2	6.6	<2	<5	27	55	3.3	<0.04	<5
Background Samples (milligrams per kilogram)																		
BG-1 @ 5'	5/8/07	<2	46	<0.4	<0.4	6.5	3.1	6.5	2.4	<2	5.7	<2	<5	27	23	3.2	<0.04	<5
BG-2 @ 5'	5/8/07	<2	49	<0.4	<0.4	7.7	3.4	7.7	2.6	<2	6.7	<2	<5	32	26	2.5	<0.04	<5
BG-3 @ 5'	5/8/07	<2	60	<0.4	<0.4	10	4.0	8.9	3.5	<2	8.3	<2	<5	35	29	2.3	<0.04	<5
BG-4 @ 5'	5/8/07	<2	51	<0.4	<0.4	8.9	3.3	9.1	2.9	<2	6.6	<2	<5	32	26	2.1	<0.04	<5
BG-5 @ 5'	5/8/07	<2	77	<0.4	<0.4	7.2	2.9	11	2.3	<2	5.1	<2	<5	28	30	2.3	<0.04	<5
BG-6 @ 5'	5/8/07	<2	51	<0.4	<0.4	8.6	3.7	8.7	3.1	<2	6.6	<2	<5	39	29	3.9	<0.04	<5
BG-7 @ 5'	5/8/07	<2	70	<0.4	<0.4	7.8	4.2	14	4.7	<2	8.8	<2	<5	35	40	3.5	<0.04	<5
BG-8 @ 5'	5/8/07	<2	46	<0.4	<0.4	6.6	2.9	6.4	2.1	<2	5.6	<2	<5	28	22	<2	<0.04	<5
Burn Pit (milligrams per kilogram)																		
F-1 @ 0'	5/8/07	<2	58	<0.4	<0.4	9.9	2.9	38	8.5	<2	6.3	<2	<5	26	53	4.9	<0.04	<5
Above Ground Storage Tank (Results in milligrams per kilogram)																		
A1 @ 1'	5/10/07	<2	59	<0.4	<0.4	10	3.8	120	8.5	<2	9.9	<2	<5	33	52	3.7	<0.04	5.6
A1 @ 5'	5/10/07	<2	71	<0.4	<0.4	7.7	3.6	10	3.5	<2	5.8	<2	<5	35	34	<2	<0.04	5.2
A2 @ 1'	5/9/07	<2	70	<0.4	<0.4	10	3.7	8.6	3.4	<2	8.1	<2	<5	34	27	2.5	<0.04	<5
A2 @ 5'	5/9/07	<2	37	<0.4	<0.4	6.6	2.6	5.5	<2	<2	3.6	<2	<5	37	20	<2	<0.04	<5
A3 @ 1'	5/10/07	<2	53	<0.4	<0.4	9.4	3.3	13	3.9	<2	7.5	<2	<5	32	37	3.3	<0.04	5.5
A3 @ 5'	5/10/07	<2	44	<0.4	<0.4	8.0	2.9	7.5	2.5	<2	5.2	<2	<5	34	28	<2	<0.04	5.8
A4 @ 1'	5/10/07	<2	47	<0.4	<0.4	8.2	2.9	6.5	2.3	<2	6.6	<2	<5	31	21	<2	<0.04	5.3
A4 @ 5'	5/10/07	<2	49	<0.4	<0.4	7.4	3.1	8.0	2.6	<2	6.7	<2	<5	32	26	2.3	<0.04	5.1
Dry Well Samples (milligrams per kilogram)																		
DW1-14'	4/3/08	0.60 J	98	0.26 J	0.023	23	3.1	2,500	37	27	9.6	<0.10	<0.46	36	120	4.9	<0.010	2.8 J
DW2-15'	4/3/08	<0.10	32	0.18 J	<0.023	5.7	2.2	4.6	1.7 J	<0.13	5.0	<0.10	<0.46	21	19	0.99 J	0.020 J	1.2 J
DW2-21'	4/3/08	0.14 J	27	0.089 J	<0.023	5.3	5.2	6.2	0.81 J	<0.13	11	<0.10	<0.46	24	17	2.3	0.26	1.7 J
DW2-26'	4/3/08	0.20 J	31	0.14 J	<0.023	8.8	2.8	5.8	0.86 J	<0.13	9.0	<0.10	<0.46	43	16	1.5 J	0.012 J	3.1 J
DW2-36'	4/3/08	0.13 J	31	0.10 J	<0.023	3.7	2.0	4.6	0.93 J	<0.13	2.8	<0.10	<0.46	20	16	0.99 J	0.012 J	1.5 J
DW3-21'	4/3/08	0.24 J	40	0.17 J	<0.023	7.7	2.0	10	3.4	<0.13	5.6	<0.10	<0.46	28	91	0.95 J	0.035 J	1.8 J
DW4-14.5'	4/3/08	0.17 J	65	0.25 J	<0.023	11	3.7	14	4.4	<0.13	9.1	<0.10	<0.46	32	34	3.0	0.020 J	2.0 J
Sump and Mechanics Pit Samples (milligrams per kilogram)																		
SM1-3'	4/3/08	0.20 J	46	0.23 J	<0.023	7.8	3.0	14	1.7 J	<0.13	6.1	<0.10	<0.46	28	28	2.8	<0.010	2.1 J
MP1-5'	4/3/08	0.32 J	42	0.20 J	<0.023	6.6	2.9	29	1.7 J	<0.13	6.4	<0.10	<0.46	28	39	2.0	<0.010	2.0 J
MP2-5'	4/3/08	0.32 J	42	0.21 J	<0.023	8.1	3.5	11	1.8 J	<0.13	8.0	<0.10	<0.46	35	36	1.6 J	<0.010	1.5 J
Duplicate Sample (milligrams per kilogram)																		
Duplicate (A4 @ 1')	5/10/07	<2	51	<0.4	<0.4	8.6	3.2	7.2	2.5	<2	7.1	<2	<5	32	24	2.3	<0.038	5.3
Duplicate (DW2-26')	4/3/08	0.20 J	27	0.096 J	<0.023	5.4	2.0	3.8	1.5 J	<0.13	6.7	<0.10	<0.46	20	13	1.3 J	<0.010	1.5 J
Screening Levels (milligrams per kilogram)																		
Residential Soil CHHSL		30	5,200	150	1.7	100,000	660	3,000	150	380	1,600	380	5	530	23,000	0.07	18	380
Residential Soil PRG		31	5,400	150	37	100,000	900	3,100	400	390	1,600	390	5.2	78	23,000	0.39	23	390

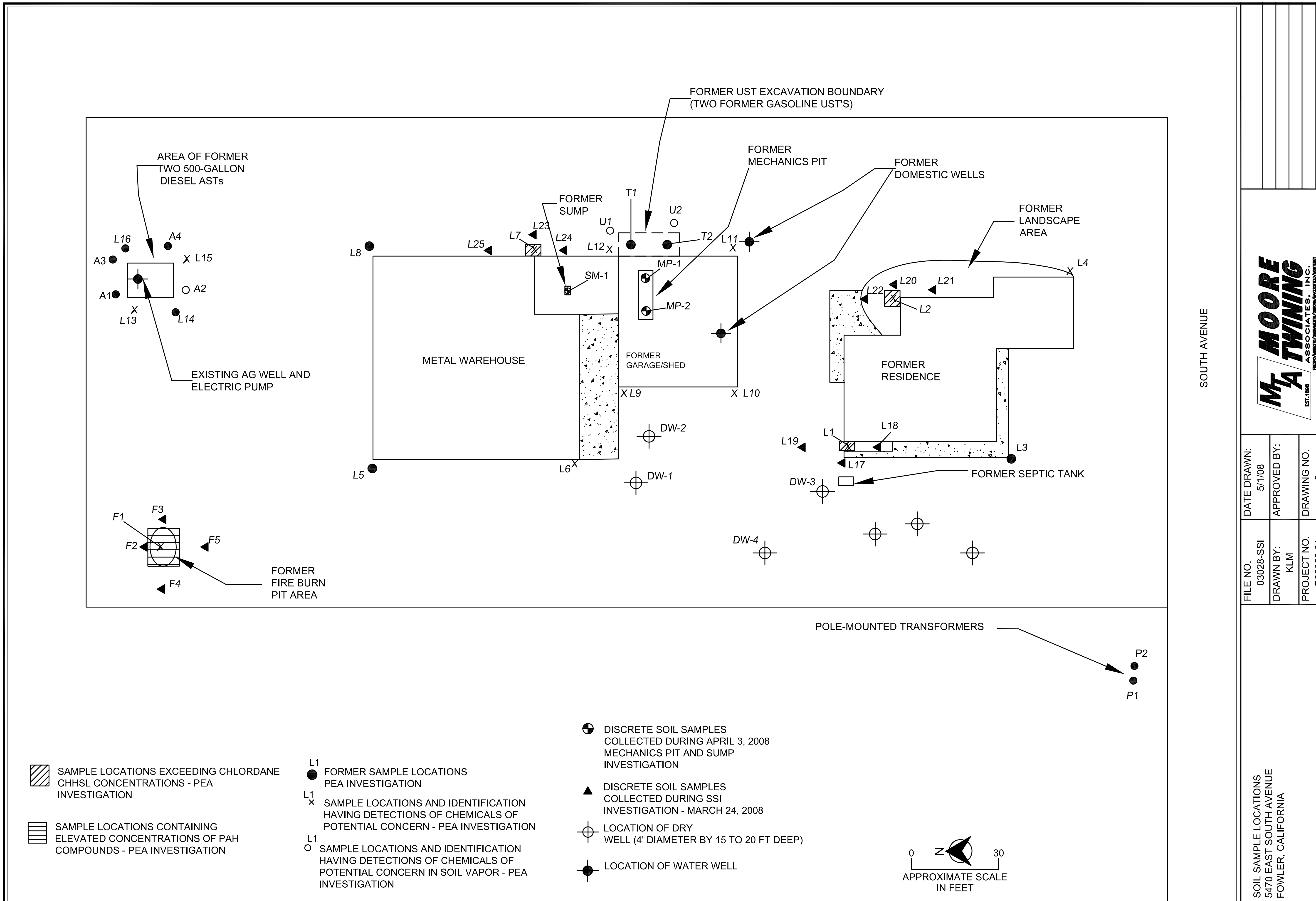
Notes:
NA = not analyzed
CHHSLs = California Human Health Screening Levels (Office of Environmental Health Hazard Assessment, January 2005 revision)
PRG = Region 9 Preliminary Remediation Goals Established by the Environmental Protection Agency
J = An estimated concentration between the method detection limit and reporting limit (or lower quantitation limit, LQL)

S-2D @ 0' = Sample number followed by the depth of sample collection below site grade
< 0.5 = less than followed by the reported laboratory detection limit (not detected)

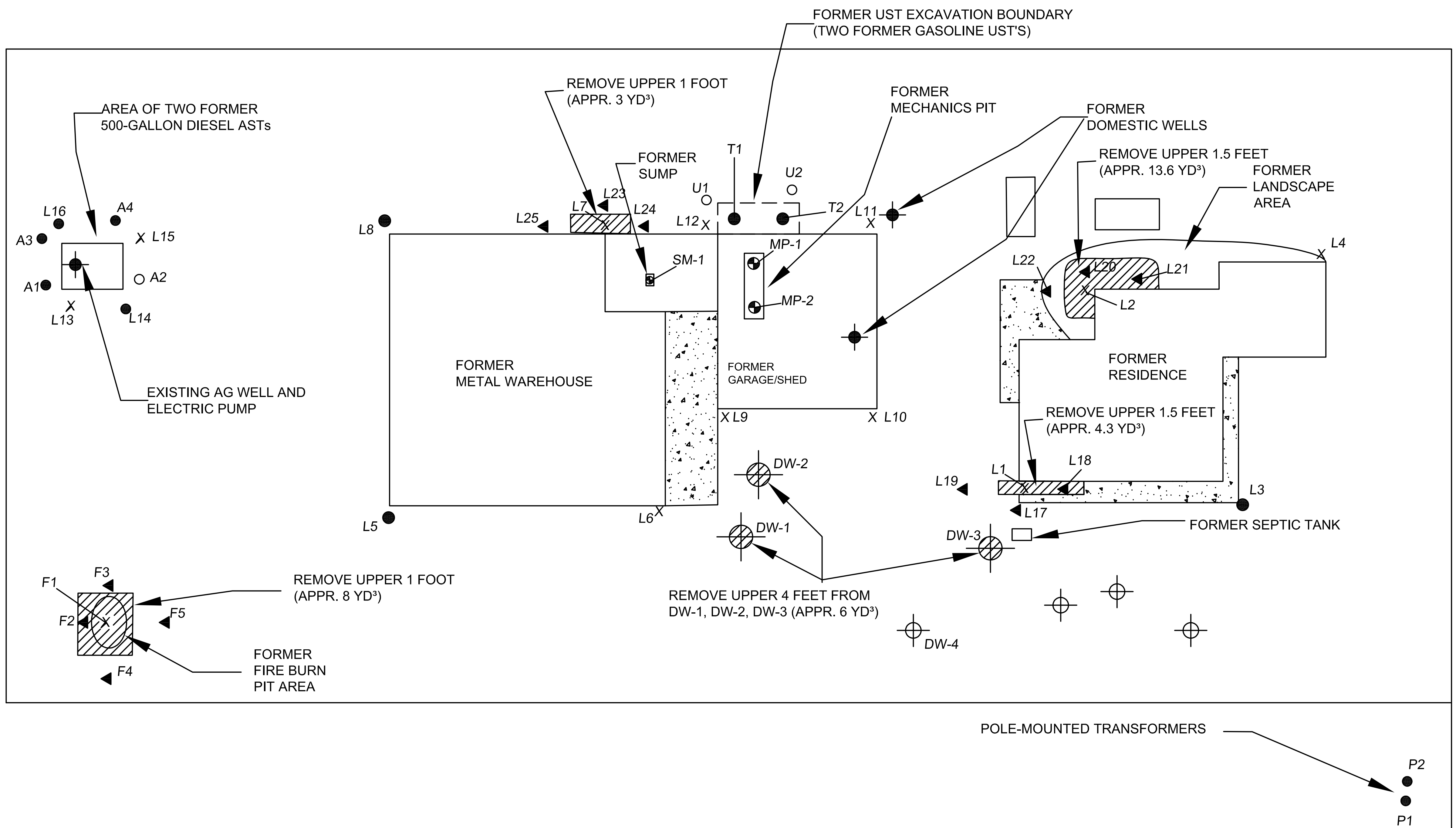
DRAWINGS



AGRICULTURAL FIELD SOIL SAMPLE LOCATIONS 5470 EAST SOUTH AVENUE FOWLER, CALIFORNIA	FILE NO. 03028-02-02	DATE DRAWN: 5/1/08	MTA MOORE TWINING ASSOCIATES, INC. EST.1898 FRESNO/MODESTO/SACRAMENTO/CORONA/BAKERSFIELD/MONTEREY
	DRAWN BY: RM	APPROVED BY:	
	PROJECT NO. B03028.02	DRAWING NO. 1	



FORMER UST EXCAVATION BOUNDARY
(TWO FORMER GASOLINE UST'S)
AREA OF FORMER
TWO 500-GALLON
DIESEL ASTs
FORMER
MECHANICS PIT
FORMER
DOMESTIC WELLS
FORMER
SUMP
FORMER
LANDSCAPE
AREA
T1
U1
U2
T2
L16
A4
L15
A3
A2
A1
L13
L14
L8
L25
L7
L23
L24
L12
L11
MP-1
SM-1
MP-2
L4
L20
L21
L22
L2
METAL WAREHOUSE
FORMER
GARAGE/SHED
L9
L10
FORMER
RESIDENCE
EXISTING AG WELL AND
ELECTRIC PUMP
DW-2
L19
L1
L18
L3
L5
L6
L17
DW-1
DW-3
FORMER SEPTIC TANK
F3
F1
F2
F5
F4
FORMER
FIRE BURN
PIT AREA
DW-4
SOUTH AVENUE
POLE-MOUNTED TRANSFORMERS
P2
P1
SAMPLE LOCATIONS EXCEEDING CHLORDANE CHHSL CONCENTRATIONS - PEA INVESTIGATION
SAMPLE LOCATIONS CONTAINING ELEVATED CONCENTRATIONS OF PAH COMPOUNDS - PEA INVESTIGATION
L1 FORMER SAMPLE LOCATIONS PEA INVESTIGATION
L1 SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN - PEA INVESTIGATION
L1 SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN IN SOIL VAPOR - PEA INVESTIGATION
DISCRETE SOIL SAMPLES COLLECTED DURING APRIL 3, 2008 MECHANICS PIT AND SUMP INVESTIGATION
DISCRETE SOIL SAMPLES COLLECTED DURING SSI INVESTIGATION - MARCH 24, 2008
LOCATION OF DRY WELL (4' DIAMETER BY 15 TO 20 FT DEEP)
LOCATION OF WATER WELL
N
0
30
APPROXIMATE SCALE
IN FEET
MOORE TWINING ASSOCIATES, INC.
EST. 1898
DATE DRAWN: 5/1/08
APPROVED BY:
DRAWING NO. 2
FILE NO. 03028-SSI
DRAWN BY: KLM
PROJECT NO. B03028.01
SOIL SAMPLE LOCATIONS
5470 EAST SOUTH AVENUE
FOWLER, CALIFORNIA



PROPOSED AREA OF COC-IMPACTED SOIL TO BE REMOVED. IMPACTED SOIL AT BOTTOM OF DRY WELLS TO BE REMOVED BY BUCKET AUGER OR OTHER APPROPRIATE AUGER TECHNIQUES

L1 FORMER SAMPLE LOCATIONS PEA INVESTIGATION

L1 × SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN - PEA INVESTIGATION

L1 ○ SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN IN SOIL VAPOR - PEA INVESTIGATION

DISCRETE SOIL SAMPLES COLLECTED DURING APRIL 3, 2008 MECHANICS PIT AND SUMP INVESTIGATION

DISCRETE SOIL SAMPLES COLLECTED DURING SSI INVESTIGATION - MARCH 24, 2008

LOCATION OF DRY WELL (4' DIAMETER BY 15 TO 20 FT DEEP)

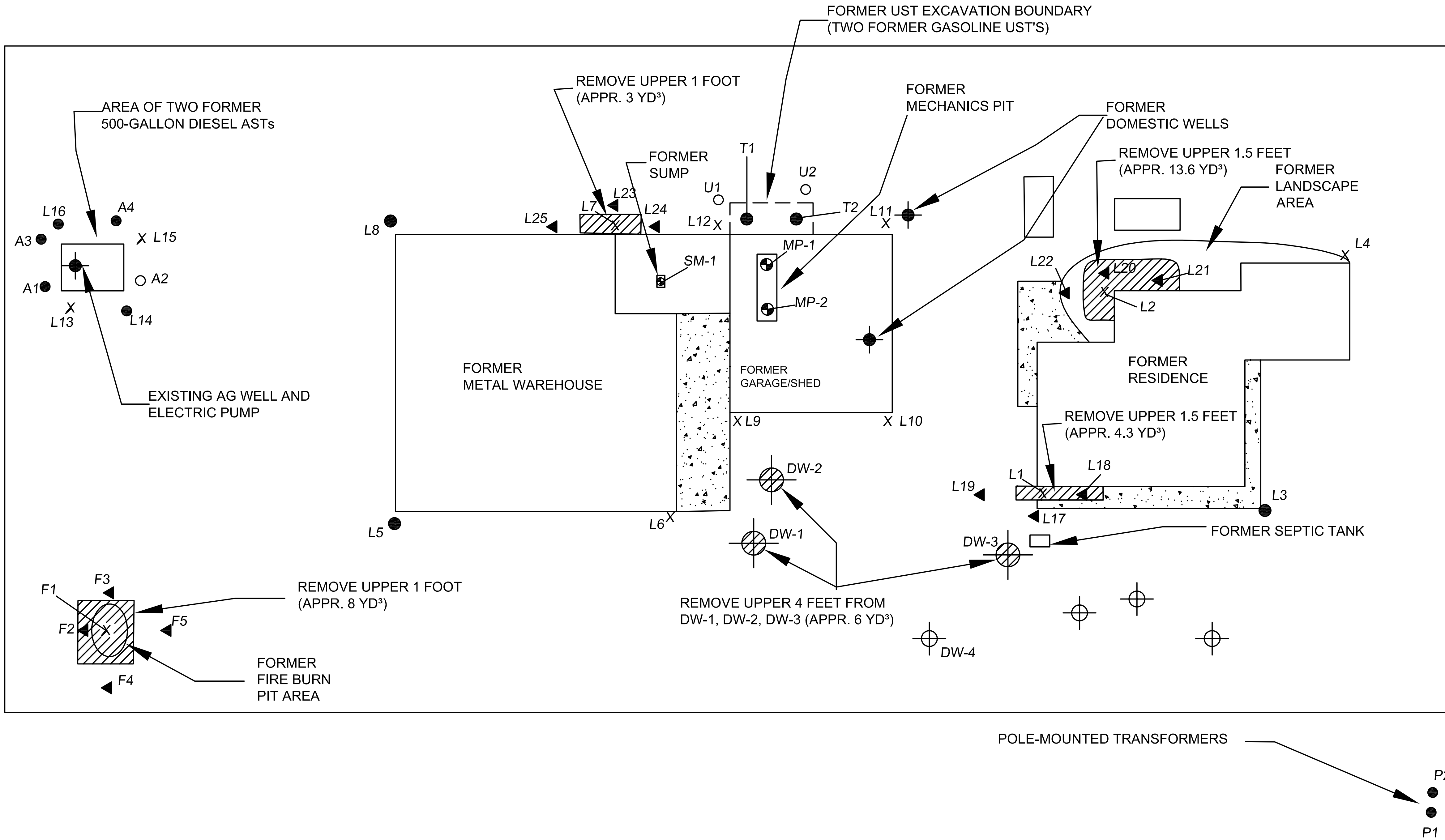
LOCATION OF WATER WELL

0 N 30
APPROXIMATE SCALE IN FEET

MOORE TWINING ASSOCIATES, INC.

DATE DRAWN: 12/24/08	APPROVED BY:	DRAWING NO. 3
FILE NO. 03028-REM	DRAWN BY: KLM	PROJECT NO. B03028.01

PROPOSED LOCATIONS OF SOIL REMOVAL
5470 EAST SOUTH AVENUE
FOWLER, CALIFORNIA



PROPOSED AREA OF COC-IMPACTED SOIL TO BE REMOVED. IMPACTED SOIL AT BOTTOM OF DRY WELLS TO BE REMOVED BY BUCKET AUGER OR OTHER APPROPRIATE AUGER TECHNIQUES

L1 ● FORMER SAMPLE LOCATIONS PEA INVESTIGATION

L1 × SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN - PEA INVESTIGATION

L1 ○ SAMPLE LOCATIONS AND IDENTIFICATION HAVING DETECTIONS OF CHEMICALS OF POTENTIAL CONCERN IN SOIL VAPOR - PEA INVESTIGATION

DISCRETE SOIL SAMPLES COLLECTED DURING APRIL 3, 2008 MECHANICS PIT AND SUMP INVESTIGATION

▲ DISCRETE SOIL SAMPLES COLLECTED DURING SSI INVESTIGATION - MARCH 24, 2008

LOCATION OF DRY WELL (4' DIAMETER BY 15 TO 20 FT DEEP)

LOCATION OF WATER WELL

N

0 30

APPROXIMATE SCALE IN FEET

MOORE TWINING ASSOCIATES, INC.
EST.1898

DATE DRAWN: 12/24/08
APPROVED BY:
DRAWING NO. 3
FILE NO. 03028-REM
DRAWN BY: KLM
PROJECT NO. B03028.01

PROPOSED LOCATIONS OF SOIL REMOVAL
5470 EAST SOUTH AVENUE
FOWLER, CALIFORNIA

APPENDIX A

MOORE TWINING ASSOCIATES, INC.

STANDARD OPERATING PROCEDURES

This appendix contains the standard operating procedures used by Moore Twining Associates, Inc. (Moore Twining) in performing investigations. Moore Twining observes these procedures in order to obtain consistent, reliable data. The procedures followed for this investigation include the following.

Standard Operating Procedures for Hand Augering and Soil Sampling: Subsurface assessment permits, if required, were filed with the appropriate regulatory agencies prior to conducting field operations. Field activities were performed under the supervision of a California registered geologist or professional engineer. Sampling equipment was thoroughly cleaned before, during, and after each use according to Moore Twining's "Standard Operating Procedures for Equipment Decontamination."

Hand auger drill holes were between 1.5 and 3.0 inches in diameter depending upon the size of the auger. These drill holes were advanced by turning the hand auger handle repeatedly which causes the auger bit to cut into the soil. After advancing the auger approximately 6 inches into the soil, the bucket of the auger fills with soil cuttings and it was then removed from the borehole and the cuttings emptied. The auger was then replaced in the borehole to advance another 6-inch interval. In this manner the borehole was extended to the designated sampling depth.

Soil samples were collected from hand auger soil bores by lowering a soil sampler equipped with a stainless-steel retention sleeve into the undisturbed soil at the bottom of the borehole. The soil sampler is then driven approximately 6 inches using a slide hammer.

If pertinent to the investigation, soil descriptions are made from observations of the soil cuttings as they are removed from the borehole. The soil descriptions, including consistency, moisture, particle size, and color, and other relevant observations are recorded on soil boring logs. Soils are classified in general accordance with the Unified Soil Classification System (USCS).

The soil bores are abandoned by backfilling with a 6-sack cement slurry containing 3 to 5 percent bentonite, or backfilling with clean soil. Abandonment procedures depend upon the boring depth, depth to groundwater, project objectives, and regulatory requirements.

Soil cuttings generated during hand augering are either replaced in the bores, or stockpiled, depending upon project requirements. Stockpiled soil is containerized in United States Department of Transportation-approved drums, or placed on and covered with plastic sheeting, and stored on the Site in an area inaccessible to the general public. Typically, the stockpiled soil is characterized by collecting and analyzing composite samples from the stockpile. Moore Twining can recommend an appropriate method for disposition of stockpiled soil based on the analytical results. Disposal will be the responsibility of the client.

<u>Standard Operating Procedures for Drilling and Soil Sampling</u>: Subsurface assessment and/or well construction permits are filed with the appropriate government agency before conducting field operations. Underground Service Alert is notified at least 48 hours prior to initiation of field activities. Field activities are performed under the direction of a California registered geologist or certified professional engineer.

Soil borings are advanced using an appropriate method. The method selected will depend upon project objectives and subsurface conditions. Typically soil borings are advanced using a Central Mine Equipment Company model 75 (CME-75) truck-mounted drill rig equipped with 6-5/8-inch outside diameter, continuous-flight, hollow-stem augers. Moore Twining is a licensed drilling contractor under C-57 classification (Contractor's License No. 506159). The soil borings are advanced under the direction of a Moore Twining geologist.

Drilling and sampling equipment are thoroughly cleaned before, during and after each use. Cleaning procedures are described in a subsequent paragraph.

Soil samples are collected using a continuous-coring device, by driving a split-spoon sampler, or by grabbing samples from the drilling cutting returns. The sampler or coring device is lined with brass, stainless steel, or acrylic tubes, in which samples may be retained for subsequent chemical analyses. To collect samples using the split-spoon sampler, the sampler is initially lowered to the bottom of the soil boring and driven 6 inches into undisturbed soil. It is then driven 12 inches deeper by repeatedly dropping a 140-pound weight from a height of 30 inches. The number of blows required to advance the sampler 12 inches is recorded on the boring logs as "blows per foot". This information is used in estimating soil density.

Soil samples are examined for the purpose of preparing lithologic logs. Soils are logged consistent with the American Society for Testing and Materials (ASTM). The soil boring logs note soil types encountered at depth including consistency, soil moisture, particle size, color, and other distinguishing features.

The soil samples are field screened for evidence of volatile organic chemicals (VOCs) and/or other contaminates. The field screening consist of; visual observation for straining or free fluids, unusual odor, and head space analysis using a photo ionization detector (PID). The procedure for performing head space analysis are describe in a subsequent paragraph (if pertinent to this investigation).

Generally, soil samples selected for analyses typically represent those which the field screening indicated will be most likely to contain the contaminate of concern. In most instances the deepest two samples and/or and sample collected from just above groundwater are selected for analyses. Samples intended for chemical analyses are sealed with Teflon tape and plastic end caps, labeled, placed on ice, and delivered to a laboratory, along with chain-of-custody documentation.

The soil borings may be completed as groundwater monitoring wells, or abandoned by grouting with either a sand-cement slurry comprised of a mixture of approximately two parts sand to one part cement, or neat cement containing approximately five percent bentonite. Abandonment procedures depend upon the boring depth, depth to groundwater, project objectives, and regulatory requirements.

For borings greater than 15 feet deep, grout is emplaced through the hollow augers or a tremie pipe which will extend to within 15 feet of the bottom of the boring. The slurry is pumped through the annulus in the hollow-stem augers or the tremie pipe. Backfill is placed in one continuous operation from the bottom to the top of the borehole. When the annulus/borehole fills with the slurry, auger flights or tremie pipe sections are removed (no more than 10 feet at a time) from the borehole, allowing the slurry to uniformly fill the borehole to the surface. SOPs for groundwater monitoring well installation are described in a subsequent paragraph (if pertinent to this investigation).

Soil cuttings generated during drilling are containerized in properly labeled, United States Department of Transportation (DOT)-approved drums, or placed on and covered with plastic sheeting, and stored on site in an area inaccessible to the general public. Typically, the stockpiled soil is characterized by collecting and analyzing composite samples from the stockpile. Moore Twining can recommend an appropriate method for disposition of the cuttings based on the analytical results. Disposal will be the responsibility of the client.

Standard Operating Procedures for Temporary Monitoring Well Construction and Groundwater Sampling: Temporary monitoring wells are constructed using 2-inch or 4-inch diameter polyvinylchloride (PVC) well casing and screen. The screen will be machine slotted to 0.02 inch. The well casing and screen are placed through the hollow-stem augers and extended approximately 3 to 5 feet into the groundwater. Well filter pack material consisting of appropriately-sized pre-washed sand (#3 sand) is placed in the annulus between the boring wall and the well screen, from the bottom of the boring to approximately 2 feet above the top of the screen.

The well casing is purged of approximately three volumes of water prior to sampling using a new disposable bailer. A groundwater sample is then collected from the temporary well using a new disposable bailer. Following collection of the groundwater samples, the temporary casing is withdrawn from the boring and the boring is backfilled. The sample is labeled and preserved for transportation to our laboratory using chain-of-custody procedures.

After completion of the groundwater sampling, the casing is removed and the soil boring is backfilled with a neat cement slurry. The slurry is pumped through the annulus in the hollow-stem augers. Backfill is placed in one continuous operation from the bottom to the top of the borehole. When the annulus fills with the slurry, auger flights are removed (10 feet at a time) from the borehole, allowing the slurry to uniformly fill the borehole to the surface

Standard Operating Procedures for Soil Gas Sampling, DTSC Provisions: Subsurface assessment permits, if required, are filed with the appropriate regulatory agencies prior to conducting field operations. Field activities are performed under the supervision of a California registered geologist or professional engineer. Sampling equipment is thoroughly cleaned before, during, and after each use according to Moore Twining's "Standard Operating Procedures for Equipment Decontamination."

Procedures for obtaining high-quality soil gas samples for use in risk assessments are:

- Sample at depths greater than 5 feet below grade to reduce the effects of barometric pumping;
- Seal the surface around the soil gas sampler to prevent ambient air intrusion;
- Conduct leak tests using tracer gas to evaluate ambient air intrusion;
- Conduct tests to determine the optimal purge volume for sampling;
- Purge and sample at low flow rates (less than 200 milliliters per minute);
- Collect samples in Summa Canisters (USEPA TO methods), glass bulbs, or glass syringes; and
- Avoid soil gas sample collection following significant rainfall events.

Samples are attained by drilling a continuous core as necessary to identify permeable strata then backfill the bore holes with a slurry as previously described in this SOP. A PRT adaptor is connected to 10 to 15 feet of tubing which is connected to a vapor tight valve. The valve is closed and sealed to the PRT adaptor into the bottom of the lead drill rod. A Geoprobe rod is hydraulically pushed to the target vapor sample depth, then the drill rod is raised approximately 6 inches. After the probe is installed, a sample is collected after 30 minutes has elapsed to allow subsurface conditions to equilibrate. Hydrated bentonite is placed around the drill rod to reduce the potential for surface air to migrate between the interface of the outside surface of the drill rod and adjacent soil.

A tee fitting is connected to the top of each purge and sample summa cannister with a pressure gauge installed on the top of the tee fitting. Tubing, 1 to 2 feet in length, is connected to the tee fitting on each of the purge and sample canisters. A third tee fitting is connected to the free ends of each of the tubes. The down-hole side of the third tee fitting is connected to a 180 to 200 milliliters per minute flow regulator. A particulate filter is then connected to the down-hole side of the flow regulator. A vapor-tight valve is connected to the down-hole side of the filter and is vacuum tested by opening and closing the purge valve for at least 10 minutes. If the gauge vacuum cannot be maintained for a minimum of 10 minutes, work is terminated. After the drill rod has been sealed at the surface with bentonite for at least thirty (30) minutes, the vapor tight valve and purge cannister valves are opened until three volumes of air from the sample tubing and borehole are purged. The purge canister valve is then closed and isopropyl alcohol saturated gauze is placed inside the drill rod. Isopropyl alcohol saturated gauze is then placed on the down-hole side of the vapor tight valve, the top of the Geoprobe rod, and all rod joints exposed above grade. Both the vapor tight valve and sample canister valve are opened to begin sample collection. Isopropyl alcohol is added to the gauze every 5 minutes. When the sample canister gauge reaches 5 inches Hg of vacuum, the vapor tight valve is closed and the sample is labeled and the elapsed sample collection time is recorded. The tee fitting is replaced on the sample with a laboratory supplied brass plug. The drill rod and sampling apparatus are removed and the borehole is backfilled.

The drill holes are abandoned by backfilling with a 6-sack cement slurry containing 3 to 5 percent bentonite, or backfilling with clean soil. Abandonment procedures depend upon the boring depth, depth to groundwater, project objectives, and regulatory requirements.

Soil cuttings generated during Soil Gas Sampling operations are stockpiled, depending upon project requirements. Stockpiled soil is containerized in United States Department of Transportation-approved drums, or placed on and covered with plastic sheeting, and stored on the Site in an area inaccessible to the general public. Typically, the stockpiled soil is characterized by collecting and analyzing composite samples from the stockpile. Moore Twining can recommend an appropriate method for disposition of stockpiled soil based on the analytical results. Disposal will be the responsibility of thc client.

Standard Operating Procedures for Sample Handling and Chain-of-Custody: Records are developed for samples which include: sampling date, sample type, location, job number, name of sampling personnel, and method of preservation. Each sample container is labeled immediately following collection. Chain-of-custody protocol, as described in United States Environmental Protection Agency, 1986, Test Methods for Evaluating Solid Waste, SW-846, Third Edition, is followed. Samples will be maintained at approximately 4°C. Upon arrival at the laboratory, the samples will be preserved for analysis as appropriate.

Samples will be delivered to Moore Twining's chemistry laboratory in Fresno, California. The Moore Twining representative in charge of the field work transport will direct the transportation of the samples and custody forms to the laboratory, where the samples are transferred to the sample control department. A receiving clerk, or an authorized analyst, signs the custody forms, presents a duplicate copy to the Moore Twining representative, and transfers the samples to a laboratory analyst. The laboratory manager retains possession of the custody forms during analyses of the samples.

The laboratory manager's responsibilities include monitoring the sample integrity within the laboratory. This involves assigning each sample a laboratory number and maintaining cross-reference between the sample's field and laboratory identifications. The analysts' responsibilities include maintaining accurate records of the samples analyzed along with the analytical data produced. This involves labeling chromatograms and maintaining the laboratory numbers on subsamples taken from the submitted samples, labeling glassware used in the analyses, and properly labeling sample extract containers with each sample's laboratory number.

Following analyses, the samples are transferred to a limited-access storage room. Chain-of-custody forms, chromatograms, and other pertinent information are filed for future reference. Splits of samples analyzed are kept for 30 days. Samples containing hazardous concentrations will be returned to the client for disposal.

Standard Operating Procedures for Laboratory Quality Assurance/Quality Control: These laboratory QA/QC procedures were developed to reduce outside interferences during analyses of samples. The laboratory director is responsible for creating and maintaining the program. General QA/QC procedures follow:

- Analytical instruments are serviced on a regular basis to assure accurate calibration;
- Organic-free water is monitored daily for quality;
- Gas chromatographs are calibrated daily;

- Method blanks are run to check whether the glassware and reagents are free of interference from chemicals that would invalidate the analyses;
- Standards are prepared using the applicable reference materials;
- Matrix spikes are analyzed in duplicate to validate the accuracy and precision of the method; and
- During groundwater sampling, a travel blank sample consisting of organic-free water is prepared and containerized in the laboratory, transported to the site, and handled and transported in the same manner as the groundwater samples.

Standard Operating Procedures for Using Photoionization Detector(PID) and/or Drager® Tubes: The PID is calibrated in accordance with the manufacture's recommendations prior to use in the field. Upon arrival at the project site, the PID is used to monitor background concentrations of organic vapors in the atmosphere at the site. The background concentrations are measured in a location upwind and removed as possible from sources of organic vapors on the site. When background concentrations of organic vapors register as "0.0" on the PID, subsequent readings of "0.0" registered from samples tested in the field are recorded as "ND" (not detected). When background concentrations of organic vapors register at some quantity above "0.0", subsequent readings registered from samples tested in the field at or below this value are recorded as "B/G" (background).

Standard Operating Procedures for Performing Head Space Analysis: Head space analysis is performed using a photoionization detector (PID) or a drager tube. A soil sample is placed in a sealed glass container or plastic bag, agitated, and placed in a warm atmosphere. After approximately 15 minutes, which is generally sufficient for some of the volatiles to escape from the soil, the PID probe or tip of the drager tube is inserted into the container and the gas is sampled. The highest concentration of organic vapors recorded by the PID or the drager tube reading will be recorded.

Standard Operating Procedures for Equipment Decontamination: Proper decontamination procedures reduce the potential for cross-contamination among sample locations and introduction of contamination from outside sources.

Before, during, and following drilling operations, drilling equipment is thoroughly cleaned using a high pressure hot water (steam) washer. Well casing, screen, end caps, and centralizers will also be cleaned using a steam washer. Steam cleaning condensate will be containerized for later disposal. Generally, disposal will be the client's responsibility.

Sampling equipment and any tools, measuring devices, or other equipment which will contact soil, groundwater, or any media being assessed will be washed in a low-phosphate soap and water solution, and rinsed in clean water before each use. The type of soap used will depend upon project requirements.

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY DOCUMENTATION

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

April 17, 2008

Work Order #: 8C24025

Keith Mayes
MTA Environmental Division
2527 Fresno Street
Fresno, CA 93721

RE: Fowler Unified School District

Enclosed are the analytical results for samples received by our laboratory on 03/24/08 . For your reference, these analyses have been assigned laboratory work order number 8C24025.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate # 1371

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
L2@1.5-2.0'	8C24025-01	Soil	03/24/08 10:45	03/24/08 16:40
L21@0-0.5'	8C24025-02	Soil	03/24/08 10:50	03/24/08 16:40
L21@1.5-2.0'	8C24025-03	Soil	03/24/08 11:00	03/24/08 16:40
L20@0-0.5'	8C24025-04	Soil	03/24/08 11:02	03/24/08 16:40
L20@1.5-2.0'	8C24025-05	Soil	03/24/08 11:07	03/24/08 16:40
L22@0-0.5'	8C24025-06	Soil	03/24/08 11:10	03/24/08 16:40
L22@1.5-2.0'	8C24025-07	Soil	03/24/08 11:14	03/24/08 16:40
L1@1.5-2.0'	8C24025-08	Soil	03/24/08 11:22	03/24/08 16:40
L18@0-0.5'	8C24025-09	Soil	03/24/08 11:26	03/24/08 16:40
L18@1.5-2.0'	8C24025-10	Soil	03/24/08 11:30	03/24/08 16:40
L17@0-0.5'	8C24025-11	Soil	03/24/08 11:32	03/24/08 16:40
L17@1.5-2.0'	8C24025-12	Soil	03/24/08 11:41	03/24/08 16:40
L19@0-0.5'	8C24025-13	Soil	03/24/08 11:45	03/24/08 16:40
L19@1.5-2.0'	8C24025-14	Soil	03/24/08 11:48	03/24/08 16:40
L7@1.5-2.0'	8C24025-15	Soil	03/24/08 12:00	03/24/08 16:40
L24@0-0.5'	8C24025-16	Soil	03/24/08 12:04	03/24/08 16:40
L24@1.5-2.0'	8C24025-17	Soil	03/24/08 12:12	03/24/08 16:40
L25@0-0.5'	8C24025-18	Soil	03/24/08 12:15	03/24/08 16:40
L25@1.5-2.0'	8C24025-19	Soil	03/24/08 12:20	03/24/08 16:40
L23@0-0.5'	8C24025-20	Soil	03/24/08 12:24	03/24/08 16:40
L23@1.5-2.0'	8C24025-21	Soil	03/24/08 12:29	03/24/08 16:40
F1@1.5-2.0'	8C24025-22	Soil	03/24/08 12:40	03/24/08 16:40
F1@3.0-3.5'	8C24025-23	Soil	03/24/08 12:45	03/24/08 16:40
F5@0-0.5'	8C24025-24	Soil	03/24/08 12:50	03/24/08 16:40
F5@1.5-2.0'	8C24025-25	Soil	03/24/08 12:57	03/24/08 16:40
F4@0-0.5'	8C24025-26	Soil	03/24/08 13:01	03/24/08 16:40
F4@1.5-2.0'	8C24025-27	Soil	03/24/08 13:10	03/24/08 16:40
F2@0-0.5'	8C24025-28	Soil	03/24/08 13:13	03/24/08 16:40

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
F2@1.5-2.0'	8C24025-29	Soil	03/24/08 13:18	03/24/08 16:40
F3@0-0.5'	8C24025-30	Soil	03/24/08 13:21	03/24/08 16:40
F3@1.5-2.0'	8C24025-31	Soil	03/24/08 13:25	03/24/08 16:40
S-1B@0-0.5'	8C24025-32	Soil	03/24/08 13:34	03/24/08 16:40
S-1B@2.5-3.0'	8C24025-33	Soil	03/24/08 13:38	03/24/08 16:40
S-2B@0-0.5'	8C24025-34	Soil	03/24/08 13:45	03/24/08 16:40
S-2B@2.5-3.0'	8C24025-35	Soil	03/24/08 13:50	03/24/08 16:40
S-2A@0-0.5'	8C24025-36	Soil	03/24/08 13:55	03/24/08 16:40
S-2A@2.5-3.0'	8C24025-37	Soil	03/24/08 14:00	03/24/08 16:40
S-1A@0-0.5'	8C24025-38	Soil	03/24/08 14:08	03/24/08 16:40
S-1A@2.5-3.0'	8C24025-39	Soil	03/24/08 14:12	03/24/08 16:40
Duplicate #1	8C24025-40	Soil	03/24/08 00:00	03/24/08 16:40
Duplicate #2	8C24025-41	Soil	03/24/08 00:00	03/24/08 16:40
Equipment Blank #1	8C24025-42	Water	03/24/08 11:55	03/24/08 16:40
Equipment Blank #2	8C24025-43	Water	03/24/08 13:06	03/24/08 16:40
Travel Blank	8C24025-44	Water	03/24/08 09:20	03/24/08 16:40

There were some sample specific matrix interferences noted in some of the matrix spikes and matrix spike duplicates However, this should not affect the quality of the analytical results of the entire batch of samples because the blank spikes and blank spike duplicate results were within acceptable quality control limits

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MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L2@1.5-2.0'
8C24025-01 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*72.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*54.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

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California ELAP Certificate # 1371

2527 Fresno Stre
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(559) 268-7021 Pho
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L21@0-0.5'
8C24025-02 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.092**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		**0.023**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		**0.021**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.27**	0.060	0.060	mg/kg	2	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		**0.012**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*75.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*65.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

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California ELAP Certificate # 1371

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MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L21@1.5-2.0'

8C24025-03 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.034**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT	**J**	**0.0060**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane	**J**	**0.0052**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.064**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane	**J**	**0.0035**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*76.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*67.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

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Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L20@0-0.5'

8C24025-04 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4'-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDE		**0.024**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDT		**0.011**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		**0.011**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.16**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane	**J**	**0.0063**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*67.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*62.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L20@1.5-2.0'

8C24025-05 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.015**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		**0.016**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		**0.032**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.37**	0.15	0.15	mg/kg	5	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		**0.023**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*75.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*66.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.

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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L22@0-0.5'

8C24025-06 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.024**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT	**J**	**0.0032**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*59.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*57.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	Reported:
Fresno CA, 93721	Project Manager: Keith Mayes	4/17/08

L22@1.5-2.0'
8C24025-07 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*70.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*45.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L1@1.5-2.0'

8C24025-08 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4'-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane	**J**	**0.0028**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.037**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*60.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*48.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division
2527 Fresno Street
Fresno CA, 93721

Project: Fowler Unified School District
Project Number: D04403.02
Project Manager: Keith Mayes

Reported:
4/17/08

L18@0-0.5'

8C24025-09 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.047**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		**0.023**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		**0.082**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**1.0**	0.30	0.30	mg/kg	10	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		**0.050**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*74.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*84.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC. EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L18@1.5-2.0'
8C24025-10 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*73.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*50.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L17@0-0.5'

8C24025-11 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4'-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDE		**0.018**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4'-DDT		**0.011**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane	**J**	**0.0033**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.046**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane	**J**	**0.0027**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*54.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*62.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L17@1.5-2.0'

8C24025-12 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*67.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*50.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC. EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L19@0-0.5'
8C24025-13 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE	J	**0.0080**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane	J	**0.0023**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.036**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*51.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*59.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC. EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L19@1.5-2.0'

8C24025-14 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*74.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*54.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L7@1.5-2.0'

8C24025-15 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.011**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*76.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*59.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L24@0-0.5'

8C24025-16 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE		**0.0083**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane	**J**	**0.0027**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		**0.035**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane	**J**	**0.0023**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*54.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*51.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

L24@1.5-2.0'

8C24025-17 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDE	**J**	**0.0068**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
4,4′-DDT	**J**	**0.0032**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/08/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*75.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*52.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/08/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L25@0-0.5'
8C24025-18 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.010**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT	**J**	**0.0062**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*66.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*59.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L25@1.5-2.0'
8C24025-19 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.018**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT	**J**	**0.0048**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*75.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*47.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L23@0-0.5'
8C24025-20 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane	**J**	**0.0035**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		**0.039**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane	**J**	**0.0028**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*62.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*57.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC. EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

L23@1.5-2.0'

8C24025-21 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4'-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4'-DDE		**0.013**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4'-DDT		**0.018**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*76.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*68.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

F1@1.5-2.0'
8C24025-22 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

F1@3.0-3.5'
8C24025-23 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

F5@0-0.5'
8C24025-24 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	1000	75	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	1000	56	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		**120**	100	4.3	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	1000	35	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene	**J**	**43**	100	3.0	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	100	4.6	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene	**J**	**35**	50	5.8	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	100	6.0	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	100	8.4	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	100	10	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		**160**	100	2.5	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	1000	36	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	100	3.9	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	1000	58	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene	**J**	**70**	1000	44	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		**140**	100	5.9	µg/kg	100	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	Reported:
Fresno CA, 93721	Project Manager: Keith Mayes	4/17/08

F5@1.5-2.0'
8C24025-25 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene	**J**	**0.16**	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

F4@0-0.5'
8C24025-26 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	400	30	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	400	23	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene	J	**37**	40	1.7	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	400	14	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	40	1.2	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	40	1.8	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	20	2.3	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	40	2.4	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	40	3.4	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	40	4.2	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	40	1.0	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	400	15	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	40	1.6	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	400	23	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	400	18	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		**40**	40	2.4	µg/kg	40	T8C3102	03/31/08	04/07/08	EPA 8310

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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

F4@1.5-2.0'
8C24025-27 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

F2@0-0.5'

8C24025-28 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10000	750	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10000	560	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene	J	**780**	1000	43	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10000	350	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene	J	**220**	1000	30	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1000	46	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene	J	**240**	500	58	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1000	60	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene	J	**540**	1000	84	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1000	100	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		**1200**	1000	25	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10000	360	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1000	39	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10000	580	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene	J	**580**	10000	440	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		**1200**	1000	59	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310

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2527 Fresno Stre
Fresno, CA 9372
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(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

F2@1.5-2.0'

8C24025-29 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

F3@0-0.5'
8C24025-30 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	100	7.5	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	100	5.6	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene		**13**	10	0.43	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	100	3.5	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	10	0.30	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	10	0.46	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	5.0	0.58	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	10	0.60	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	10	0.84	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	10	1.0	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		**11**	10	0.25	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	100	3.6	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	10	0.39	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	100	5.8	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene		ND	100	4.4	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	10	0.59	µg/kg	10	T8C3102	03/31/08	04/07/08	EPA 8310

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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

F3@1.5-2.0'
8C24025-31 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene	**J**	**0.10**	1.0	0.043	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene	**J**	**0.50**	10	0.44	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8C3102	03/31/08	04/07/08	EPA 8310

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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	Reported:
Fresno CA, 93721	Project Manager: Keith Mayes	4/17/08

S-1B@0-0.5'
8C24025-32 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.031**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT	**J**	**0.0037**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*75.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*84.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	Reported: 4/17/08

S-1B@2.5-3.0'
8C24025-33 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*85.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*69.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division	Project: Fowler Unified School District	
2527 Fresno Street	Project Number: D04403.02	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	**4/17/08**

S-2B@0-0.5'

8C24025-34 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.012**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT	**J**	**0.0037**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		**0.033**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*92.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*88.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

S-2B@2.5-3.0'
8C24025-35 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*84.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*60.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

2527 Fresno Stre
Fresno, CA 9372
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

S-2A@0-0.5'
8C24025-36 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.025**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		**0.032**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*81.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*83.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

S-2A@2.5-3.0'
8C24025-37 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*67.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*45.0 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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2527 Fresno Stre
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

S-1A@0-0.5'
8C24025-38 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.033**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT	**J**	**0.0030**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane	**J**	**0.0022**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		**0.038**	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*82.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*80.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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Fresno, CA 9372
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** 4/17/08

S-1A@2.5-3.0'
8C24025-39 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*82.5 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*62.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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Fresno, CA 9372
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Duplicate #1

8C24025-40 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	10000	750	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Acenaphthylene		ND	10000	560	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Chrysene	**J**	**920**	1000	43	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Anthracene		ND	10000	350	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) anthracene	**J**	**260**	1000	30	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	1000	46	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	500	58	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	1000	60	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	1000	84	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	1000	100	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Fluoranthene		**1200**	1000	25	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Fluorene		ND	10000	360	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1000	39	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Naphthalene		ND	10000	580	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Phenanthrene	**J**	**490**	10000	440	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310
Pyrene		**1100**	1000	59	µg/kg	1000	T8C3102	03/31/08	04/07/08	EPA 8310

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	Reported: 4/17/08

Duplicate #2
8C24025-41 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDE		**0.054**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
4,4′-DDT		**0.030**	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
alpha-Chlordane		**0.098**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Chlordane (n.o.s.)		**1.1**	0.30	0.30	mg/kg	10	T8D0711	04/04/08	04/09/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
gamma-Chlordane		**0.067**	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D0711	04/04/08	04/09/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*74.0 %*	*11.4-122*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*87.5 %*	*8.5-170*		*T8D0711*	*04/04/08*	*04/09/08*	*EPA 8081A*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Equipment Blank #1

8C24025-42 (Water)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.050	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
4,4′-DDE		ND	0.050	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
4,4′-DDT		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Aldrin		ND	0.0050	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
alpha-BHC		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
alpha-Chlordane		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
beta-BHC		ND	0.0050	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
delta-BHC		ND	0.0050	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Dieldrin		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Trifluralin		ND	0.050	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endosulfan I		ND	0.020	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endosulfan II		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endosulfan sulfate		ND	0.050	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endrin		ND	0.010	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endrin aldehyde		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Endrin ketone		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.020	0.0030	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
gamma-Chlordane		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Heptachlor		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Heptachlor epoxide		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Methoxychlor		ND	10	0.0060	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Toxaphene		ND	0.50	0.10	µg/L	1	T8D0109	03/27/08	04/01/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*97.0 %*	*43-154*		*T8D0109*	*03/27/08*	*04/01/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*81.5 %*	*34.4-113*		*T8D0109*	*03/27/08*	*04/01/08*	*EPA 8081A*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Equipment Blank #2

8C24025-43 (Water)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Acenaphthene		ND	0.10	0.0090	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Acenaphthylene		ND	0.10	0.0060	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Chrysene		ND	0.010	0.0020	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Anthracene		ND	0.10	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.0050	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (a) pyrene		**0.24**	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Fluoranthene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Fluorene		ND	0.10	0.0020	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Naphthalene		ND	0.10	0.0050	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Phenanthrene		ND	0.10	0.0060	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Pyrene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	Reported: 4/17/08

Travel Blank

8C24025-44 (Water)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
4,4′-DDD		ND	0.050	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
4,4′-DDE		ND	0.050	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
4,4′-DDT		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Aldrin		ND	0.0050	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
alpha-BHC		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
alpha-Chlordane		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
beta-BHC		ND	0.0050	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
delta-BHC		ND	0.0050	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Dieldrin		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endosulfan I		ND	0.020	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Trifluralin		ND	0.050	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endosulfan II		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endosulfan sulfate		ND	0.050	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endrin		ND	0.010	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endrin aldehyde		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Endrin ketone		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.020	0.0030	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
gamma-Chlordane		ND	0.10	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Heptachlor		ND	0.010	0.0020	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Heptachlor epoxide		ND	0.010	0.0040	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Methoxychlor		ND	10	0.0060	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Toxaphene		ND	0.50	0.10	µg/L	1	T8D0109	03/27/08	04/02/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*99.0 %*	*43-154*		*T8D0109*	*03/27/08*	*04/02/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*81.5 %*	*34.4-113*		*T8D0109*	*03/27/08*	*04/02/08*	*EPA 8081A*
Acenaphthene		ND	0.10	0.0090	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Acenaphthylene		ND	0.10	0.0060	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Chrysene		ND	0.010	0.0020	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Anthracene		ND	0.10	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (a) anthracene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (b) fluoranthene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (k) fluoranthene		ND	0.0050	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (g,h,i) perylene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Benzo (a) pyrene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Dibenz (a,h) anthracene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Fluoranthene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Travel Blank

8C24025-44 (Water)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
Fluorene		ND	0.10	0.0020	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Naphthalene		ND	0.10	0.0050	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Phenanthrene		ND	0.10	0.0060	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310
Pyrene		ND	0.010	0.0010	µg/L	1	T8D0201	04/02/08	04/07/08	EPA 8310

Notes and Definitions

TW	Tap water used for batch QC MS/MSD analyses.
RPD	The RPD result exceeded the QC control limits. However, both percent recoveries were acceptable.
QM	The spike recovery for this QC sample is outside of established control limits due to matrix interference.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
ND	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reported
RPD	Relative Percent Difference
MDL	Method Detection Limit

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Batch T8C3102

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (T8C3102-BLK1)				Prepared: 03/31/08 Analyzed: 04/07/08						
Acenaphthene	ND	10	µg/kg							
Acenaphthylene	ND	10	µg/kg							
Chrysene	ND	1.0	µg/kg							
Anthracene	ND	10	µg/kg							
Benzo (a) anthracene	ND	1.0	µg/kg							
Benzo (b) fluoranthene	ND	1.0	µg/kg							
Benzo (k) fluoranthene	ND	0.50	µg/kg							
Benzo (g,h,i) perylene	ND	1.0	µg/kg							
Benzo (a) pyrene	ND	1.0	µg/kg							
Dibenz (a,h) anthracene	ND	1.0	µg/kg							
Fluoranthene	ND	1.0	µg/kg							
Fluorene	ND	10	µg/kg							
Indeno (1,2,3-cd) pyrene	ND	1.0	µg/kg							
Naphthalene	ND	10	µg/kg							
Phenanthrene	ND	10	µg/kg							
Pyrene	ND	1.0	µg/kg							
LCS (T8C3102-BS1)				Prepared: 03/31/08 Analyzed: 04/07/08						
Acenaphthene	12.2	10	µg/kg	20.0		61.1	30-110		40	
Acenaphthylene	13.8	10	µg/kg	20.0		69.0	30-110		40	
Chrysene	1.47	1.0	µg/kg	2.00		73.5	30-110		40	
Anthracene	15.6	10	µg/kg	20.0		77.8	30-110		40	
Benzo (a) anthracene	0.810	1.0	µg/kg	2.00		40.5	30-110		40	J
Benzo (b) fluoranthene	1.81	1.0	µg/kg	2.00		90.3	30-110		40	
Benzo (k) fluoranthene	0.956	0.50	µg/kg	1.00		95.6	30-110		40	
Benzo (g,h,i) perylene	1.49	1.0	µg/kg	2.00		74.6	30-110		40	
Benzo (a) pyrene	1.90	1.0	µg/kg	2.00		94.9	30-110		40	
Dibenz (a,h) anthracene	1.44	1.0	µg/kg	2.00		72.1	30-110		40	
Fluoranthene	1.09	1.0	µg/kg	2.00		54.7	30-110		40	
Fluorene	15.5	10	µg/kg	20.0		77.3	30-110		40	
Indeno (1,2,3-cd) pyrene	1.72	1.0	µg/kg	2.00		86.2	30-110		40	
Naphthalene	19.5	10	µg/kg	20.0		97.5	30-110		40	
Phenanthrene	18.4	10	µg/kg	20.0		92.0	30-110		40	
Pyrene	1.25	1.0	µg/kg	2.00		62.4	30-110		40	
LCS Dup (T8C3102-BSD1)				Prepared: 03/31/08 Analyzed: 04/07/08						
Acenaphthene	12.8	10	µg/kg	20.0		64.0	30-110	4.64	40	
Acenaphthylene	12.9	10	µg/kg	20.0		64.4	30-110	6.90	40	
Chrysene	1.29	1.0	µg/kg	2.00		64.5	30-110	13.0	40	
Anthracene	13.7	10	µg/kg	20.0		68.4	30-110	12.9	40	

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	Reported: 4/17/08

Semi-Volatile Organics - Quality Control

Batch T8C3102

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (T8C3102-BSD1)				Prepared: 03/31/08 Analyzed: 04/07/08						
Benzo (a) anthracene	0.646	1.0	µg/kg	2.00		32.3	30-110	22.5	40	J
Benzo (b) fluoranthene	1.58	1.0	µg/kg	2.00		79.1	30-110	13.2	40	
Benzo (k) fluoranthene	0.844	0.50	µg/kg	1.00		84.4	30-110	12.4	40	
Benzo (g,h,i) perylene	1.43	1.0	µg/kg	2.00		71.6	30-110	4.10	40	
Benzo (a) pyrene	1.91	1.0	µg/kg	2.00		95.3	30-110	0.421	40	
Dibenz (a,h) anthracene	1.14	1.0	µg/kg	2.00		56.8	30-110	23.7	40	
Fluoranthene	0.946	1.0	µg/kg	2.00		47.3	30-110	14.5	40	J
Fluorene	13.9	10	µg/kg	20.0		69.5	30-110	10.6	40	
Indeno (1,2,3-cd) pyrene	1.63	1.0	µg/kg	2.00		81.4	30-110	5.73	40	
Naphthalene	18.7	10	µg/kg	20.0		93.6	30-110	4.08	40	
Phenanthrene	14.8	10	µg/kg	20.0		74.0	30-110	21.7	40	
Pyrene	1.12	1.0	µg/kg	2.00		56.0	30-110	10.8	40	
Matrix Spike (T8C3102-MS1)	Source: 8C24025-23			Prepared: 03/31/08 Analyzed: 04/07/08						
Acenaphthene	11.7	10	µg/kg	20.0	ND	58.4	30-110		40	
Acenaphthylene	13.0	10	µg/kg	20.0	ND	64.8	30-110		40	
Chrysene	0.944	1.0	µg/kg	2.00	ND	47.2	30-110		40	J
Anthracene	13.0	10	µg/kg	20.0	ND	65.2	30-110		40	
Benzo (a) anthracene	0.796	1.0	µg/kg	2.00	ND	39.8	30-110		40	J
Benzo (b) fluoranthene	1.20	1.0	µg/kg	2.00	ND	60.2	30-110		40	
Benzo (k) fluoranthene	0.462	0.50	µg/kg	1.00	ND	46.2	30-110		40	J
Benzo (g,h,i) perylene	2.20	1.0	µg/kg	2.00	ND	110	30-110		40	
Benzo (a) pyrene	1.35	1.0	µg/kg	2.00	ND	67.3	30-110		40	
Dibenz (a,h) anthracene	1.88	1.0	µg/kg	2.00	ND	94.0	30-110		40	
Fluoranthene	0.924	1.0	µg/kg	2.00	ND	46.2	30-110		40	J
Fluorene	13.7	10	µg/kg	20.0	ND	68.4	30-110		40	
Indeno (1,2,3-cd) pyrene	1.40	1.0	µg/kg	2.00	ND	69.9	30-110		40	
Naphthalene	6.02	10	µg/kg	20.0	ND	30.1	30-110		40	J
Phenanthrene	14.7	10	µg/kg	20.0	ND	73.3	30-110		40	
Pyrene	0.940	1.0	µg/kg	2.00	ND	47.0	30-110		40	J
Matrix Spike Dup (T8C3102-MSD1)	Source: 8C24025-23			Prepared: 03/31/08 Analyzed: 04/07/08						
Acenaphthene	12.1	10	µg/kg	20.0	ND	60.7	30-110	3.86	40	
Acenaphthylene	13.0	10	µg/kg	20.0	ND	65.2	30-110	0.615	40	
Chrysene	0.966	1.0	µg/kg	2.00	ND	48.3	30-110	2.30	40	J
Anthracene	13.3	10	µg/kg	20.0	ND	66.6	30-110	2.12	40	
Benzo (a) anthracene	0.852	1.0	µg/kg	2.00	ND	42.6	30-110	6.80	40	J
Benzo (b) fluoranthene	1.37	1.0	µg/kg	2.00	ND	68.5	30-110	12.9	40	
Benzo (k) fluoranthene	0.576	0.50	µg/kg	1.00	ND	57.6	30-110	22.0	40	
Benzo (g,h,i) perylene	1.40	1.0	µg/kg	2.00	ND	70.0	30-110	44.4	40	RPD

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T8C3102										
Matrix Spike Dup (T8C3102-MSD1)	**Source: 8C24025-23**			Prepared: 03/31/08	Analyzed: 04/07/08					
Benzo (a) pyrene	1.47	1.0	µg/kg	2.00	ND	73.6	30-110	8.94	40	
Dibenz (a,h) anthracene	1.36	1.0	µg/kg	2.00	ND	68.1	30-110	32.0	40	
Fluoranthene	0.934	1.0	µg/kg	2.00	ND	46.7	30-110	1.08	40	J
Fluorene	14.4	10	µg/kg	20.0	ND	72.2	30-110	5.41	40	
Indeno (1,2,3-cd) pyrene	1.47	1.0	µg/kg	2.00	ND	73.3	30-110	4.75	40	
Naphthalene	5.72	10	µg/kg	20.0	ND	28.6	30-110	5.11	40	QM, J
Phenanthrene	15.1	10	µg/kg	20.0	ND	75.4	30-110	2.82	40	
Pyrene	0.952	1.0	µg/kg	2.00	ND	47.6	30-110	1.27	40	J
Batch T8D0109										
Blank (T8D0109-BLK1)				Prepared: 03/27/08	Analyzed: 04/01/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.985*		*µg/L*	*1.00*		*98.5*	*43-154*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.635*		*µg/L*	*1.00*		*63.5*	*34.4-113*			
4,4′-DDD	ND	0.050	µg/L							
4,4′-DDE	ND	0.050	µg/L							
4,4′-DDT	ND	0.010	µg/L							
Aldrin	ND	0.0050	µg/L							
alpha-BHC	ND	0.010	µg/L							
alpha-Chlordane	ND	0.10	µg/L							
beta-BHC	ND	0.0050	µg/L							
Chlordane (n.o.s.)	ND	0.10	µg/L							
delta-BHC	ND	0.0050	µg/L							
Dieldrin	ND	0.010	µg/L							
Endosulfan I	ND	0.020	µg/L							
Trifluralin	ND	0.050	µg/L							
Endosulfan II	ND	0.010	µg/L							
Endosulfan sulfate	ND	0.050	µg/L							
Endrin	ND	0.010	µg/L							
Endrin aldehyde	ND	0.010	µg/L							
Endrin ketone	ND	0.010	µg/L							
gamma-BHC (Lindane)	ND	0.020	µg/L							
gamma-Chlordane	ND	0.10	µg/L							
Heptachlor	ND	0.010	µg/L							
Heptachlor epoxide	ND	0.010	µg/L							
Methoxychlor	ND	10	µg/L							
Toxaphene	ND	0.50	µg/L							
LCS (T8D0109-BS1)				Prepared: 03/27/08	Analyzed: 04/01/08					
Surrogate: Decachlorobiphenyl (DCB)	*1.04*		*µg/L*	*1.00*		*104*	*43-154*			

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	Reported: 4/17/08

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T8D0109										
LCS (T8D0109-BS1)				Prepared: 03/27/08 Analyzed: 04/01/08						
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.520*		*µg/L*	*1.00*		*52.0*	*34.4-113*			
Dieldrin	1.27	0.010	µg/L	1.25		102	70-130		20	
Endrin	1.38	0.010	µg/L	1.25		110	70-186		20	
gamma-BHC (Lindane)	1.22	0.020	µg/L	1.25		97.2	70-130		20	
Heptachlor	1.26	0.010	µg/L	1.25		100	61-130		20	
LCS Dup (T8D0109-BSD1)				Prepared: 03/27/08 Analyzed: 04/01/08						
Surrogate: Decachlorobiphenyl (DCB)	*1.00*		*µg/L*	*1.00*		*100*	*43-154*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.515*		*µg/L*	*1.00*		*51.5*	*34.4-113*			
Dieldrin	1.25	0.010	µg/L	1.25		100	70-130	1.59	20	
Endrin	1.36	0.010	µg/L	1.25		109	70-186	1.46	20	
gamma-BHC (Lindane)	1.20	0.020	µg/L	1.25		95.6	70-130	1.66	20	
Heptachlor	1.24	0.010	µg/L	1.25		99.6	61-130	0.800	20	
Matrix Spike (T8D0109-MS1)				Prepared: 03/27/08 Analyzed: 04/02/08						
Surrogate: Decachlorobiphenyl (DCB)	*1.33*		*µg/L*	*1.00*		*133*	*43-154*			*TW*
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.595*		*µg/L*	*1.00*		*59.5*	*34.4-113*			*TW*
Dieldrin	1.58	0.010	µg/L	1.25		127	70-130		20	TW
Endrin	1.64	0.010	µg/L	1.25		131	70-186		20	TW
gamma-BHC (Lindane)	1.42	0.020	µg/L	1.25		114	70-130		20	TW
Heptachlor	1.54	0.010	µg/L	1.25		123	70-130		20	TW
Matrix Spike Dup (T8D0109-MSD1)				Prepared: 03/27/08 Analyzed: 04/02/08						
Surrogate: Decachlorobiphenyl (DCB)	*1.32*		*µg/L*	*1.00*		*132*	*43-154*			*TW*
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.570*		*µg/L*	*1.00*		*57.0*	*34.4-113*			*TW*
Dieldrin	1.54	0.010	µg/L	1.25		123	70-130		20	TW
Endrin	1.56	0.010	µg/L	1.25		125	70-186		20	TW
gamma-BHC (Lindane)	1.40	0.020	µg/L	1.25		112	70-130		20	TW
Heptachlor	1.52	0.010	µg/L	1.25		121	70-130		20	TW
Batch T8D0201										
Blank (T8D0201-BLK1)				Prepared: 04/02/08 Analyzed: 04/07/08						
Acenaphthene	ND	0.10	µg/L							
Acenaphthylene	ND	0.10	µg/L							
Chrysene	ND	0.010	µg/L							
Anthracene	ND	0.10	µg/L							
Benzo (a) anthracene	ND	0.010	µg/L							
Benzo (b) fluoranthene	ND	0.010	µg/L							
Benzo (k) fluoranthene	ND	0.0050	µg/L							
Benzo (g,h,i) perylene	ND	0.010	µg/L							

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T8D0201										
Blank (T8D0201-BLK1)				Prepared: 04/02/08 Analyzed: 04/07/08						
Benzo (a) pyrene	ND	0.010	µg/L							
Dibenz (a,h) anthracene	ND	0.010	µg/L							
Fluoranthene	ND	0.010	µg/L							
Fluorene	ND	0.10	µg/L							
Indeno (1,2,3-cd) pyrene	ND	0.010	µg/L							
Naphthalene	ND	0.10	µg/L							
Phenanthrene	ND	0.10	µg/L							
Pyrene	ND	0.010	µg/L							
LCS (T8D0201-BS1)				Prepared: 04/02/08 Analyzed: 04/07/08						
Acenaphthene	0.654	0.10	µg/L	1.00		65.4	30-110		40	
Acenaphthylene	0.644	0.10	µg/L	1.00		64.4	30-110		40	
Chrysene	0.0705	0.010	µg/L	0.100		70.5	30-110		40	
Anthracene	0.695	0.10	µg/L	1.00		69.5	30-110		40	
Benzo (a) anthracene	0.0595	0.010	µg/L	0.100		59.5	30-110		40	
Benzo (b) fluoranthene	0.0901	0.010	µg/L	0.100		90.1	30-110		40	
Benzo (k) fluoranthene	0.0440	0.0050	µg/L	0.0500		88.0	30-110		40	
Benzo (g,h,i) perylene	0.0841	0.010	µg/L	0.100		84.1	30-110		40	
Benzo (a) pyrene	0.0929	0.010	µg/L	0.100		92.9	30-110		40	
Dibenz (a,h) anthracene	0.0856	0.010	µg/L	0.100		85.6	30-110		40	
Fluoranthene	0.0590	0.010	µg/L	0.100		59.0	30-110		40	
Fluorene	0.738	0.10	µg/L	1.00		73.8	30-110		40	
Indeno (1,2,3-cd) pyrene	0.0875	0.010	µg/L	0.100		87.5	30-110		40	
Naphthalene	0.938	0.10	µg/L	1.00		93.8	30-110		40	
Phenanthrene	0.790	0.10	µg/L	1.00		79.0	30-110		40	
Pyrene	0.0471	0.010	µg/L	0.100		47.1	30-110		40	
LCS Dup (T8D0201-BSD1)				Prepared: 04/02/08 Analyzed: 04/07/08						
Acenaphthene	0.687	0.10	µg/L	1.00		68.7	30-110	4.92	40	
Acenaphthylene	0.717	0.10	µg/L	1.00		71.7	30-110	10.7	40	
Chrysene	0.0736	0.010	µg/L	0.100		73.6	30-110	4.30	40	
Anthracene	0.803	0.10	µg/L	1.00		80.3	30-110	14.4	40	
Benzo (a) anthracene	0.0572	0.010	µg/L	0.100		57.2	30-110	3.94	40	
Benzo (b) fluoranthene	0.0855	0.010	µg/L	0.100		85.5	30-110	5.24	40	
Benzo (k) fluoranthene	0.0513	0.0050	µg/L	0.0500		103	30-110	15.3	40	
Benzo (g,h,i) perylene	0.0871	0.010	µg/L	0.100		87.1	30-110	3.50	40	
Benzo (a) pyrene	0.0992	0.010	µg/L	0.100		99.2	30-110	6.56	40	
Dibenz (a,h) anthracene	0.0747	0.010	µg/L	0.100		74.7	30-110	13.6	40	
Fluoranthene	0.0562	0.010	µg/L	0.100		56.2	30-110	4.86	40	
Fluorene	0.805	0.10	µg/L	1.00		80.5	30-110	8.68	40	

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T8D0201										
LCS Dup (T8D0201-BSD1)				Prepared: 04/02/08 Analyzed: 04/07/08						
Indeno (1,2,3-cd) pyrene	0.0892	0.010	µg/L	0.100		89.2	30-110	1.92	40	
Naphthalene	0.904	0.10	µg/L	1.00		90.4	30-110	3.69	40	
Phenanthrene	0.879	0.10	µg/L	1.00		87.9	30-110	10.7	40	
Pyrene	0.0600	0.010	µg/L	0.100		60.0	30-110	24.1	40	
Batch T8D0711										
Blank (T8D0711-BLK1)				Prepared: 04/04/08 Analyzed: 04/08/08						
Surrogate: Decachlorobiphenyl (DCB)	*0.0300*		*mg/kg*	*0.0333*		*90.0*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0263*		*mg/kg*	*0.0333*		*79.0*	*8.5-170*			
4,4′-DDD	ND	0.0083	mg/kg							
4,4′-DDE	ND	0.0083	mg/kg							
4,4′-DDT	ND	0.0083	mg/kg							
Aldrin	ND	0.0083	mg/kg							
alpha-BHC	ND	0.0083	mg/kg							
alpha-Chlordane	ND	0.0083	mg/kg							
beta-BHC	ND	0.0083	mg/kg							
Chlordane (n.o.s.)	ND	0.030	mg/kg							
delta-BHC	ND	0.0083	mg/kg							
Dieldrin	ND	0.0083	mg/kg							
Endosulfan I	ND	0.0083	mg/kg							
Trifluralin	ND	0.0083	mg/kg							
Endosulfan II	ND	0.0083	mg/kg							
Endosulfan sulfate	ND	0.0083	mg/kg							
Endrin	ND	0.0083	mg/kg							
Endrin aldehyde	ND	0.0083	mg/kg							
Endrin ketone	ND	0.0083	mg/kg							
gamma-BHC (Lindane)	ND	0.0083	mg/kg							
gamma-Chlordane	ND	0.0083	mg/kg							
Heptachlor	ND	0.0083	mg/kg							
Heptachlor epoxide	ND	0.0083	mg/kg							
Methoxychlor	ND	0.0083	mg/kg							
Toxaphene	ND	0.017	mg/kg							
Blank (T8D0711-BLK2)				Prepared: 04/04/08 Analyzed: 04/09/08						
Surrogate: Decachlorobiphenyl (DCB)	*0.0302*		*mg/kg*	*0.0333*		*90.5*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0270*		*mg/kg*	*0.0333*		*81.0*	*8.5-170*			
4,4′-DDD	ND	0.0083	mg/kg							
4,4′-DDE	ND	0.0083	mg/kg							
4,4′-DDT	ND	0.0083	mg/kg							

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Batch T8D0711

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (T8D0711-BLK2)				Prepared: 04/04/08 Analyzed: 04/09/08						
Aldrin	ND	0.0083	mg/kg							
alpha-BHC	ND	0.0083	mg/kg							
alpha-Chlordane	ND	0.0083	mg/kg							
beta-BHC	ND	0.0083	mg/kg							
Chlordane (n.o.s.)	ND	0.030	mg/kg							
delta-BHC	ND	0.0083	mg/kg							
Dieldrin	ND	0.0083	mg/kg							
Endosulfan I	ND	0.0083	mg/kg							
Trifluralin	ND	0.0083	mg/kg							
Endosulfan II	ND	0.0083	mg/kg							
Endosulfan sulfate	ND	0.0083	mg/kg							
Endrin	ND	0.0083	mg/kg							
Endrin aldehyde	ND	0.0083	mg/kg							
Endrin ketone	ND	0.0083	mg/kg							
gamma-BHC (Lindane)	ND	0.0083	mg/kg							
gamma-Chlordane	ND	0.0083	mg/kg							
Heptachlor	ND	0.0083	mg/kg							
Heptachlor epoxide	ND	0.0083	mg/kg							
Methoxychlor	ND	0.0083	mg/kg							
Toxaphene	ND	0.017	mg/kg							
LCS (T8D0711-BS1)				Prepared: 04/04/08 Analyzed: 04/08/08						
Surrogate: Decachlorobiphenyl (DCB)	*0.0300*		*mg/kg*	*0.0333*		*90.0*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0292*		*mg/kg*	*0.0333*		*87.5*	*8.5-170*			
Dieldrin	0.0373	0.0083	mg/kg	0.0417		89.6	60-132		20	
Endrin	0.0415	0.0083	mg/kg	0.0417		99.6	60-173		20	
gamma-BHC (Lindane)	0.0388	0.0083	mg/kg	0.0417		93.2	58-132		20	
Heptachlor	0.0378	0.0083	mg/kg	0.0417		90.8	55-135		20	
LCS (T8D0711-BS2)				Prepared: 04/04/08 Analyzed: 04/09/08						
Surrogate: Decachlorobiphenyl (DCB)	*0.0315*		*mg/kg*	*0.0333*		*94.5*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0300*		*mg/kg*	*0.0333*		*90.0*	*8.5-170*			
Dieldrin	0.0392	0.0083	mg/kg	0.0417		94.0	60-132		20	
Endrin	0.0437	0.0083	mg/kg	0.0417		105	60-173		20	
gamma-BHC (Lindane)	0.0418	0.0083	mg/kg	0.0417		100	58-132		20	
Heptachlor	0.0400	0.0083	mg/kg	0.0417		96.0	55-135		20	
LCS Dup (T8D0711-BSD1)				Prepared: 04/04/08 Analyzed: 04/08/08						
Surrogate: Decachlorobiphenyl (DCB)	*0.0302*		*mg/kg*	*0.0333*		*90.5*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0322*		*mg/kg*	*0.0333*		*96.5*	*8.5-170*			

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** 4/17/08

Semi-Volatile Organics - Quality Control

Batch T8D0711

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (T8D0711-BSD1)				Prepared: 04/04/08	Analyzed: 04/08/08					
Dieldrin	0.0380	0.0083	mg/kg	0.0417		91.2	60-132	1.77	20	
Endrin	0.0423	0.0083	mg/kg	0.0417		102	60-173	1.99	20	
gamma-BHC (Lindane)	0.0398	0.0083	mg/kg	0.0417		95.6	58-132	2.54	20	
Heptachlor	0.0388	0.0083	mg/kg	0.0417		93.2	55-135	2.61	20	
LCS Dup (T8D0711-BSD2)				Prepared: 04/04/08	Analyzed: 04/09/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.0318*		*mg/kg*	*0.0333*		*95.5*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0313*		*mg/kg*	*0.0333*		*94.0*	*8.5-170*			
Dieldrin	0.0397	0.0083	mg/kg	0.0417		95.2	60-132	1.27	20	
Endrin	0.0443	0.0083	mg/kg	0.0417		106	60-173	1.52	20	
gamma-BHC (Lindane)	0.0427	0.0083	mg/kg	0.0417		102	58-132	1.97	20	
Heptachlor	0.0408	0.0083	mg/kg	0.0417		98.0	55-135	2.06	20	
Matrix Spike (T8D0711-MS1)		Source: 8C24025-01		Prepared: 04/04/08	Analyzed: 04/09/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.0268*		*mg/kg*	*0.0333*		*80.5*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0240*		*mg/kg*	*0.0333*		*72.0*	*8.5-170*			
Dieldrin	ND	0.0083	mg/kg	0.0417	ND		59-130		20	QM
Endrin	ND	0.0083	mg/kg	0.0417	ND		60-168		20	QM
gamma-BHC (Lindane)	0.0112	0.0083	mg/kg	0.0417	ND	26.8	58-130		20	QM
Heptachlor	0.0272	0.0083	mg/kg	0.0417	ND	65.2	55-135		20	
Matrix Spike (T8D0711-MS2)		Source: 8C24025-21		Prepared: 04/04/08	Analyzed: 04/09/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.0280*		*mg/kg*	*0.0333*		*84.0*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0275*		*mg/kg*	*0.0333*		*82.5*	*8.5-170*			
Dieldrin	0.00683	0.0083	mg/kg	0.0417	ND	16.4	59-130		20	QM, J
Endrin	0.00767	0.0083	mg/kg	0.0417	ND	18.4	60-168		20	QM, J
gamma-BHC (Lindane)	0.0213	0.0083	mg/kg	0.0417	ND	51.2	58-130		20	QM
Heptachlor	0.0335	0.0083	mg/kg	0.0417	ND	80.4	55-135		20	
Matrix Spike Dup (T8D0711-MSD1)		Source: 8C24025-01		Prepared: 04/04/08	Analyzed: 04/09/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.0270*		*mg/kg*	*0.0333*		*81.0*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0243*		*mg/kg*	*0.0333*		*73.0*	*8.5-170*			
Dieldrin	ND	0.0083	mg/kg	0.0417	ND		59-130		20	QM
Endrin	ND	0.0083	mg/kg	0.0417	ND		60-168		20	QM
gamma-BHC (Lindane)	0.0113	0.0083	mg/kg	0.0417	ND	27.2	58-130	1.48	20	QM
Heptachlor	0.0275	0.0083	mg/kg	0.0417	ND	66.0	55-135	1.22	20	
Matrix Spike Dup (T8D0711-MSD2)		Source: 8C24025-21		Prepared: 04/04/08	Analyzed: 04/09/08					
Surrogate: Decachlorobiphenyl (DCB)	*0.0273*		*mg/kg*	*0.0333*		*82.0*	*11.4-122*			
Surrogate: Tetrachloro-meta-xylene (TMX)	*0.0275*		*mg/kg*	*0.0333*		*82.5*	*8.5-170*			
Dieldrin	0.00683	0.0083	mg/kg	0.0417	ND	16.4	59-130	0.00	20	QM, J

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Stre
Fresno, CA 9372
(559) 268-7021 Pho
(559) 268-0740 Fa

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Fowler Unified School District Project Number: D04403.02 Project Manager: Keith Mayes	**Reported:** **4/17/08**

Semi-Volatile Organics - Quality Control

Batch T8D0711

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (T8D0711-MSD2)	**Source: 8C24025-21**		Prepared: 04/04/08	Analyzed: 04/09/08						
Endrin	0.00767	0.0083	mg/kg	0.0417	ND	18.4	60-168	0.00	20	QM, J
gamma-BHC (Lindane)	0.0208	0.0083	mg/kg	0.0417	ND	50.0	58-130	2.37	20	QM
Heptachlor	0.0305	0.0083	mg/kg	0.0417	ND	73.2	55-135	9.38	20	

MOORE TWINING ASSOCIATES, INC.
ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF CUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 8C24025
PAGE 1 **OF** 5

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☐ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
ADDRESS: 2527 Fresno Street	ADDRESS: 2527 Fresno Street	☐ GEOTRACKER/COELT (LUFT)
Fresno CA 93721	Fresno CA 93721	☐ PDF ☐ SPREADSHEET
PHONE: (559)268-7021	PHONE: (559)268-7021	☐ County DHS :
FAX: (559)268-7126	FAX: (559)268-7126	☐ Environmental Health Agency :
		☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen

SIGNATURE: [signature]

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☒ STANDARD ☐ RUSH, DUE ON:

SAMPLE TYPES:

SOLID:
- BS – BIOSOLID
- CR – CERAMIC
- SL – SOIL/SOLID

LIQUID:
- DW - DRINKING WATER
- GW - GROUND WATER
- OL - OIL
- SF - SURFACE WATER
- ST - STORM WATER
- WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.:

PROJECT: Fowler Unified School District

PROJECT NUMBER: D04403.02

PROJECT MANAGER: Keith Mayes

LAB USE — NOTES ON RECEIVED CONDITION:

☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED

☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION

3.6 °C

ANALYSIS REQUESTED

CLIENT SAMPLE ID	DATE	TIME	TYPE	Organochlorine Pestacides (8081A)	PAH's (8310)	On Hold							
L2@1.5-2.0'	3/24/08	1045	SL	X									
L21@0-0.5'	3/24/08	1050	SL	X									
L21@1.5-2.0'	3/24/08	1100	SL	X									
L20@0-0.5'	3/24/08	1102	SL	X									
L20@1.5-2.0'	3/24/08	1107	SL	X									
L22@0-0.5'	3/24/08	1110	SL	X									
L22@1.5-2.0'	3/24/08	1114	SL	X									
L1@1.5-2.0'	3/24/08	1122	SL	X									
L18@0-0.5'	3/24/08	1126	SL	X									
L18@1.5-2.0'	3/24/08	1130	SL	X									

COMMENTS/ADDITIONAL INSTRUCTIONS:

Samples Held at 4 degrees C in field

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
[signature]	MTA	3/24/08	1640	[signature]	MTA

MOORE TWINING ASSOCIATES, INC.
ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF CUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 8C24025
PAGE 2 **OF** 5

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☐ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
ADDRESS: 2527 Fresno Street	ADDRESS: 2527 Fresno Street	☐ GEOTRACKER/COELT (LUFT)
Fresno CA 93721	Fresno CA 93721	☐ PDF ☐ SPREADSHEET
PHONE: (559)268-7021	PHONE: (559)268-7021	☐ County DHS :
FAX: (559)268-7126	FAX: (559)268-7126	☐ Environmental Health Agency :
		☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen

SIGNATURE:

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☒ STANDARD ☐ RUSH, DUE ON:

SAMPLE TYPES:

SOLID:
BS – BIOSOLID
CR – CERAMIC
SL – SOIL/SOLID

LIQUID:
DW - DRINKING WATER
GW - GROUND WATER
OL - OIL
SF - SURFACE WATER
ST - STORM WATER
WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.:

PROJECT: Fowler Unified School District

PROJECT NUMBER: D04403.02

PROJECT MANAGER: Keith Mayes

LAB USE — NOTES ON RECEIVED CONDITION:

☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED
☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION

3.6°C

ANALYSIS REQUESTED

CLIENT SAMPLE ID	DATE	TIME	TYPE	Organochlorine Pesticides (8081A)	PAH's (8310)	On hold								
L17@0-0.5'	3/24/08	1132	SL	X										
L17@1.5-2.0'	3/24/08	1141	SL	X										
L19@0-0.5"	3/24/08	1145	SL	X										
L19@1.5-2.0'	3/24/08	1148	SL	X										
L7@1.5-2.0'	3/24/08	1200	SL	X										
L24@0-0.5'	3/24/08	1204	SL	X										
L24@1.5-2.0'	3/24/08	1212	SL	X										
L25@0-0.5'	3/24/08	1215	SL	X										
L25@1.5-2.0'	3/24/08	1220	SL	X										
L23@0-0.5'	3/24/08	1224	SL	X										

COMMENTS/ADDITIONAL INSTRUCTIONS:

Samples Held at 4 degrees C in field

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
	MTA	3/24/08	1040	V. Cruz	MTA

MOORE TWINING ASSOCIATES, INC.

ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF CUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 8C24025
PAGE 3 **OF** 5

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☐ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
ADDRESS: 2527 Fresno Street	ADDRESS: 2527 Fresno Street	☐ GEOTRACKER/COELT (LUFT)
Fresno CA 93721	Fresno CA 93721	☐ PDF ☐ SPREADSHEET
PHONE: (559)268-7021	PHONE: (559)268-7021	☐ County DHS :
FAX: (559)268-7126	FAX: (559)268-7126	☐ Environmental Health Agency :
		☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen

SIGNATURE: [signature]

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☐ RUSH, DUE ON:
☒ STANDARD

SAMPLE TYPES:

SOLID:
BS – BIOSOLID
CR – CERAMIC
SL – SOIL/SOLID

LIQUID:
DW - DRINKING WATER
GW - GROUND WATER
OL - OIL
SF - SURFACE WATER
ST - STORM WATER
WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.:

PROJECT: Fowler Unified School District

PROJECT NUMBER: D04403.02

PROJECT MANAGER: Keith Mayes

ANALYSIS REQUESTED

LAB USE — NOTES ON RECEIVED CONDITION:

☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED
☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION
3.6°C

CLIENT SAMPLE ID	DATE	TIME	TYPE	Organochlorine Pestacides (8081A)	PAH's (8310)	On Hold							
L23@1.5-2.0'	3/24/08	1229	SL	X									
F1@1.5-2.0'	3/24/08	1240	SL		X								
F1@3.0-3.5'	3/24/08	1245	SL		X								
F5@0.0.5'	3/24/08	1250	SL		X								
F5@1.5-2.0'	3/24/08	1257	SL		X								
F4@0-0.5'	3/24/08	1301	SL		X								
F4@1.5-2.0'	3/24/08	1310	SL		X								
F2@0-0.5'	3/24/08	1313	SL		X								
F2@1.5-2.0'	3/24/08	1318	SL		X								
F3@0.0.5'	3/24/08	1321	SL		X								

COMMENTS/ADDITIONAL INSTRUCTIONS:

Samples Held at 4 degrees C in field

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
[signature]	MTA	3/24/08	1640	[signature]	MTA

MOORE TWINING ASSOCIATES, INC.
ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF CUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 8C24025
PAGE 4 **OF** 5

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☒ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
ADDRESS: 2527 Fresno Street, Fresno CA 93721	ADDRESS: 2527 Fresno Street, Fresno CA 93721	☐ GEOTRACKER/COELT (LUFT) ☐ PDF ☐ SPREADSHEET ☐ County DHS :
PHONE: (559)268-7021	PHONE: (559)268-7021	☐ Environmental Health Agency :
FAX: (559)268-7126	FAX: (559)268-7126	☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen
SIGNATURE: [signature]

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☒ STANDARD ☐ RUSH, DUE ON:

SAMPLE TYPES:

SOLID:
BS – BIOSOLID
CR – CERAMIC
SL – SOIL/SOLID
LIQUID:
DW - DRINKING WATER
GW - GROUND WATER
OL - OIL
SF - SURFACE WATER
ST - STORM WATER
WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.:
PROJECT: Fowler Unified School District
PROJECT NUMBER: D04403.02
PROJECT MANAGER: Keith Mayes

LAB USE — NOTES ON RECEIVED CONDITION:
☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED
☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION
3.6°C

ANALYSIS REQUESTED

CLIENT SAMPLE ID	DATE	TIME	TYPE	Organochlorine Pestacides (8081A)	PAH's (8310)	On Hold									
F3@1.5-2.0'	3/24/08	1325	SL		X										
S-1B@0-0.5'	3/24/08	1334	SL	X											
S-1B@2.5-3.0'	3/24/08	1338	SL			X									
S-2B@0-0.5'	3/24/08	1345	SL	X											
S-2B@2.5-3.0'	3/24/08	1350	SL			X									
S-2A@0.0.5'	3/24/08	1355	SL	X											
S-2A@2.5-3.0'	3/24/08	1400	SL			X									
S-1A@0.0.5'	3/24/08	1408	SL	X											
S-1A@2.5-3.0'	3/24/08	1412	SL			X									

COMMENTS/ADDITIONAL INSTRUCTIONS:

Samples Held at 4 degrees C in field

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
[signature]	MTA	3/24/08	1640	V. Gray	MTA

MOORE TWINING ASSOCIATES, INC.
ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF CUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 8C24025
PAGE 5 **OF** 5

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☐ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
ADDRESS: 2527 Fresno Street, Fresno CA 93721	ADDRESS: 2527 Fresno Street, Fresno CA 93721	☐ GEOTRACKER/COELT (LUFT) ☐ PDF ☐ SPREADSHEET ☐ County DHS :
PHONE: (559)268-7021	PHONE: (559)268-7021	☐ Environmental Health Agency :
FAX: (559)268-7126	FAX: (559)268-7126	☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen

SIGNATURE:

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☒ STANDARD ☐ RUSH, DUE ON:

SAMPLE TYPES:

SOLID:
BS – BIOSOLID
CR – CERAMIC
SL – SOIL/SOLID

LIQUID:
DW - DRINKING WATER
GW - GROUND WATER
OL - OIL
SF - SURFACE WATER
ST - STORM WATER
WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.:

PROJECT: Fowler Unified School District

PROJECT NUMBER: D04403.02

PROJECT MANAGER: Keith Mayes

LAB USE — NOTES ON RECEIVED CONDITION:
☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED
☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION
3.6°C

ANALYSIS REQUESTED

CLIENT SAMPLE ID	DATE	TIME	TYPE	Organochlorine Pestacides (8081A)	PAH's (8310)	On Hold
Duplicate #1	3/24/08		SL		X	
Duplicate #2	3/24/08		SL	X		
Equipment Blank #1	3/24/08	1155	W	X		
Equipment Blank #2	3/24/08	1306	W		X	
Trave Blank	3/24/08	920	W	X	X	

COMMENTS/ADDITIONAL INSTRUCTIONS:

Samples Held at 4 degrees C in field

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
[signature]	MTA	3/24/08	1640	J Cruz	MTA

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Pace Analytical™

www.pacelabs.com

Report Prepared for:

Keith Mayes
The Twining Laboratories, Inc.
2527 Fresno Street
Fresno CA 93721

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Prepared Date:

April 8, 2008

Report Information:

Pace Project #: 1070208
Sample Receipt Date: 03/25/2008
Client Project #: D04403.02
Client Sub PO #: 4116
State Cert #: 01155CA

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 4 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Nate Habte, your Pace Project Manager.

This report has been reviewed and prepared by:

Nathan Habte

Nate Habte, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
natnael.habte@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on one sample submitted by a representative of The Twining Laboratories, Inc. The sample was analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. The reporting limits were set to correspond to one-fifth of the lowest calibration points.

The isotopically-labeled PCDD/PCDF internal standards in the sample extract were recovered at 67-96%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCDDs and PCDFs at the reporting limits, with the exception of a trace level of Total TCDD. This was below the calibration range of the method. Also, no TCDD isomers were reported for the field sample. These results indicate that the sample processing steps did not contribute significantly to the levels reported for the field sample.

A laboratory spike sample was also prepared with the sample batch using clean sand that had been fortified with native standard materials. The results, found in Appendix C, show that the spiked native compounds were recovered at 94-117%. These results indicate a high degree of accuracy for these determinations. Matrix spikes were prepared with the extraction batch using sample material from a separate project; results from these analyses will be provided upon request.

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans

89-ITE-Factors

Compound	TEF
2,3,7,8-TCDD	1.000000
1,2,3,7,8-PeCDD	0.500000
1,2,3,4,7,8-HxCDD	0.100000
1,2,3,6,7,8-HxCDD	0.100000
1,2,3,7,8,9-HxCDD	0.100000
1,2,3,4,6,7,8-HpCDD	0.010000
OCDD	0.001000
Total TCDD	0.000000
Total PeCDD	0.000000
Total HxCDD	0.000000
Total HpCDD	0.000000
2,3,7,8-TCDF	0.100000
1,2,3,7,8-PeCDF	0.050000
2,3,4,7,8-PeCDF	0.500000
1,2,3,4,7,8-HxCDF	0.100000
1,2,3,6,7,8-HxCDF	0.100000
2,3,4,6,7,8-HxCDF	0.100000
1,2,3,7,8,9-HxCDF	0.100000
1,2,3,4,6,7,8-HpCDF	0.010000
1,2,3,4,7,8,9-HpCDF	0.010000
OCDF	0.001000
Total TCDF	0.000000
Total PeCDF	0.000000
Total HxCDF	0.000000
Total HpCDF	0.000000

Appendix A

Sample Management

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Sample ID Cross Reference

Client Sample ID	Pace Sample ID	Date Received	Sample Type
F1@1.5-2.0'	1070208001	03/25/2008	Solid

REPORT OF LABORATORY ANALYSIS

MOORE TWINING ASSOCIATES, INC.

ANALYTICAL CHEMISTRY DIVISION
CALIFORNIA ELAP CERTIFICATION # 1371

CHAIN OF COUSTODY/ANALYSIS REQUEST

2527 FRESNO STREET • FRESNO, CA 93721 • PHONE (559) 268-7021 • FAX: (559) 268-0740

WORK ORDER #: 1070208
PAGE 1 **OF** 1

REPORT TO:	☐ INVOICE TO: ☐ REPORT COPY TO:	REPORTING:
ATTENTION: Keith Mayes	ATTENTION: Keith Mayes	☐ STANDARD FORMAT
NAME: Moore Twining	NAME: Moore Twining	☐ WRITE-ON (STATE FORM)
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Fresno CA 93721	Fresno CA 93721	☐ PDF ☐ SPREADSHEET
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FAX: (559)268-7126	FAX: (559)268-7126	☐ Environmental Health Agency :
		☒ OTHER: Level 3 Data Package

SAMPLE INFORMATION

SAMPLED BY (PRINT): Kirk Jacobsen

SIGNATURE: [signature]

☐ PUBLIC SYSTEM ☒ ROUTINE
☐ PRIVATE WELL ☐ REPEAT
☐ OTHER ☐ REPLACEMENT

TURN AROUND TIME: ☒ STANDARD ☐ RUSH, DUE ON:

SAMPLE TYPES:

SOLID:
BS – BIOSOLID
CR – CERAMIC
SL – SOIL/SOLID

LIQUID:
DW - DRINKING WATER
GW - GROUND WATER
OL - OIL
SF - SURFACE WATER
ST - STORM WATER
WW – WASTE WATER

PROJECT INFORMATION

CONTRACT/P.O. NO.: PO# 4116

PROJECT: Fowler Unified School District

PROJECT NUMBER: D04403.02

PROJECT MANAGER: Keith Mayes

LAB USE — NOTES ON RECEIVED CONDITION:

☐ CUSTODY SEAL(S) BROKEN ☐ SAMPLE(S) DAMAGED
☒ ON ICE ☐ AMBIENT TEMP. ☐ INCORRECT PRESERVATION

ANALYSIS REQUESTED

CLIENT SAMPLE ID	DATE	TIME	TYPE	Dioxins and Furons (8290)	*On Hold									LAB USE
F1@1.5-2.0'	3/24/08	1240	SL	X										001
F1@3-3.5'	3/24/08	1245	SL		X									002

COMMENTS/ADDITIONAL INSTRUCTIONS: PO# 4116

Samples Held at 4 degrees C in field

***If Dioxins and Furons detected in F1@1.5-2' then analyze F1@3-3.5'**

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY
[signature]	MTA	3/24/08	1600	D. Brusy	3/25/08 @ 9:05

Pace Analytical

Client Name: Moore & Turning   Project # 1070208

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other ______

[redacted]

Tracking #: 8646 4168 6572

Custody Seal on Cooler/Box Present: ☐ yes ☒ no   Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other ______

Thermometer Used 230194010, 72310129   Type of Ice: Wet Blue None   ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.1°C   Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: DB 3/25/08

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☒No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing preservation have been checked.	☐Yes ☐No ☒N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☒N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☐No ☒N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): ______		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ______   Date/Time: ______

Comments/ Resolution: ______

Project Manager Review: MH   **Date:** 3/25/08

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

DIOXIN EXTRACTION WORKSHEET

Setup By NMS

EB-6847

Extraction Batch : EB-06847

Extraction On (Date/Time):
3/27/2008 2:45:00 PM

Extraction Off (Date/Time):
3/28/2008 8:30:00 AM

Extract Solvents
Toluene Lot # 075449
Hexane Lot #
MeCl Lot #

Acid Base:
Sulphuric Acid Lot # 074618
Buffer Soln # 155

Silica:
Neutral Batch # 20n
Basic Batch # 18b
Acid Batch # 27a

Method 1613/8290
Matrix Solid

Standards
Internal Std BI2-7033-99
Cleanup Std dwcl4-7033-97
Recovery Std CR3-7033-100 10
Tridecane 10ul TRIDEC
Native BN1-7033-50
Others Min Oil 133
Alumina Lot 36

Alumina:
Date 3/28/2008
Initials cjr
Temp
Hexane Lot # 071834
60% Batch # 1121
Humidity 8%

Silica:
Date 3/28/2008
Initials CJR
Temp
Hexane Lot # 071834
Humidity 8%

Carbon:
Date 3/28/2008
Initials ped
Temp
Toluene Lot # 070178
75% Batch # 207
50% Batch # 353
Hexane Lot # 072797
Humidity 8%

	Sample #	Labeled Stds	Native Stds	mL or g Extracted	Filtered	Cl-37 Std	Mineral Oil	Acid	Buffer Soln	Silica	Alumina	Carbon	Rec Std	Glassware Set	Comments
1	BLANK-15873	I		20.74		I	I	1	1	I	I	I	I	70	
2	LCS-15874	I	I	20.03		I	I	1	1	I	I	I	I	90	
3	1070079001-MS	I	I	12.30		I	I	2	1	I	I	I	I	64	
4	1070079001-MSD	I	I	12.17		I	I	2	1	I	I	I	I	52	
5	1070079001	I		13.38		I	I	2	1	I	I	I	I	54	
6	1070079002	I		13.59		I	I	2	1	I	I	I	I	77	
7	1070079003	I		17.92		I	I	3	1	I	I	I	I	33	
8	1070079004	I		14.10		I	I			I	I	I	I	62	
9	1070208001	I		11.73		I	I			I	I	I	I	40	
10	1070114001	I		95.14		I	I	3	1	I	I	I	I	72	D. Stark
11	20596237	I		15.92		I	I	2	1	I	I	I	I	59	
12	20596238	I		13.28		I	I			I	I	I	I	19	
13	20596239	I		11.90		I	I			I	I	I	I	53	
14	20596240	I		11.92		I	I			I	I	I	I	96	
15	20596241	I		11.86		I	I			I	I	I	I	98	
16	20596242	I		13.50		I	I			I	I	I	I	97	
17	20596243	I		12.88		I	I			I	I	I	I	20	
18	20596244	I		13.85		I	I			I	I	I	I	37	
19	20596245	I		15.83		I	I			I	I	I	I	95	
20	20596246	I		13.45		I	I			I	I	I	I	18	
21	20597669	I		13.51		I	I	1	1	I	I	I	I	49	
22	1069302001-R	I		20.38		I	I			I	I	I	I	30	
23	1070173001	I		16.78		I	I			I	I	I	I	61	Depleted
24	1070348002	I		11.02		I	I			I	I	I	I	89	

Data Entry Reviewed By: ____________ **Date:** ____________

Extracts Relinquished By: ____________ **Received By:** ____________ **Date:** ____________

Extraction Notes

1070114001 - D. Stark

1070173001 - Depleted

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Solid Sample Moisture Log

Sample ID	Container Weight	Adjusted Wet Weight	Adjusted Dry Weight	% Moisture	% Solids	Amount Extracted
BLANK-15873	0.00	0.00	0.00	0.00	100.00	20.74
LCS-15874	0.00	0.00	0.00	0.00	100.00	20.03
1070079001-MS	0.00	0.00	0.00	0.00	100.00	12.30
1070079001-MSD	0.00	0.00	0.00	0.00	100.00	12.17
1070079001	0.00	0.00	0.00	22.00	78.00	13.38
1070079002	0.00	0.00	0.00	23.10	76.90	13.59
1070079003	0.00	0.00	0.00	42.50	57.50	17.92
1070079004	0.00	0.00	0.00	28.70	71.30	14.10
1070208001	0.98	6.03	5.37	10.90	89.10	11.73
1070114001	0.00	0.00	0.00	89.20	10.80	95.14
20596237	0.00	0.00	0.00	34.80	65.20	15.92
20596238	0.00	0.00	0.00	17.00	83.00	13.28
20596239	0.00	0.00	0.00	13.90	86.10	11.90
20596240	0.00	0.00	0.00	15.80	84.20	11.92
20596241	0.00	0.00	0.00	13.00	87.00	11.86
20596242	0.00	0.00	0.00	16.80	83.20	13.50
20596243	0.00	0.00	0.00	15.10	84.90	12.88
20596244	0.00	0.00	0.00	17.20	82.80	13.85
20596245	0.00	0.00	0.00	22.30	77.70	15.83
20596246	0.00	0.00	0.00	23.20	76.80	13.45
20597669	0.00	0.00	0.00	17.00	83.00	13.51
1069302001-R	0.00	0.00	0.00	0.00	100.00	20.38
1070173001	0.00	0.00	0.00	0.00	100.00	16.78
1070348002	0.98	7.38	7.01	5.03	94.97	11.02

Client names have been blacked out on notebook pages in order to preserve client confidentiality

Sample List: C:\MassLynx\Default.pro\Sampledb\F80318B.spl Page 1 of 1
Last Modified: Tuesday, March 18, 2008 4:51:32 PM Central Standard Time
Printed: Tuesday, March 18, 2008 4:51:38 PM Central Standard Time Page Position (1, 1)

①

	File Name	File Text	Method	MS File	Inlet File	Bottle	Inject Volume
1	F80318B_01	CAL CS3/CPM-5176-149 - SMT	8290/1613	dioxfur	dioxfur	1	1.000000
2	F80318B_02	CAL STD-14346 - SMT	8290/1613	dioxfur	dioxfur	3	1.000000
3	F80318B_03	CAL CS2-5176-141 - SMT	8290/1613	dioxfur	dioxfur	4	1.000000
4	F80318B_04	CAL CS1-5176-140 - SMT	8290/1613	dioxfur	dioxfur	5	1.000000
5	F80318B_05	CAL CS5-5176-143 - SMT	8290/1613	dioxfur	dioxfur	6	1.000000
6	F80318B_06	CAL CS4-5176-142 - SMT	8290/1613	dioxfur	dioxfur	7	1.000000
7	F80318B_07	CAL CS3/CPM-5176-149 - SMT	8290/1613	dioxfur	dioxfur	1	1.000000
8	F80318B_08	LCS LCS-15764 - SMT	8290/1613	dioxfur	dioxfur	8	1.000000
9	F80318B_09	LCS LCS-15781 - SMT	8290/1613	dioxfur	dioxfur	9	1.000000
10	F80318B_10	SAMP 893104008-MS - SMT [redacted]	1613	dioxfur	dioxfur	10	1.000000
11	F80318B_11	SAMP 893104008-MSD - SMT [redacted]	1613	dioxfur	dioxfur	11	1.000000
12	F80318B_12	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
13	F80318B_13	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
14	F80318B_14	BLANK BLANK-15780 - SMT	8290/1613	dioxfur	dioxfur	12	1.000000
15	F80318B_15	BLANK BLANK-15763 - SMT	8290/1613	dioxfur	dioxfur	13	1.000000
16	F80318B_16	BLANK BLANK-15730 - SMT	8290/1613	dioxfur	dioxfur	14	1.000000
17	F80318B_17	SAMP 1067914001 - SMT [redacted]	1613	dioxfur	dioxfur	15	1.000000
18	F80318B_18	SAMP 1069223001 - SMT [redacted]	1613	dioxfur	dioxfur	16	1.000000
19	F80318B_19	SAMP 1068919001 - SMT [redacted]	1613	dioxfur	dioxfur	17	1.000000
20	F80318B_20	SAMP 1069046001 - SMT [redacted]	8280	dioxfur	dioxfur	18	1.000000
21	F80318B_21	SAMP 20561146 - SMT [redacted] 50x	1613	dioxfur	dioxfur	19	1.000000
22	F80318B_22	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
23	F80318B_23	CAL CS3-5176-148 - SMT	23	dioxfur	dioxfur	20	1.000000
24	F80318B_24	CAL CS3/CPM-5176-149 - SMT	8290/1613	dioxfur	dioxfur	1	1.000000

① Did front end, replaced inlet septa, liner, o-ring, gold plate & front ferrule. Checked tune & cal [illegible] 03-18-08

[illegible] 3/20/08

Sample List Report **MassLynx 4.0 SCN480** 10MSHR05 3/31/08

Sample List: C:\MassLynx\Default.pro\Sampledb\F80331A.spl Page 1 of 1
Last Modified: Monday, March 31, 2008 2:14:41 PM Central Standard Time
Printed: Monday, March 31, 2008 5:27:07 PM Central Standard Time Page Position (1, 1)

	File Name	File Text	Method	MS File	Inlet File	Bottle	Inject Volume
1	F80331A_01	BLANK NONANE - SMT	HOUSE	Rinse	rinse	2	1.000000
2	F80331A_02	CAL CS3/CPM-5176-149 - SMT	8290/1613	dioxfur	dioxfur	1	1.000000
3	F80331A_03	LCS LCSD-15851 - SMT	8290/1613	dioxfur	dioxfur	3	1.000000
4	F80331A_04	LCS LCS-15874 - SMT	8290/1613	dioxfur	dioxfur	4	1.000000
5	F80331A_05	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
6	F80331A_06	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
7	F80331A_07	BLANK BLANK-15873 - SMT	8290/1613	dioxfur	dioxfur	5	1.000000
8	F80331A_08	SAMP 1069302001-R - SMT [redacted]	1613	dioxfur	dioxfur	6	1.000000
9	F80331A_09	SAMP 1070348002 - SMT [redacted]	8290	dioxfur	dioxfur	7	1.000000
10	F80331A_10	SAMP 1070208001 - SMT TWIN	8290	dioxfur	dioxfur	8	1.000000
11	F80331A_11	SAMP 1070079001 - SMT [redacted]	8290	dioxfur	dioxfur	9	1.000000
12	F80331A_12	SAMP 1070079002 - SMT [redacted]	8290	dioxfur	dioxfur	10	1.000000
13	F80331A_13	SAMP 1070079003 - SMT [redacted]	8290	dioxfur	dioxfur	11	1.000000
14	F80331A_14	SAMP 1070079004 - SMT [redacted]	8290	dioxfur	dioxfur	12	1.000000
15	F80331A_15	SAMP 1070079001-MS - SMT [redacted]	8290	dioxfur	dioxfur	13	1.000000
16	F80331A_16	SAMP 1070079001-MSD - SMT [redacted]	8290	dioxfur	dioxfur	14	1.000000
17	F80331A_17	BLANK NONANE - SMT	HOUSE	dioxfur	dioxfur	2	1.000000
18	F80331A_18	CAL CS3/CPM-5176-149 - SMT	8290	dioxfur	dioxfur	1	1.000000

Smt 4/3/08

Appendix B

Sample Analysis Summary

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - The Twining Laboratories, Inc.

Client's Sample ID	F1@1.5-2.0'		
Lab Sample ID	1070208001		
Filename	F80331A_10		
Injected By	SMT		
Total Amount Extracted	11.7 g	Matrix	Solid
% Moisture	10.9	Dilution	NA
Dry Weight Extracted	10.5 g	Collected	03/24/2008
ICAL ID	F80318	Received	03/25/2008
CCal Filename(s)	F80331A_02 & F80331A_18	Extracted	03/27/2008
Method Blank ID	BLANK-15873	Analyzed	03/31/2008 19:39

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.19		2,3,7,8-TCDF-13C	2.00	95
Total TCDF	ND	----	0.19		2,3,7,8-TCDD-13C	2.00	85
					1,2,3,7,8-PeCDF-13C	2.00	77
2,3,7,8-TCDD	ND	----	0.19		2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	ND	----	0.19		1,2,3,7,8-PeCDD-13C	2.00	87
					1,2,3,4,7,8-HxCDF-13C	2.00	91
1,2,3,7,8-PeCDF	ND	----	0.96		1,2,3,6,7,8-HxCDF-13C	2.00	90
2,3,4,7,8-PeCDF	ND	----	0.96		2,3,4,6,7,8-HxCDF-13C	2.00	89
Total PeCDF	ND	----	0.96		1,2,3,7,8,9-HxCDF-13C	2.00	96
					1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	ND	----	0.96		1,2,3,6,7,8-HxCDD-13C	2.00	87
Total PeCDD	ND	----	0.96		1,2,3,4,6,7,8-HpCDF-13C	2.00	79
					1,2,3,4,7,8,9-HpCDF-13C	2.00	77
1,2,3,4,7,8-HxCDF	ND	----	0.96		1,2,3,4,6,7,8-HpCDD-13C	2.00	78
1,2,3,6,7,8-HxCDF	ND	----	0.96		OCDD-13C	4.00	67
2,3,4,6,7,8-HxCDF	ND	----	0.96				
1,2,3,7,8,9-HxCDF	ND	----	0.96		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.96		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.96		2,3,7,8-TCDD-37Cl4	0.20	93
1,2,3,6,7,8-HxCDD	ND	----	0.96				
1,2,3,7,8,9-HxCDD	ND	----	0.96				
Total HxCDD	ND	----	0.96				
1,2,3,4,6,7,8-HpCDF	1.1	----	0.96	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.96		Equivalence: 0.029 ng/Kg		
Total HpCDF	1.1	----	0.96	J	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	1.2	----	0.96	J			
Total HpCDD	2.2	----	0.96	J			
OCDF	ND	----	1.90				
OCDD	6.2	----	1.90	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.
J = Value below calibration range

REPORT OF LABORATORY ANALYSIS

Appendix C

QC and Calibration Results Summary

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Lab Sample ID	BLANK-15873	Matrix	Solid
Filename	F80331A_07	Dilution	NA
Total Amount Extracted	20.7 g	Extracted	03/27/2008
ICAL ID	F80318	Analyzed	03/31/2008 17:20
CCal Filename(s)	F80331A_02 & F80331A_18	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.096		2,3,7,8-TCDF-13C	2.00	84
Total TCDF	ND	----	0.096		2,3,7,8-TCDD-13C	2.00	77
					1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	ND	----	0.096		2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	0.12	----	0.096	J	1,2,3,7,8-PeCDD-13C	2.00	79
					1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	----	0.480		1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	ND	----	0.480		2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	ND	----	0.480		1,2,3,7,8,9-HxCDF-13C	2.00	85
					1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	ND	----	0.480		1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	----	0.480		1,2,3,4,6,7,8-HpCDF-13C	2.00	74
					1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	ND	----	0.480		1,2,3,4,6,7,8-HpCDD-13C	2.00	76
1,2,3,6,7,8-HxCDF	ND	----	0.480		OCDD-13C	4.00	58
2,3,4,6,7,8-HxCDF	ND	----	0.480				
1,2,3,7,8,9-HxCDF	ND	----	0.480		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.480		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.480		2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	ND	----	0.480				
1,2,3,7,8,9-HxCDD	ND	----	0.480				
Total HxCDD	ND	----	0.480				
1,2,3,4,6,7,8-HpCDF	ND	----	0.480		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.480		Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	----	0.480		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.480				
Total HpCDD	ND	----	0.480				
OCDF	ND	----	0.960				
OCDD	ND	----	0.960				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.
J = Value below calibration range

REPORT OF LABORATORY ANALYSIS

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-15874		
Filename	F80331A_04	Matrix	Solid
Total Amount Extracted	20.0 g	Dilution	NA
ICAL ID	F80318	Extracted	03/27/2008
CCal Filename(s)	F80331A_02 & F80331A_18	Analyzed	03/31/2008 15:01
Method Blank ID	BLANK-15873	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.19	97	2,3,7,8-TCDF-13C	2.00	87
Total TCDF				2,3,7,8-TCDD-13C	2.00	81
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	0.20	0.20	102	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD				1,2,3,7,8-PeCDD-13C	2.00	83
				1,2,3,4,7,8-HxCDF-13C	2.00	88
1,2,3,7,8-PeCDF	1.00	1.06	106	1,2,3,6,7,8-HxCDF-13C	2.00	88
2,3,4,7,8-PeCDF	1.00	1.02	102	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.00	92
				1,2,3,4,7,8-HxCDD-13C	2.00	87
1,2,3,7,8-PeCDD	1.00	0.94	94	1,2,3,6,7,8-HxCDD-13C	2.00	90
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.00	81
				1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	1.00	0.99	99	1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	1.00	1.04	104	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	1.00	1.02	102			
1,2,3,7,8,9-HxCDF	1.00	1.01	101	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	0.98	98	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	1.00	1.04	104			
1,2,3,7,8,9-HxCDD	1.00	0.97	97			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.00	1.06	106			
1,2,3,4,7,8,9-HpCDF	1.00	1.17	117			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.00	1.02	102			
Total HpCDD						
OCDF	2.00	2.26	113			
OCDD	2.00	2.30	115			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
P = Recovery outside of target range
X = Background subtracted value
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Initial Calibration (ICAL) - Response Factor Summary
Method 1613/8290

ICAL ID	**F80318**		Data Files:		Time	Injected
Calibration Date	03/18/2008		CS-1	F80318B_04	18:18	SMT
Instrument	10MSHR05 (F)		CS-2	F80318B_03	17:31	SMT
Column Phase	DB-5MS 0mm		CS-3	F80318B_07	20:37	SMT
Column ID No.	US7327367H		CS-4	F80318B_06	19:50	SMT
			CS-5	F80318B_05	19:04	SMT

Isomer	CS-1	CS-2	CS-3	CS-4	CS-5	Ave RF	%RSD
2,3,7,8-TCDF	0.9796	0.9363	0.9238	1.0167	1.0144	0.9742	4.42
2,3,7,8-TCDD	0.8770	0.8346	0.9470	0.9393	0.9448	0.9085	5.56
1,2,3,7,8-PeCDF	0.8552	0.8615	0.9118	0.9286	0.9115	0.8937	3.70
2,3,4,7,8-PeCDF	0.8945	0.9093	0.9539	0.9819	0.9572	0.9394	3.86
1,2,3,7,8-PeCDD	0.9030	0.9122	0.9684	0.9724	0.9654	0.9443	3.57
1,2,3,4,7,8-HxCDF	1.0962	1.0808	1.1351	1.1652	1.1539	1.1262	3.24
1,2,3,6,7,8-HxCDF	1.0047	1.0223	1.1225	1.1024	1.0880	1.0680	4.83
2,3,4,6,7,8-HxCDF	1.0519	1.0661	1.1407	1.0935	1.0753	1.0855	3.17
1,2,3,7,8,9-HxCDF	0.9763	1.0559	1.0948	1.1231	1.0940	1.0688	5.33
1,2,3,4,7,8-HxCDD	0.9351	0.9179	0.9798	0.9994	1.0167	0.9698	4.34
1,2,3,6,7,8-HxCDD	0.8329	0.8866	0.9367	0.9179	0.9112	0.8971	4.47
1,2,3,7,8,9-HxCDD	1.1139	0.9552	0.8473	0.9950	1.0345	0.9892	9.97
1,2,3,4,6,7,8-HpCDF	1.3157	1.3293	1.3555	1.3675	1.3612	1.3458	1.65
1,2,3,4,7,8,9-HpCDF	1.1147	1.1848	1.3441	1.2226	1.2451	1.2222	6.89
1,2,3,4,6,7,8-HpCDD	1.0500	1.0482	1.1135	1.0366	1.1293	1.0755	3.96
OCDF	1.1110	1.2124	1.2625	1.2351	1.5272	1.2696	12.20
OCDD	1.0288	1.0694	1.0352	1.0719	1.0684	1.0547	1.98
Total PeCDF	0.8749	0.8854	0.9329	0.9553	0.9344	0.9166	3.78
Total HxCDF	1.0323	1.0563	1.1233	1.1211	1.1028	1.0871	3.75
Total HxCDD	0.9606	0.9199	0.9213	0.9708	0.9875	0.9520	3.18
Total HpCDF	1.2152	1.2570	1.3498	1.2950	1.3031	1.2840	3.95
2,3,7,8-TCDF-13C	1.2313	1.1907	1.4754	1.2488	1.2699	1.2832	8.67
2,3,7,8-TCDD-13C	1.0689	0.9913	1.1183	1.0347	1.0790	1.0585	4.53
2,3,7,8-TCDD-37Cl4	1.0069	0.9850	1.1389	1.0778	1.1129	1.0643	6.25
1,2,3,7,8-PeCDF-13C	1.2362	1.2236	1.5024	1.2966	1.3509	1.3220	8.55
2,3,4,7,8-PeCDF-13C	1.1397	1.1788	1.2782	1.1384	1.3757	1.2221	8.42
1,2,3,7,8-PeCDD-13C	0.8097	0.8073	0.8438	0.7921	0.9467	0.8399	7.45
1,2,3,4,7,8-HxCDF-13C	0.9037	1.2358	1.1236	1.1142	1.1748	1.1104	11.28
1,2,3,6,7,8-HxCDF-13C	1.0143	1.2076	1.2275	1.2285	1.1761	1.1708	7.69
2,3,4,6,7,8-HxCDF-13C	0.9437	1.2638	1.1858	1.2277	1.2613	1.1765	11.38
1,2,3,7,8,9-HxCDF-13C	0.9874	1.0295	0.9484	0.9704	0.9170	0.9705	4.35
1,2,3,4,7,8-HxCDD-13C	0.7852	0.9862	1.0176	0.8897	0.9327	0.9223	9.87
1,2,3,6,7,8-HxCDD-13C	0.8390	0.9240	1.1062	1.0149	0.9118	0.9592	10.76
1,2,3,4,6,7,8-HpCDF-13C	0.9663	1.0729	0.9450	1.0192	1.1608	1.0328	8.43
1,2,3,4,7,8,9-HpCDF-13C	0.7790	0.9596	0.7539	1.0442	0.8910	0.8855	13.76
1,2,3,4,6,7,8-HpCDD-13C	0.6434	0.8571	0.7775	0.9752	0.7324	0.7971	15.81
OCDD-13C	0.7806	0.6264	0.7436	1.0069	0.7314	0.7778	18.04

REPORT OF LABORATORY ANALYSIS

Initial Calibration (ICAL) - Isotope Ratio Summary
Method 1613/8290

ICAL ID	**F80318**	Data Files:		Time	Injected
Calibration Date	03/18/2008	CS-1	F80318B_04	18:18	SMT
Instrument	10MSHR05 (F)	CS-2	F80318B_03	17:31	SMT
Column Phase	DB-5MS 0mm	CS-3	F80318B_07	20:37	SMT
Column ID No.	US7327367H	CS-4	F80318B_06	19:50	SMT
		CS-5	F80318B_05	19:04	SMT

Isomer	CS-1	CS-2	CS-3	CS-4	CS-5	Limits
2,3,7,8-TCDF	0.81	0.77	0.77	0.77	0.78	0.65 - 0.89
2,3,7,8-TCDD	0.79	0.77	0.74	0.77	0.77	0.65 - 0.89
1,2,3,7,8-PeCDF	1.60	1.57	1.56	1.56	1.56	1.32 - 1.78
2,3,4,7,8-PeCDF	1.60	1.61	1.55	1.55	1.56	1.32 - 1.78
1,2,3,7,8-PeCDD	0.62	0.60	0.61	0.61	0.62	0.52 - 0.70
1,2,3,4,7,8-HxCDF	1.28	1.24	1.26	1.25	1.25	1.05 - 1.43
1,2,3,6,7,8-HxCDF	1.31	1.29	1.27	1.25	1.25	1.05 - 1.43
2,3,4,6,7,8-HxCDF	1.21	1.24	1.25	1.25	1.24	1.05 - 1.43
1,2,3,7,8,9-HxCDF	1.24	1.28	1.26	1.27	1.25	1.05 - 1.43
1,2,3,4,7,8-HxCDD	1.24	1.29	1.25	1.25	1.25	1.05 - 1.43
1,2,3,6,7,8-HxCDD	1.18	1.26	1.22	1.24	1.24	1.05 - 1.43
1,2,3,7,8,9-HxCDD	1.24	1.27	1.21	1.23	1.24	1.05 - 1.43
1,2,3,4,6,7,8-HpCDF	0.99	1.03	1.00	1.03	1.02	0.88 - 1.20
1,2,3,4,7,8,9-HpCDF	1.01	1.00	1.04	1.03	1.02	0.88 - 1.20
1,2,3,4,6,7,8-HpCDD	1.08	1.06	1.03	1.04	1.06	0.88 - 1.20
OCDF	0.92	0.93	0.89	0.90	0.90	0.76 - 1.02
OCDD	0.91	0.87	0.90	0.90	0.90	0.76 - 1.02
1,2,3,4-TCDD-13C	0.79	0.78	0.78	0.79	0.79	0.65 - 0.89
1,2,3,7,8,9-HxCDD-13C	1.23	1.23	1.21	1.22	1.22	1.05 - 1.43
2,3,7,8-TCDF-13C	0.78	0.78	0.77	0.78	0.78	0.65 - 0.89
2,3,7,8-TCDD-13C	0.79	0.77	0.77	0.78	0.78	0.65 - 0.89
1,2,3,7,8-PeCDF-13C	1.57	1.56	1.57	1.56	1.56	1.32 - 1.78
2,3,4,7,8-PeCDF-13C	1.56	1.57	1.56	1.57	1.56	1.32 - 1.78
1,2,3,7,8-PeCDD-13C	1.57	1.59	1.59	1.57	1.56	1.32 - 1.78
1,2,3,4,7,8-HxCDF-13C	0.52	0.52	0.52	0.52	0.52	0.43 - 0.59
1,2,3,6,7,8-HxCDF-13C	0.52	0.53	0.52	0.51	0.52	0.43 - 0.59
2,3,4,6,7,8-HxCDF-13C	0.52	0.52	0.51	0.52	0.52	0.43 - 0.59
1,2,3,7,8,9-HxCDF-13C	0.53	0.53	0.51	0.53	0.52	0.43 - 0.59
1,2,3,4,7,8-HxCDD-13C	1.25	1.26	1.26	1.28	1.26	1.05 - 1.43
1,2,3,6,7,8-HxCDD-13C	1.22	1.25	1.24	1.18	1.23	1.05 - 1.43
1,2,3,4,6,7,8-HpCDF-13C	0.45	0.45	0.45	0.45	0.45	0.37 - 0.51
1,2,3,4,7,8,9-HpCDF-13C	0.45	0.45	0.45	0.45	0.45	0.37 - 0.51
1,2,3,4,6,7,8-HpCDD-13C	1.08	1.14	1.12	1.09	1.05	0.88 - 1.20
OCDD-13C	0.92	0.93	0.91	0.91	0.92	0.76 - 1.02

REPORT OF LABORATORY ANALYSIS

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290
PCDD/PCDF Calibration Verification

Run Name:	F80331A_02	Instrument ID	10MSHR05 (F)
Standard	CS3/CPM-5176-149	GC Column ID	US7327367H
Analyzed	03/31/2008 13:25	ICAL ID	F80318

Compound	Known Conc.	Conc Found	Ion Abund. Ratio	Average RF	Daily RF	Deviation (%)
2,3,7,8-TCDF	10	9.1	0.79	0.9742	0.8857	-9.1
2,3,7,8-TCDD	10	10.4	0.74	0.9085	0.9479	4.3
1,2,3,7,8-PeCDF	50	50.1	1.52	0.8937	0.8955	0.2
2,3,4,7,8-PeCDF	50	50.3	1.51	0.9394	0.9446	0.6
1,2,3,7,8-PeCDD	50	50.5	0.61	0.9443	0.9538	1.0
1,2,3,4,7,8-HxCDF	50	49.3	1.25	1.1262	1.1102	-1.4
1,2,3,6,7,8-HxCDF	50	49.7	1.26	1.0680	1.0611	-0.6
2,3,4,6,7,8-HxCDF	50	50.0	1.26	1.0855	1.0856	0.0
1,2,3,7,8,9-HxCDF	50	50.0	1.26	1.0688	1.0697	0.1
1,2,3,4,7,8-HxCDD	50	50.6	1.26	0.9698	0.9813	1.2
1,2,3,6,7,8-HxCDD	50	51.3	1.23	0.8971	0.9204	2.6
1,2,3,7,8,9-HxCDD	50	48.3	1.21	0.9892	0.9555	-3.4
1,2,3,4,6,7,8-HpCDF	50	49.7	1.02	1.3458	1.3383	-0.6
1,2,3,4,7,8,9-HpCDF	50	54.2	0.99	1.2222	1.3258	8.5
1,2,3,4,6,7,8-HpCDD	50	51.4	1.05	1.0755	1.1053	2.8
OCDF	100	94.1	0.89	1.2696	1.1942	-5.9
OCDD	100	96.8	0.88	1.0547	1.0209	-3.2
Total PeCDF	100	100.4	NA	0.9166	0.9201	0.4
Total HxCDF	200	199.0	NA	1.0871	1.0816	-0.5
Total HxCDD	150	150.2	NA	0.9520	0.9524	0.0
Total HpCDF	100	104.0	NA	1.2840	1.3320	3.7
2,3,7,8-TCDF-13C	100	111.6	0.79	1.2832	1.4316	11.6
2,3,7,8-TCDD-13C	100	99.6	0.79	1.0585	1.0538	-0.4
2,3,7,8-TCDD-37Cl4	10	9.9	NA	1.0643	1.0521	-1.1
1,2,3,7,8-PeCDF-13C	100	83.5	1.56	1.3220	1.1042	-16.5
2,3,4,7,8-PeCDF-13C	100	86.6	1.56	1.2221	1.0582	-13.4
1,2,3,7,8-PeCDD-13C	100	83.2	1.57	0.8399	0.6988	-16.8
1,2,3,4,7,8-HxCDF-13C	100	107.5	0.52	1.1104	1.1936	7.5
1,2,3,6,7,8-HxCDF-13C	100	111.7	0.52	1.1708	1.3075	11.7
2,3,4,6,7,8-HxCDF-13C	100	106.0	0.53	1.1765	1.2468	6.0
1,2,3,7,8,9-HxCDF-13C	100	106.7	0.53	0.9705	1.0358	6.7
1,2,3,4,7,8-HxCDD-13C	100	100.0	1.26	0.9223	0.9227	0.0
1,2,3,6,7,8-HxCDD-13C	100	106.5	1.22	0.9592	1.0219	6.5
1,2,3,4,6,7,8-HpCDF-13C	100	104.8	0.45	1.0328	1.0824	4.8
1,2,3,4,7,8,9-HpCDF-13C	100	90.7	0.46	0.8855	0.8029	-9.3
1,2,3,4,6,7,8-HpCDD-13C	100	97.5	1.05	0.7971	0.7768	-2.5
OCDD-13C	200	173.3	0.90	0.7778	0.6738	-13.4
1,2,3,4-TCDD-13C	100	NA	0.79	NA	NA	NA
1,2,3,7,8,9-HxCDD-13C	100	NA	1.24	NA	NA	NA

Concentrations expressed as pg/ul NA = Not Applicable * = Outside target range

REPORT OF LABORATORY ANALYSIS

Pace Analytical™

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Fax: 612- 607-6444

Method 8290
PCDD/PCDF Calibration Verification

Run Name:	F80331A_18	Instrument ID	10MSHR05 (F)
Standard	CS3/CPM-5176-149	GC Column ID	US7327367H
Analyzed	04/01/2008 01:50	ICAL ID	F80318

Compound	Known Conc.	Conc Found	Ion Abund. Ratio	Average RF	Daily RF	Deviation (%)
2,3,7,8-TCDF	10	9.1	0.78	0.9742	0.8865	-9.0
2,3,7,8-TCDD	10	10.5	0.79	0.9085	0.9575	5.4
1,2,3,7,8-PeCDF	50	50.8	1.58	0.8937	0.9075	1.5
2,3,4,7,8-PeCDF	50	50.9	1.58	0.9394	0.9570	1.9
1,2,3,7,8-PeCDD	50	51.1	0.62	0.9443	0.9652	2.2
1,2,3,4,7,8-HxCDF	50	48.9	1.26	1.1262	1.1012	-2.2
1,2,3,6,7,8-HxCDF	50	50.2	1.25	1.0680	1.0729	0.5
2,3,4,6,7,8-HxCDF	50	50.0	1.25	1.0855	1.0851	0.0
1,2,3,7,8,9-HxCDF	50	49.4	1.27	1.0688	1.0551	-1.3
1,2,3,4,7,8-HxCDD	50	51.6	1.22	0.9698	1.0016	3.3
1,2,3,6,7,8-HxCDD	50	53.2	1.25	0.8971	0.9548	6.4
1,2,3,7,8,9-HxCDD	50	49.1	1.26	0.9892	0.9714	-1.8
1,2,3,4,6,7,8-HpCDF	50	53.2	1.01	1.3458	1.4308	6.3
1,2,3,4,7,8,9-HpCDF	50	56.9	1.05	1.2222	1.3902	13.7
1,2,3,4,6,7,8-HpCDD	50	56.9	1.07	1.0755	1.2236	13.8
OCDF	100	103.3	0.92	1.2696	1.3119	3.3
OCDD	100	100.9	0.88	1.0547	1.0646	0.9
Total PeCDF	100	101.7	NA	0.9166	0.9322	1.7
Total HxCDF	200	198.5	NA	1.0871	1.0786	-0.8
Total HxCDD	150	154.0	NA	0.9520	0.9759	2.5
Total HpCDF	100	110.0	NA	1.2840	1.4105	9.8
2,3,7,8-TCDF-13C	100	117.9	0.78	1.2832	1.5128	17.9
2,3,7,8-TCDD-13C	100	98.8	0.78	1.0585	1.0458	-1.2
2,3,7,8-TCDD-37Cl4	10	10.4	NA	1.0643	1.1106	4.4
1,2,3,7,8-PeCDF-13C	100	87.3	1.56	1.3220	1.1535	-12.7
2,3,4,7,8-PeCDF-13C	100	88.9	1.57	1.2221	1.0861	-11.1
1,2,3,7,8-PeCDD-13C	100	85.2	1.55	0.8399	0.7153	-14.8
1,2,3,4,7,8-HxCDF-13C	100	117.4	0.53	1.1104	1.3040	17.4
1,2,3,6,7,8-HxCDF-13C	100	119.7	0.53	1.1708	1.4011	19.7
2,3,4,6,7,8-HxCDF-13C	100	115.0	0.52	1.1765	1.3527	15.0
1,2,3,7,8,9-HxCDF-13C	100	112.2	0.54	0.9705	1.0894	12.2
1,2,3,4,7,8-HxCDD-13C	100	104.4	1.27	0.9223	0.9631	4.4
1,2,3,6,7,8-HxCDD-13C	100	108.1	1.26	0.9592	1.0373	8.1
1,2,3,4,6,7,8-HpCDF-13C	100	98.4	0.47	1.0328	1.0160	-1.6
1,2,3,4,7,8,9-HpCDF-13C	100	82.7	0.44	0.8855	0.7320	-17.3
1,2,3,4,6,7,8-HpCDD-13C	100	81.3	1.11	0.7971	0.6484	-18.7
OCDD-13C	200	152.7	0.92	0.7778	0.5939	-23.6
1,2,3,4-TCDD-13C	100	NA	0.79	NA	NA	NA
1,2,3,7,8,9-HxCDD-13C	100	NA	1.24	NA	NA	NA

Concentrations expressed as pg/ul NA = Not Applicable * = Outside target range

REPORT OF LABORATORY ANALYSIS

MOORE TWINING
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California ELAP Certificate # 1371

2527 Fresno Street
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May 05, 2008

Work Order #: 8D04017

Keith Mayes
MTA Environmental Division
2527 Fresno Street
Fresno, CA 93721

RE: Proposed FUSD School Site, Fowler, CA

Enclosed are the analytical results for samples received by our laboratory on 04/04/08 . For your reference, these analyses have been assigned laboratory work order number 8D04017.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** **5/5/08**

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MP1-5'	8D04017-01	Soil	04/03/08 10:35	04/04/08 13:25
MP2-5'	8D04017-02	Soil	04/03/08 10:48	04/04/08 13:25
SM1-3'	8D04017-03	Soil	04/03/08 11:05	04/04/08 13:25
DW1-14'	8D04017-04	Soil	04/03/08 13:16	04/04/08 13:25
DW3-21'	8D04017-05	Soil	04/03/08 14:02	04/04/08 13:25
DW4-14.5'	8D04017-06	Soil	04/03/08 14:43	04/04/08 13:25
DW2-15'	8D04017-07	Soil	04/03/08 16:45	04/04/08 13:25
DW2-21'	8D04017-08	Soil	04/03/08 16:56	04/04/08 13:25
DW2-26'	8D04017-09	Soil	04/03/08 17:10	04/04/08 13:25
DW2-36'	8D04017-10	Soil	04/03/08 17:40	04/04/08 13:25
Duplicate	8D04017-12	Soil	04/03/08 00:00	04/04/08 13:25
Equipment Blank	8D04017-13	Water	04/03/08 14:30	04/04/08 13:25

There were some sample specific matrix interferences noted in some of the matrix spikes and matrix spike duplicates However, this should not affect the quality of the analytical results of the entire batch of samples because the blank spikes and blank spike duplicate results were within acceptable quality control limits

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

MP1-5'

8D04017-01 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.32**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic		**2.0**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**42**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.20**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**6.6**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**2.9**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**29**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**1.7**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury		ND	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**6.4**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**2.0**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**28**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**39**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32		**3.0**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod

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MP1-5'

8D04017-01 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
C13-C22		ND	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*55.0 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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MP2-5'

8D04017-02 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.32**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic	J	**1.6**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**42**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.21**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**8.1**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**3.5**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**11**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**1.8**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury		ND	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**8.0**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**1.5**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**35**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**36**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32		**2.9**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod

Moore Twining Associates, Inc.

Ronald J. Boquist, Director of Analytical Chemistry
Jim Brownfield, Quality Assurance Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

MP2-5'

8D04017-02 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
C13-C22		ND	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*52.7 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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SM1-3'
8D04017-03 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.20**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic		**2.8**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**46**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.23**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**7.8**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**3.0**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**14**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**1.7**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury		ND	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**6.1**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**2.1**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**28**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**28**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
Acenaphthene		ND	10	0.75	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Acenaphthylene		ND	10	0.56	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Chrysene		ND	1.0	0.043	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Anthracene		ND	10	0.35	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) anthracene		ND	1.0	0.030	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (b) fluoranthene		ND	1.0	0.046	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (k) fluoranthene		ND	0.50	0.058	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (g,h,i) perylene		ND	1.0	0.060	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Benzo (a) pyrene		ND	1.0	0.084	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Dibenz (a,h) anthracene		ND	1.0	0.10	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluoranthene		ND	1.0	0.025	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Fluorene		ND	10	0.36	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Indeno (1,2,3-cd) pyrene		ND	1.0	0.039	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Naphthalene		ND	10	0.58	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Phenanthrene		ND	10	0.44	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
Pyrene		ND	1.0	0.059	µg/kg	1	T8D1501	04/15/08	04/17/08	EPA 8310
C13-C22		ND	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32	J	**2.4**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

SM1-3'

8D04017-03 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*47.0 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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DW1-14'

8D04017-04 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.60**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic		**4.9**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**98**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.26**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**23**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**3.1**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**2500**	20	0.69	mg/kg	10	T8D1712	04/17/08	04/22/08	EPA 6010B
Lead		**37**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury		ND	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		**27**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**9.6**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**2.8**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**36**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**120**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE		**0.043**	0.042	0.010	mg/kg	5	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		**0.074**	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		**0.13**	0.042	0.010	mg/kg	5	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		**2.0**	0.30	0.30	mg/kg	10	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Street
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(559) 268-0740 Fax

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW1-14'

8D04017-04 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	
Semi-Volatile Organics											
gamma-Chlordane		**0.17**	0.042	0.010	mg/kg	5	T8D1519	04/15/08	04/17/08	EPA 8081A	
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Surrogate: Decachlorobiphenyl (DCB)				*72.0 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene (TMX)				*120 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*	
C6-C12		ND	35	20	mg/kg	10	T8D1517	04/14/08	04/17/08	EPA 8015Mod	
C13-C22		**300**	50	20	mg/kg	10	T8D1517	04/14/08	04/17/08	EPA 8015Mod	
C23-C32		**270**	27	20	mg/kg	10	T8D1517	04/14/08	04/17/08	EPA 8015Mod	
Surrogate: o-Terphenyl				*858 %*	*45-150*		*T8D1517*	*04/14/08*	*04/17/08*	*EPA 8015Mod*	*SC*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW3-21'
8D04017-05 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.24**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic	J	**0.95**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**40**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.17**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**7.7**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**2.0**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**10**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead		**3.4**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury	J	**0.035**	0.040	0.010	mg/kg	1	T8D2914	04/30/08	04/30/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**5.6**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**1.8**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**28**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**91**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD		**0.018**	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE		**0.029**	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		**0.063**	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

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California ELAP Certificate # 1371

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** **5/5/08**

DW3-21'

8D04017-05 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*79.5 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*63.0 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
C23-C32		**79**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C13-C22		**26**	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*111 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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MTA Environmental Division	Project: Proposed FUSD School Site, Fowler, CA	
2527 Fresno Street	Project Number: D04503.04	**Reported:**
Fresno CA, 93721	Project Manager: Keith Mayes	5/5/08

DW4-14.5'
8D04017-06 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.17**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic		**3.0**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**65**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.25**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**11**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**3.7**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**14**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead		**4.4**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury	J	**0.020**	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**9.1**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**2.0**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**32**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**34**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE		**0.025**	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate # 1371

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW4-14.5'
8D04017-06 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*69.0 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*59.0 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C13-C22	J	**2.1**	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32		**11**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*60.6 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW2-15'

8D04017-07 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic	J	**0.99**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**32**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.18**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**5.7**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**2.2**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**4.6**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**1.7**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury	J	**0.020**	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**5.0**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**1.2**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**21**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**19**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD	J	**0.0012**	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE		**0.012**	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		**0.081**	0.030	0.030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW2-15'
8D04017-07 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*76.5 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*120 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
C13-C22		**6.0**	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32		**17**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*56.6 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

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California ELAP Certificate # 1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW2-21'

8D04017-08 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.14**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic		**2.3**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**27**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.089**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**5.3**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**5.2**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**6.2**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**0.81**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury		**0.26**	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**11**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**1.7**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**24**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**17**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE	J	**0.0030**	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate # 1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW2-21'

8D04017-08 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method	
Semi-Volatile Organics											
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A	
Surrogate: Decachlorobiphenyl (DCB)				*63.5 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*	
Surrogate: Tetrachloro-meta-xylene (TMX)				*46.0 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*	
C23-C32		**8.2**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod	
C13-C22		ND	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod	
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod	
Surrogate: o-Terphenyl				*34.4 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*	*SC*

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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** **5/5/08**

DW2-26'

8D04017-09 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals										
Antimony	J	**0.20**	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Arsenic	J	**1.5**	2.0	0.22	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Barium		**31**	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Beryllium	J	**0.14**	0.40	0.032	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cadmium		ND	0.40	0.023	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Chromium		**8.8**	2.0	0.078	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Cobalt		**2.8**	0.80	0.022	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Copper		**5.8**	2.0	0.069	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Lead	J	**0.86**	2.0	0.16	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Mercury	J	**0.012**	0.040	0.010	mg/kg	1	T8D1420	04/15/08	04/15/08	EPA 7471A
Molybdenum		ND	2.0	0.13	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Nickel		**9.0**	2.0	0.091	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Selenium	J	**3.1**	5.0	0.36	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Silver		ND	2.0	0.10	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Thallium		ND	5.0	0.46	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Vanadium		**43**	2.5	0.38	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Zinc		**16**	2.0	0.060	mg/kg	1	T8D1712	04/17/08	04/21/08	EPA 6010B
Semi-Volatile Organics										
4,4′-DDD		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDE		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
4,4′-DDT		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Aldrin		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-BHC		ND	0.0083	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
alpha-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
beta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Chlordane (n.o.s.)		ND	0.030	0.030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
delta-BHC		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Dieldrin		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Trifluralin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan I		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan II		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endosulfan sulfate		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin		ND	0.0083	0.0030	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin aldehyde		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Endrin ketone		ND	0.0083	0.0010	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
gamma-BHC (Lindane)		ND	0.0083	0.0060	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A

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California ELAP Certificate # 1371

2527 Fresno Street
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MTA Environmental Division 2527 Fresno Street Fresno CA, 93721	Project: Proposed FUSD School Site, Fowler, CA Project Number: D04503.04 Project Manager: Keith Mayes	**Reported:** 5/5/08

DW2-26'

8D04017-09 (Soil)

Analyte	Notes	Result	Reporting Limit	MDL	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics										
gamma-Chlordane		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor		ND	0.0083	0.0080	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Heptachlor epoxide		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Methoxychlor		ND	0.0083	0.0020	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Toxaphene		ND	0.017	0.0050	mg/kg	1	T8D1519	04/15/08	04/17/08	EPA 8081A
Surrogate: Decachlorobiphenyl (DCB)				*95.5 %*	*11.4-122*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
Surrogate: Tetrachloro-meta-xylene (TMX)				*34.5 %*	*8.5-170*		*T8D1519*	*04/15/08*	*04/17/08*	*EPA 8081A*
C6-C12		ND	3.5	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C23-C32		**5.2**	2.7	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
C13-C22		ND	5.0	2.0	mg/kg	1	T8D1517	04/14/08	04/16/08	EPA 8015Mod
Surrogate: o-Terphenyl				*54.3 %*	*45-150*		*T8D1517*	*04/14/08*	*04/16/08*	*EPA 8015Mod*

Sharon Ashida

From: Sharon Ashida
Sent: Monday, June 03, 2019 1:55 PM
: Laurie Yee
: Lori Gonzalez; Gary Geringer
Subject: Marshall Elementary Site Addition Approval - Fowler Unified School District - Fresno County

Hi Laurie:

Thank you for taking my phone call this afternoon. With respect to Fowler Unified School District's Marshall Elementary Schoo 3 Acre Site Addition, please see below for PG&E's response to the classification of the overhead power line along Armstrong Avenue. 12KV is not classified as a high voltage line.

Information to address your other items to follow! Thank you!

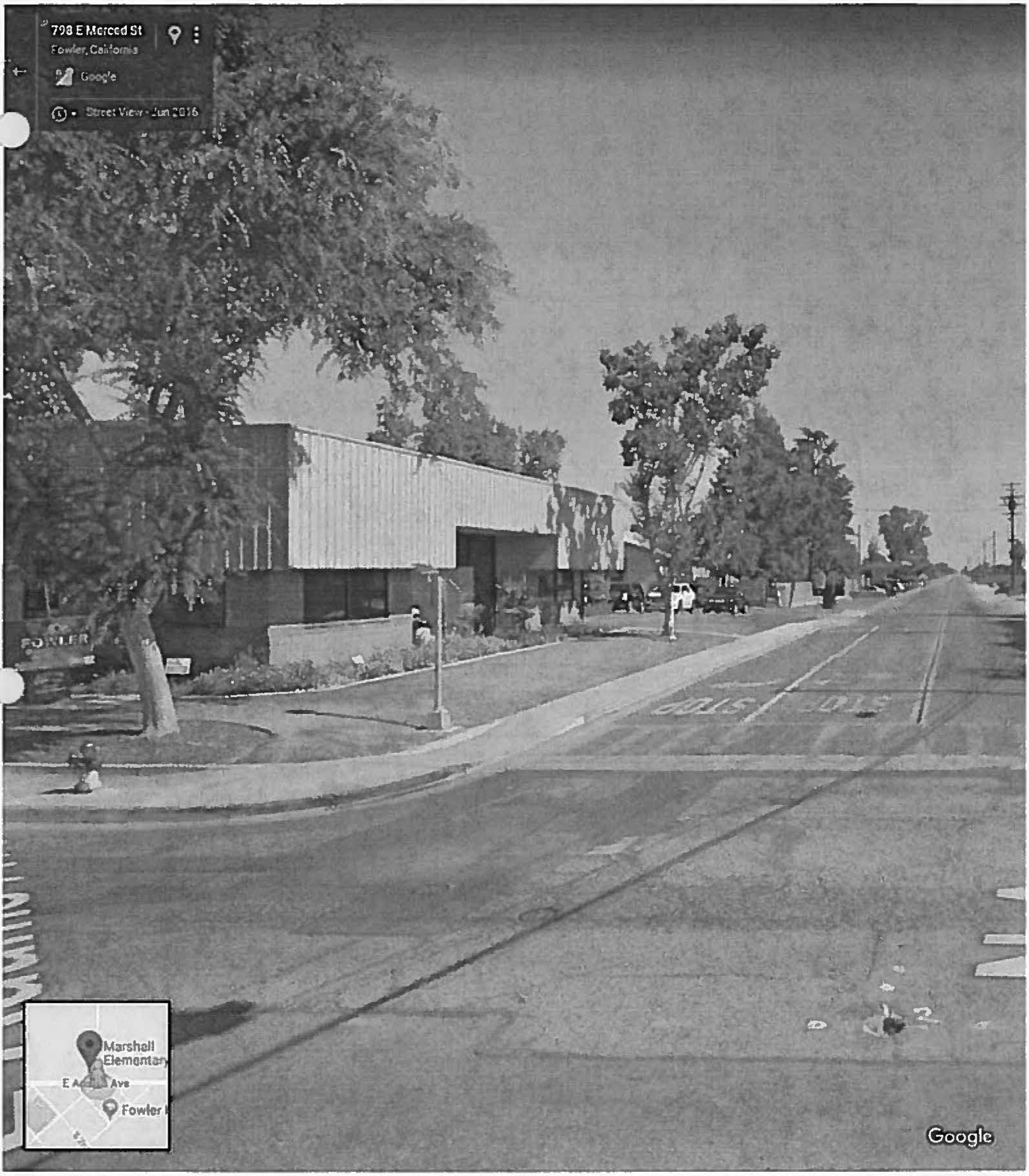
Sharon

Sharon Ashida, C.I.D.
Project Manager
President
Integrated Designs by SOMAM, Inc.
6011 N. Fresno St., Suite 130
Fresno, CA 93710
P: 559-436-0881 **F:** 559-436-0887
sashida@somam.com

www.integrateddesigns.com

From: Sytsma, P <PPS4@pge.com>
Sent: Friday, January 18, 2019 2:21 PM
To: Sharon Ashida <sashida@somam.com>
Subject: RE: Marshall Elementary School Overhead Line - Fowler Unified School District

This line here? It's mapped as 12kV.



aul Sytsma | Service Planner in Service Planning
Pacific Gas and Electric Company
559.347.5148 office | 347.5148 internal | paul.sytsma@pge.com

From: Sharon Ashida <sashida@somam.com>
Sent: Friday, January 18, 2019 1:39 PM
To: Sytsma, P <PPS4@pge.com>
Subject: RE: Marshall Elementary School Overhead Line - Fowler Unified School District

*****CAUTION: This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.*****

Good afternoon Mr. Sytsma:

Since you have been very helpful in the past with projects for Fowler Unified School District, I was hoping you can assist me or refer me to another project manager to request information with respect to the overhead power line on Armstrong Avenue east of Marshall Elementary.

We are assisting the district to obtain Department of Education approval to add 3 acres to the north side of Marshall Elementary School. The Dept of Ed would like to know what the voltage is of the overhead lines along Armstrong Avenue just north of Adams Avenue. We believe they are 12 KV but need PG&E's actual concurrence.

Please let me know who I should contact, or if I need to provide you with an aerial site plan so you can research this information.

Thank you in advance for your assistance!

Sharon Ashida

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Department of Toxic Substances Control

Jared Blumenfeld
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Environmental Protection

Meredith Williams, Ph.D.
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8800 Cal Center Drive
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Gavin Newsom
Governor

April 5, 2019

Mr. Scott Griffin
Superintendent
Fowler Unified School District
658 East Adams
Fowler, California 93625

PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT – NO FURTHER ACTION DETERMINATION, FOWLER UNIFIED SCHOOL DISTRICT, MARSHALL ELEMENTARY SCHOOL, 142 NORTH ARMSTRONG, FOWLER, FRESNO COUNTY (PROJECT CODE 104781)

Dear Mr. Griffin:

On March 29, 2019, the Fowler Unified School District (District) notified the Department of Toxic Substances Control (DTSC) that it has complied with all public review and comment requirements for the Preliminary Environmental Assessment Report (PEA Report) pursuant to Option A (Education Code section 17213.1, subdivision (a)(6)(A)). The PEA Report was available for public review and comment from February 27, 2019 through March 28, 2019 and a public hearing was held on March 13, 2019. No public comments were received regarding the PEA Report.

In addition, DTSC reviewed the revised PEA Report (Technicon Engineering Services, Inc., February 13, 2018) received electronically on February 13, 2019. The PEA Report was revised in response to DTSC comments on the draft version forwarded in an email dated November 20, 2018 and a follow-up email dated February 13, 2019. The PEA Report presents site investigation results and conclusions based on a health risk screening evaluation for the Site.

According to the PEA Report, the subject site encompasses approximately 3 acres of a 39-acre parcel on the north side of the existing Marshall Elementary School at 142 North Armstrong in Fowler, Fresno County, California (Site). The Site is further defined as a portion of the County of Fresno Assessor's Parcel Number 340-130-09. The Site has historically been used for agricultural purposes (most recently as a vineyard), and reportedly has never had any structures or any other features that may have presented an environmental concern. Surrounding properties include agricultural fields to the north and west, and one residence and agricultural fields to the east, and the existing elementary school to the south. The proposed school is expected to include three classrooms to accommodate 40 to 50 students. Based on the historical site usage, a PEA was conducted to investigate for the potential presence of organochlorine pesticides (OCPs) and metals in shallow site soils resulting from the application of pesticides.

Trace concentrations of the OCPs Dichlorodiphenyltrichloroethane (DDE) and Dichlorodiphenyltrichloroethane (DDT) which are well below DTSC and United States Environmental Protection Agency screening levels were detected in all soil samples. Trace concentrations of dieldrin well below the screening levels were detected in two samples.

Low concentrations of arsenic ranging between 2.1 and 2.8 milligrams per kilogram (mg/kg) were detected in all soil samples but were below concentrations from a nearby site which is overseen by DTSC and has been deemed to represent background concentrations for the Site.

Concentrations of copper and zinc were detected above the background concentrations in all soil samples. However, based on the risk calculations, the reported concentrations for copper and zinc are well below screening levels.

Lead was evaluated separately using the LeadSpread8 model with a target blood level of concern of 1.0 micrograms per deciliter for lead. The reported concentrations for lead were also well below screening levels.

Based on review of the PEA Report, neither a release of hazardous material nor the presence of a naturally occurring hazardous material which would pose a threat to public health or the environment under unrestricted land use, was identified at the Site. Therefore, DTSC concurs with the conclusion of the PEA Report that further environmental investigation of the Site is not required and hereby approves the revised PEA Report as final with a no further action determination.

Pursuant to Education Code section 17213.2, subdivision (e), if a previously unidentified release or threatened release of a hazardous material or the presence of a naturally occurring hazardous material is discovered anytime during construction at the Site, the

District shall cease all construction activities at the Site and notify DTSC. Additional assessment, investigation or cleanup may be required.

If you have any questions regarding the project, please contact Mr. Harold (Bud) Duke, Project Manager, at (916) 255-3695 or via email at Bud.Duke@dtsc.ca.gov. Alternatively, you may contact me at (916) 255-3717 or via email at Steven.Becker@dtsc.ca.gov.

Sincerely,

Steven Becker, P.G., Chief
DTSC Santa Susana Field Laboratory and Northern California Schools Branch
Site Mitigation and Restoration Program

cc: (via email)

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