Initial Study/Mitigated Negative Declaration

Extended Learning Opportunities Program Center

January 2026

Prepared for:

Palmdale School District
39210 10th Street East
Palmdale, California 93550

Prepared by:

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Lancaster, California 93535
661.433.9956 (M)

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		Hazards & Hazardous Materials		Public Services
	Agriculture Resources		Hydrology/Water Quality		Recreation
	Air Quality/GHG/Energy		Land Use/Planning		Transportation/Traffic
	Biological Resources		Mineral Resources		Utilities/Service Systems
	Cultural Resources		Noise		Mandatory Findings of Significance
	Geology/Soils		Population/Housing		

DETERMINATION: (To be completed by the Lead Agency). 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.	X
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 (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL 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.	

2/6/2024
Date

Dr. R. Maldonado
Raul Maldonado
Superintendent of Schools
Palmdale School District

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 its explanation 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 off-site as well as on-site, 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 Impact 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 Section 17, "Earlier Analysis," may be cross-referenced).
5) Earlier analysis 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 Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address the 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.

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Environmental Checklist

1. PROJECT TITLE: Extended Learning Opportunities Program Center

2. LEAD AGENCY NAME AND ADDRESS:

   Palmdale School District
   39210 10th Street East
   Palmdale, California 93550

3. CONTACT PERSON AND PHONE NUMBER:

   Al Tsai, Palmdale School District, 661.789.6575

4. PROJECT LOCATION: APNs 3025-026-001, 002, 007, 008, and 011, northeast corner of 40th Street East and Avenue Q, Figures 1 and 2.

5. PROJECT SPONSOR'S NAME AND ADDRESS:

   Raul Maldonado,
   Superintendent of Schools
   Palmdale School District
   39210 10th Street East
   Palmdale, California 93550

6. GENERAL PLAN DESIGNATION: Educational Flex

7. ZONING (Figure 3): EDFX

8. DESCRIPTION OF PROJECT: The proposed project will construct an Extended Learning Opportunities Program Center (ELOP) on 67 acres. The ELOP will operate as a school enrichment center. The conceptual site plan can be viewed in Appendix A. The project will be constructed in four phases. The following facilities and amenities are currently planned within the following phases. The planned activities in a phase may warrant changing over a period of time due to scholastic needs but impacts would be the same.

   Phase 1 will provide the following:

   Amenities
   - handball court
   - mini-pitch sports court with covering
   - playground with shade structures
   - amphitheater/outdoor group area
   - small group gathering area
   - concrete pad (future multipurpose building)

   Support facilities
   - Flexible modular buildings and restrooms
   - modular full service kitchen
   - entry portal
   - bus staging drop off and entry plaza
   - staff parking
   - specialty covered bus parking
   - planted buffer mounds/berms with drought tolerant plants and boulders

Phase 2 will provide the following:

Amenities
- track and field with flag football overlay
- baseball field/softball field
- soccer field with shaded bleachers
- cross country route
- tennis courts
- shade canopy with seating

Support facilities
- concessions/restroom modular
- access/maintenance road
- planted buffer mounds/berms with drought tolerant plants and boulders

Phase 3:

Amenities
- golf academy

Support facilities
- parking stalls
- maintenance yard
- planted buffer mounds/berms with drought tolerant plants and boulders

Phase 4:

Amenities
- farmbuilding-urban barn
- stockyard/corral

Support facilities
- concessions/restroom modular

Most of the buildings supporting the ELOP will be constructed within Phase 1. Children from schools within the City of Palmdale will be transported by bus to the ELOP to participate in the available programs. The ELOP will run an afterschool program during the school year and an all-day program during the summer. The children will be picked up and dropped off at their schools. Parents will not be allowed to drop-off/pick-up students except in case of emergency. Trips by buses, staff, and deliveries are the standard traffic to and from the ELOP. The proposed project will start with Phase 1A consisting of an admin modular building (approximately 1,920 square feet), 5 flexible modular studios (approximately 1,920 square feet), 3 modular restrooms (approximately 450 square feet), modular electrical room (approximately 450 square feet), bus covered parking, 2 mini-pitch sports courts with covering, 2 mini-pitch sports court, playground with shade structure, fire access lane, interior fencing, site access aligned with 42nd Street, temporary bus drop off, staff parking, and off-site improvements of Avenue Q. Supporting site work will include underground utilities, landscaping, reconfigurations and expansion of flatwork and access drives. Interior fencing will be established with each phase.

Figure 1. Vicinity Map

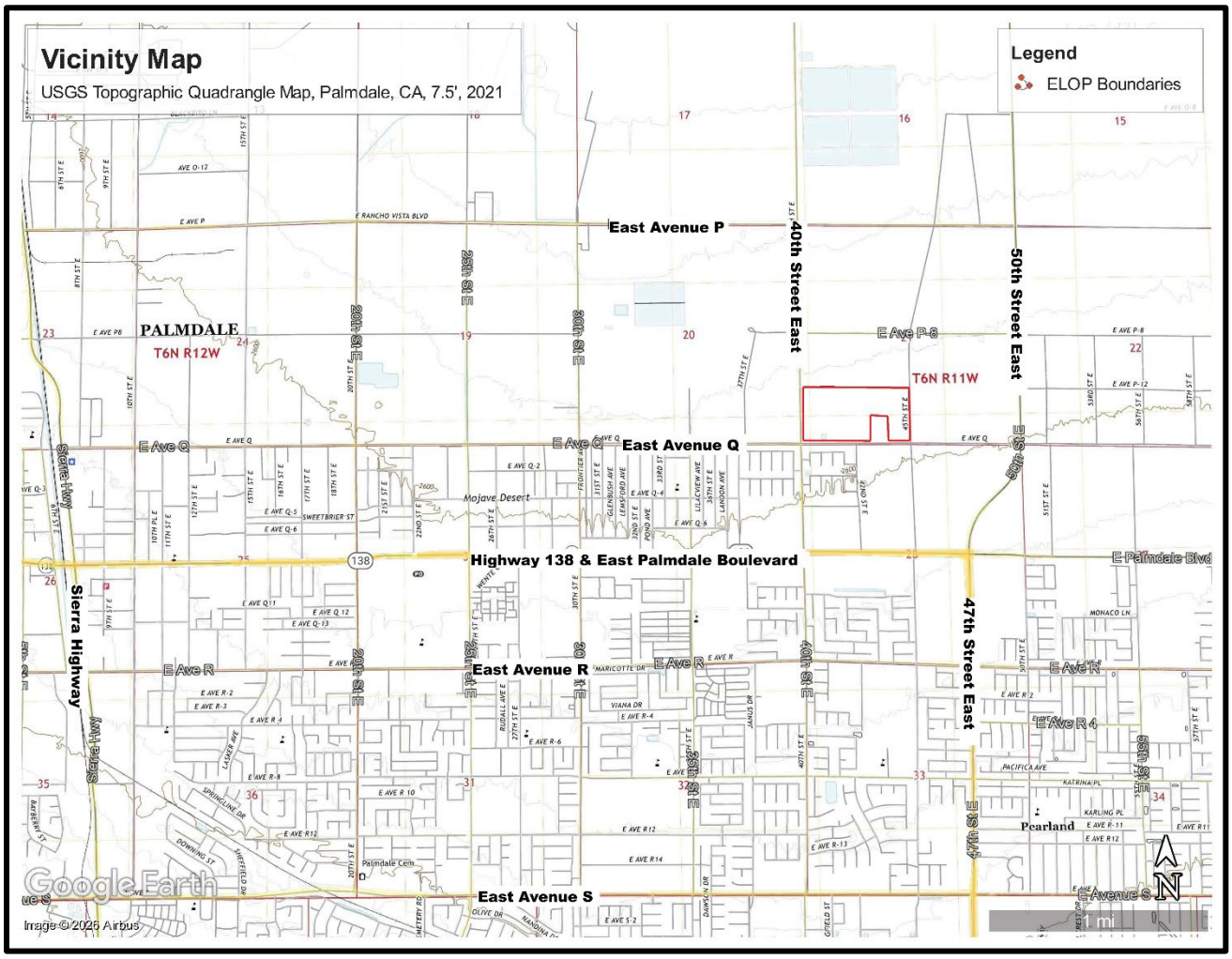


Figure 2. Aerial Photograph of Site and Surrounding Area

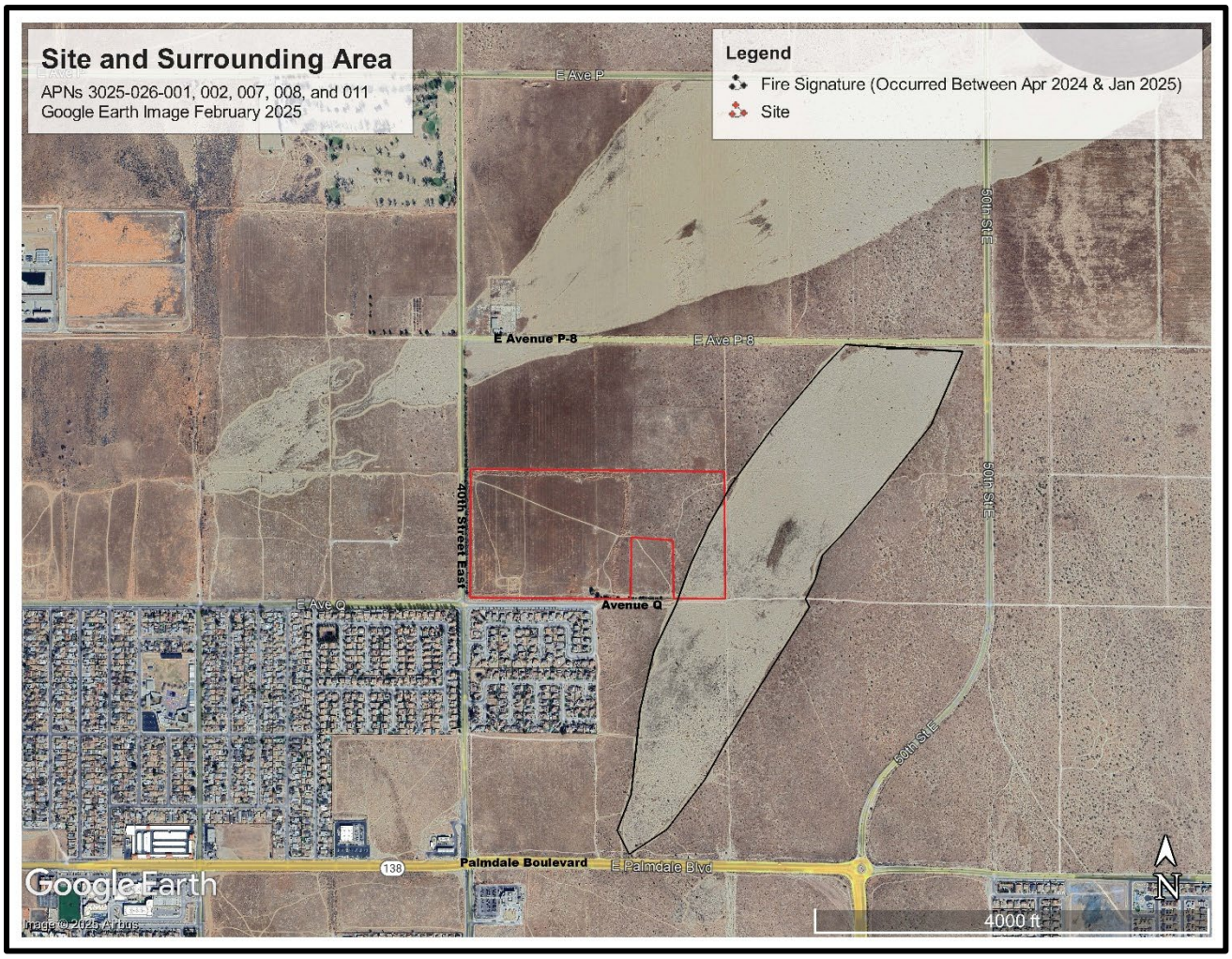
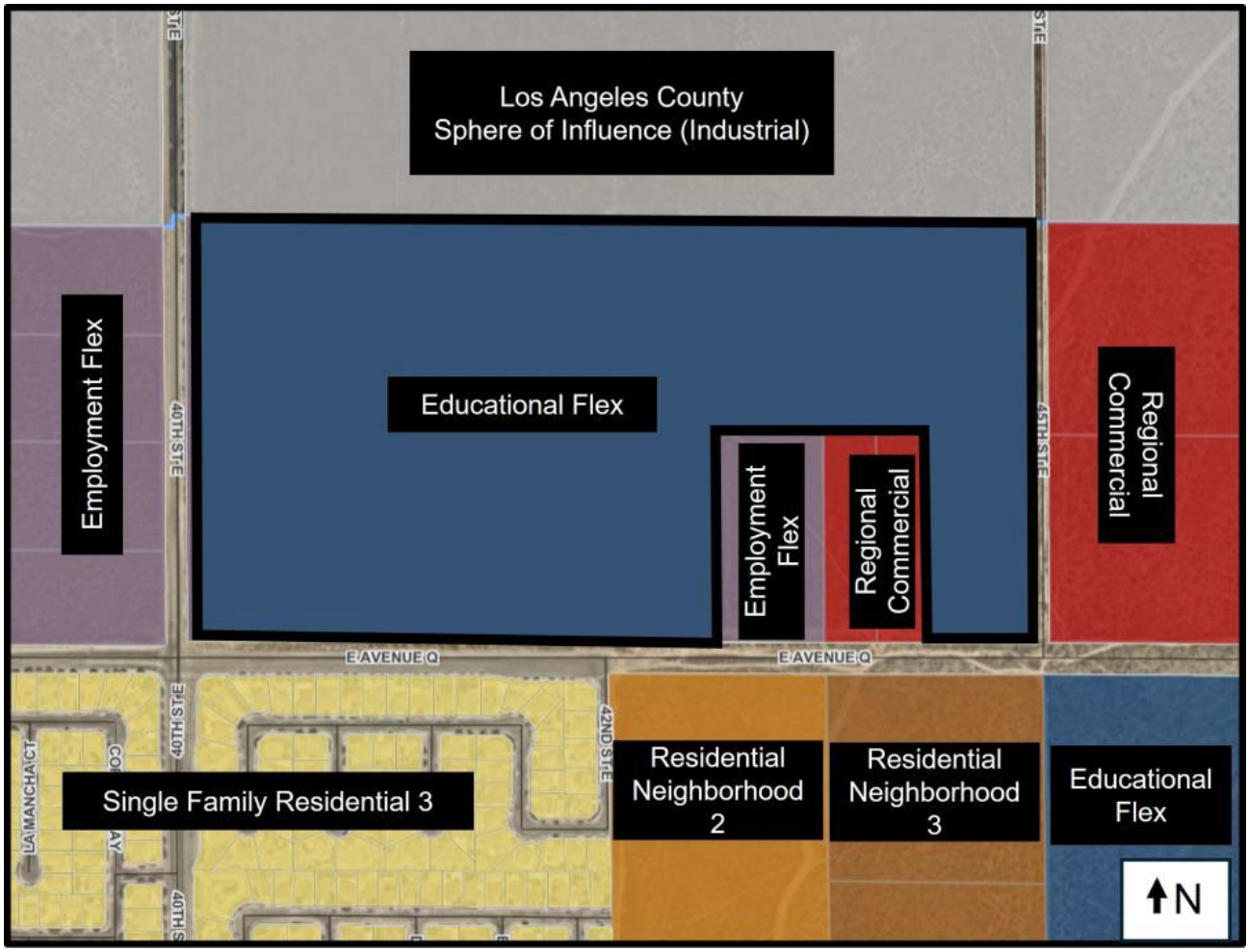


Figure 3. Zone Map



Excerpt of map from City of Palmdale, City Council Meeting, 4 November 2025 (Appendix B).

9. SURROUNDING LAND USES AND SETTING: The proposed project is surrounded on the north, west, east, and southeast by vacant land. Existing single-family homes are present along the southwest boundary. Photographs of the site and surrounding area are provided in Appendix C.

Table 1. Existing and Surrounding Land Use, Zoning, and General Plan Designations

	Land Use	Zoning	General Plan
Subject Site	Vacant land	EDFX	Educational Flex
North	Vacant land	HI	Heavy Industrial
South	Single family housing Vacant land Vacant land	SFR3 RN2 RN3	Single Family Residential 3 Residential Neighborhood 2 Residential Neighborhood 3
East	Vacant land	RC	Regional Commercial
West	Vacant land	OFX LI	Office Flex Light Industrial
Inset Parcel	Vacant land	EMFX RC	Employment Flex Regional Commercial

10. OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (e.g., permits, financing approval, or participation agreement). Distribution of this document is appropriate, but not limited, to the following agencies:

    California Department of Education – School Facilities Planning Division
    California Department of General Services – Division of State Architect
    Department of Toxic Substances Control
    Lahontan Regional Water Quality Control Board
    Antelope Valley Air Quality Management District
    Los Angeles County Sanitation District 14
    Palmdale Water District
    California Department of Fish and Wildlife
    Antelope Valley Transit Authority
    Southern California Edison
    Caltrans
    SoCal Gas

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1?

    The Palmdale School District initiated the Assembly Bill 52 consultation process, and sent letters to five Tribes on January 28, 2026 asking if they wished to consult with the Palmdale School District on construction of the ELOP. Ft. Yuma Quechan Tribe responded on 29 January 2026 declined to comment deferring to local Tribes. As the rest of the Tribes respond their recommended mitigation measures will be incorporated into the Cultural and/or Tribal elements instead of those currently in place. Mitigations typically provided during previous consultations have been incorporated into this document until that time. If no further comments are received mitigations within this document will be followed.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
1. **Aesthetics.** Would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings? Would the project conflict with applicable zoning and other regulations governing scenic quality?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Project Impacts and Mitigation Measures

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact. The proposed project is located in the northeast corner of the intersection of 40th Street East and Avenue Q. This site consists primarily of an old agricultural field with remnants of a highly disturbed western Joshua tree (WJT) habitat in the northeast portion. Abandoned agricultural fields exist to the northwest and west. Heavily disturbed saltbush scrub exists to the northeast and east. Evidence of a large fire has eliminated most vegetation to the east. The site is not located within the vicinity of a designated or eligible scenic highway, significant ridgeline, or other designated natural and scenic resource. The Project is surrounded by vacant land and residential developments. The proposed project would not have a substantial adverse effect on a scenic vista.

Mitigation Measures: No mitigation measures are necessary.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The project site is not within a state scenic highway and would not substantially damage scenic resources within view of a state scenic highway corridor.

Mitigation Measures: No mitigation measures are necessary.

c) *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?*

No Impact. The proposed project would introduce public school amenities to a developing urban area. The proposed project development is appropriate within the zone designation of Educational Flex (EDFX) and does not conflict with the scenic quality of the area. It is surrounded by old agricultural fields, highly disturbed desert habitat, and residential homes.

Mitigation Measures: No mitigation measures are necessary.

d) *Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?*

Less Than Significant Impact. Construction of the proposed project will introduce new lighting and potential glare into what is now vacant land. The new lighting sources would consist of outdoor lights for building and pathway security and additional streetlights around the site. By incorporating requirements in the City of Palmdale's municipal code (PMC) 17.86.30 existing residences and future development would not be adversely affected by substantial light or glare. Although there are sports fields in later phases there will be no field lights. Activities within the center will end at or around 6pm both during the school year and summer programs. As noted in PMC 17.86.30 lighting will point downward, light poles will not be higher than 15 feet along the roadside, etc.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
2. **Agriculture 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. Would the project:				
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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

Project Impacts and Mitigation Measures
Excerpts from City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, pages 4.2-1 to 4.2-8 are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) 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 nonagricultural use?

No Impact. According to the California Natural Resources Agency, Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program (FMMP) and within the Agricultural and Forestry Element in the Final Environmental Impact Report (FEIR), City of Palmdale General Plan 2045, the proposed project is not located within an area containing Prime Farmland, Unique Farmland, or other Farmland of Statewide

Importance. The proposed project will not convert to non-agricultural use of any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. FEIR Figure 4.2-1 depicts the closest farmland to be approximately one mile to the east of the proposed project site.

Mitigation Measures: No mitigation measures are necessary.

b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. The project is not zoned for agricultural use and will not conflict with existing zoning for agricultural use. It is not under a Williamson Act contract.

Mitigation Measures: No mitigation measures are necessary.

c) *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)) 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))?*

No Impact. There are no forests or timberland located within the City of Palmdale, therefore, no loss of forest land or the conversion of forest land to non-forest land would occur (City of Palmdale 2022).

Mitigation Measures: No mitigation measures are necessary.

d) *Result in the loss of forestland or conversion of forestland to non-forest use?*

No Impact. There are no forests or timberland located within the City of Palmdale, therefore, no loss of forest land or the conversion of forest land to non-forest land would occur (City of Palmdale 2022).

Mitigation Measures: No mitigation measures are necessary.

e) *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of Farmland to nonagricultural use or the conversion of forestland to non-forest use?*

No Impact. As noted in a) above Farmland is one mile east of the site. This issue was evaluated in the General Plan EIR Update with the following conclusion “The Plan would not convert Farmland to non-agricultural use, conflict with existing zoning or a Williamson Act Contract, or involve other changes that could result in the conversion of Farmland to non-agricultural use. There would be no impact (City of Palmdale 2022).”

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
3. **Air Quality.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
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?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?				X
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Project Impacts and Mitigation Measures

Air Quality and Greenhouse Gas Emissions Study – Expanded Learning Opportunities Program Center, Corner of 40th Street East and E Ave. Q, Palmdale, CA, M.S. Hatch, 2026, in its entirety is incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254. The following responses are summarized, quoted, and or excerpted from the incorporated assessment.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The project site is located within the Antelope Valley Air Quality Management District (AVAQMD). Development and operation of this project will comply with all applicable district rules and regulations, and proposed control measures as required by the AVAQMD. All equipment used will be CARB approved. Rule 403 (Fugitive Dust), and Rule 402 (Nuisance), in compliance with the AVAQMD Air Quality Plan, would be implemented as part of the construction process, to include but not limited to, watering during and after grading, and stabilizing soils during times of inactivity. Rule 1113 requirements covering Architectural Coatings have been incorporated into the construction process.

The AVAQMD Air Quality Plan indicates a project is deemed to not exceed threshold, and hence not be significant, if it is consistent with the existing land use plan. The proposed project is zoned EDFX which allows for public school facilities in this location (Appendix D).

Mitigation Measures: No mitigation measures are necessary

b) 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?

Less than Significant Impact. The Antelope Valley is in an ozone and particulate matter nonattainment region. As specified in pages 2 and 3 of the incorporated report's tables 1 and 2 (Appendix D), the project's estimated construction and total operational emissions are below the applicable AVAQMD thresholds of significance.

Page 9 of the incorporated report states: The estimated emissions of criteria pollutants for each year of construction and the total operational emissions are below the applicable AVAQMD Significant Emissions Thresholds. Therefore, this project does not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state Ambient Air Quality Standard.

The proposed project's process incorporates the applicable AVAQMD regulations and guidance as noted in a) above. Dust controls are incorporated into the construction process and are monitored by the city and AVAQMD.

Mitigation Measures: No mitigation measures are necessary.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

No Impact. As noted within the incorporated report pages 1 and 2: The proposed project is not considered one of the project types that the AVAQMD CEQA and Federal Conformity Guidelines requires to be evaluated for potentially exposing sensitive receptors to substantial pollutant concentrations. As such, hazardous air pollutant (HAP) and toxic air contaminant (TAC) emissions were not calculated, and the project was not evaluated for potential health risks to sensitive receptors. Construction HAP and TAC emissions are temporary in nature and expected to be relatively low. Volatile HAPs and TACs would be orders of magnitude lower than the estimated volatile organic compound (VOC) emissions and well below the applicable thresholds. Particulate matter emissions due to construction are also well below the applicable thresholds. Further, diesel particulate matter emissions would be minimized by utilizing construction equipment that meets the California appliable emission requirements for off-road equipment and by using electric or hybrid equipment, where feasible.

Page 9 of the incorporated report conclusion on this issue states: This project is an educational facility development that does not include any industrial activities or other processes that would expose sensitive receptors to substantial pollutant concentrations.

Mitigation Measures: No mitigation measures are necessary.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. The incorporated report, page 9 indicates: Significant operational sources of odors are typically sewage treatment plants, landfills, recycling facilities, agricultural operations, and some industrial activities. Vehicles, especially those running on diesel, can contribute to odor and other air quality impacts. For this project, construction activities may generate odors that would be short-term in nature and subject to AVAQMD Rule 402, Nuisance, which prohibits the discharge of contaminants that could be detrimental or would cause a nuisance. Construction activities would be temporary and transitory and associated

odors would cease upon construction completion. Therefore, the proposed construction is not expected to create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant. Since this project is an educational facility development, it is not expected to result in objectionable odors affecting a substantial number of people. Any activity that generates odor would be subject to AVAQMD Rule 402, Nuisance.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?		X		
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 US Fish and Wildlife Service?				X
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?				X
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
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?				X

Project Impacts and Mitigation Measures

a) *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 (CDFW) or U.S. Fish and Wildlife Service?*

Less than Significant Impact with Mitigation. The "Biological Resource Assessment of APNs 3025-026-001, 002, 007, 008, and 011, Palmdale, California, January 2026, (Appendix D), documented field surveys accomplished on the site. The California Natural Diversity Database (CNDDB), Palmdale Quadrangle, the 2025 CNDDB federal and state threatened and endangered plant and animal species list, eBird 2025, and the 2025 iNaturalist database were reviewed during the biological study. The following synopsis was taken from the report.

The western portion of the study site was characteristic of old agricultural fields. The eastern portion of the study area was characteristic of a highly disturbed Joshua tree woodland and desert scrub understory. A total of 26 plant species and 26 wildlife species or their sign were observed during the line transect survey. No desert tortoises or their sign were observed within the study area. The study area did not provide suitable habitat for Mohave ground squirrels. An old desert kit fox den and scat were observed within the study area. No burrowing owls or their sign were observed within the study area. Vegetation within the study area provided potential nesting sites for migratory birds. No Swainson's hawk nests have been documented within 5 miles of the project site in the last 5 years. No bumble bees were observed during the field surveys. Western Joshua trees were present within the eastern portion of study area. No other sensitive plants, specifically alkali mariposa lily, desert cymopterus, and Barstow woolly sunflower are expected to occur within the study area due to the lack of suitable habitat.

Western Joshua tree. The western Joshua tree (WJT) is a candidate species for listing under the California Endangered Species Act (CESA) and is protected under the Western Joshua Tree Conservation Act (WJTCA). An Incidental Take Permit (ITP) is required for the take of WJTs and can be processed using either CESA or the WJTCA. Development of the site will require removal of all Joshua trees within the site by the time all Phases are completed. No Joshua tree take will occur in Phase 1. An ITP for WJTs is required prior to impacting dead or live trees.

Crotch's bumble bee. Crotch's bumble bee became a State listed candidate species under CESA in 2019. Crotch's bumble bee has a life cycle based on the survival of the queens produced each year. The colony completely dies out each year except for the new queens. The new queens hibernate and restart individual colonies in the spring. Having enough floristic resources during a colony's entire life span is imperative to ensuring the new queen's survival to mate, hibernate, and start a new colony. If flowers have died out and no perennials are blooming the colony is left with no way to persist. No bumble bees were observed or expected to be present within the site.

The 2018 to 2025 iNaturalist documented observations of Crotch's bumble bee within the Antelope Valley were researched. Over 90% of these observations occurred in areas of high floristic presence such as the Blalock Wildlife Sanctuary, the Poppy Preserve area (west Lancaster), Phacelia Wildlife Sanctuary (near Edwards Air Force Base), and the Los Angeles National Forest (San Gabriels). All of these are more than eight miles from the project site

Since Crotch's bumble bee use of desert floor resources are still being determined it would be prudent to survey for bumble bees prior to ground disturbing activities. If bumble bees are found to be present a focused Crotch's bumble bee survey will be accomplished to determine if they are present.

Western burrowing owl. The western burrowing owl was listed as a candidate species under CESA in 2024. No burrowing owls or their sign were observed within the study area. California ground squirrel burrows were observed throughout the site. California ground squirrel burrows can potentially provide future cover sites for burrowing owl. Review of sensitive species databases (eBird 2025, CNDDB 2025) resulted in no observations of burrowing owl within five miles of the study site in more than five years.

Migratory Bird Treaty Act. Many species of birds and their active nests are protected under the Migratory Bird Treaty Act. Vegetation within the site provides potential nesting habitat for migratory birds. The existing trees along the edges of the site consist primarily of salt cedar and are not considered suitable for Swainson's hawk. No Swainson's hawk nests have been documented in the last five years within five miles of the site. Preconstruction surveys would ensure no impacts to nesting migratory birds to include the unlikely presence of Swainson's hawk.

Mitigation Measures:

BIO 1. Fully implement all mitigation measures determined by CDFW for WJTs under either the WJTCA or under CESA ITP process. Implementation of the CDFW ITP ensures no potentially significant impact to WJTs.

BIO 2. Prior to ground disturbing activities a preconstruction survey for bumble bees will be conducted. If any bumble bees are detected a focused survey for Crotch's bumble bee will be conducted. If Crotch's bumble bee is discovered an ITP will be obtained. Mitigations developed during the ITP process will insure no significant impact to Crotch's bumble bee would occur.

BIO 3. Consistent with the "Staff Report on Burrowing Owl Mitigation" a take avoidance (preconstruction) burrowing owl survey will be accomplished no more than 14 days prior to ground disturbance activities to ensure no owls have moved into the site (CDFG 2012). If burrowing owls are discovered during preconstruction surveys, an ITP will be obtained and implemented prior to ground disturbing activities. Implementation of the ITP mitigations would ensure no potentially significant impact to burrowing owl.

BIO 4. Removal of vegetation will occur outside the breeding season for migratory birds. Breeding generally lasts from February to July but may extend beyond this time frame. If vegetation removal will occur during or close to the nesting season, a qualified biologist will survey all potential nesting areas to be disturbed as close as possible but no more than one week prior to removal. If active bird nests are found, impacts to nests will be avoided by either delaying work or establishing initial buffer areas of a minimum of 500 feet (152 m) around active raptor nests or 50 feet (15 m) around smaller active migratory bird species nests. The project biologist will determine if the buffer areas should be increased or decreased based on the nesting bird response to disturbances.

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

No Impact. There are no riparian or other sensitive natural community identified in local or regional plans, policies or regulations of by the California Department of Fish and Wildlife or US Fish and Wildlife Service within the site. A remnant WJT habitat with highly disturbed understory and few trees was present and no longer retained the values of a WJT woodland.

Mitigation Measures: No mitigation measures are necessary.

c) *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?*

No Impact. There are no wetlands within the project site. The proposed project would have no effect on state or federally protected wetlands.

Mitigation Measures. No mitigation measures are necessary.

d) *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 nesting sites?*

No Impact. There are no indications of a potential wildlife corridor within the site. Most of the site is old agricultural and the rest has been highly disturbed by past practices, fire and the presence of significant homeless activities/encampments.

Mitigation Measures: No mitigation measures are necessary.

e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Less than Significant Impact. Palmdale Municipal Code (PMC) Chapter 14.04, known as the Palmdale native desert vegetation ordinance, was revised and adopted in May 2023 after the WJT was listed as a candidate species under the California Endangered Species Act. The Western Joshua Tree Conservation Act (WJTCA) which provides protection specifically for WJTs was enacted 10 July 2023 after the adoption of the revised ordinance. The WJTCA has the same requirements for accomplishing a census, paying mitigation for every tree, determining relocation requirements and if appropriate the percentage of trees to be relocated, etc. Compliance with the ordinance will be accomplished by compliance with a WJTCA ITP. There are no other sensitive biological resources within the project site protected by local policies or ordinances. Bio 1 will mitigate for WJTs.

Mitigation Measures. No mitigation measures are necessary.

f) *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?*

No Impact. No conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other approved habitat conservation plan at the local, regional, or State levels would occur.

The West Mojave Coordinated Management Plan (WMCMP), although not adopted, is addressed within the City of Palmdale General Plan Update Final Environmental Impact Report (FEIR), 2022 and refers to protection of desert tortoise and Mohave ground squirrel. Neither the desert tortoise or Mohave ground squirrel are present within or adjacent to the project site as noted in the biological report (Hagan 2026).

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
5. **Cultural Resources.** Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		X		

Project Impacts and Mitigation Measures

Phase I Cultural Resource Investigation for the Expanded Learning Opportunities Program Center (ELOP), 67.4 Acres near the Intersection of 40th Street East and East Avenue Q, Palmdale, Los Angeles County, California, RT Factfinders, December 2025, in its entirety is incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254. The following responses are summarized, quoted, and or excerpted from the incorporated assessment.

a-b) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5? Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in Public Resources Code Section 21083.2 and 21084.1, and CEQA Guidelines Section 15064.5, respectively?

Less Than Significant Impact with Mitigation. Five historic USGS maps, dating between 1915 and 1974 were reviewed. Two structures were shown on the property in 1930, then one in 1958 and still present in 1974. No structures are present any longer on the site. A Sacred Land Search was accomplished through a request of the Native American Heritage Commission which indicated no Native American sacred sites were identified on the property. A record search was requested of the South Central Coastal Information Center which included a half mile of the project boundaries. Seven reports were on file that included all or part of the site. There were no recorded resources within t

The field survey conducted on the proposed project site found no prehistoric Native American period sites or artifacts. Two historic period sites were identified but no significant cultural resources were identified. No further cultural resource measures were recommended.

The unanticipated discovery of previously unidentified archaeological resources is possible during construction earth-moving activities. Implementation of mitigation measure CUL-1 would reduce impact to previously unidentified archeological resources inadvertently encountered during earth-moving operations to less than significant.

Mitigation Measures:

CUL 1. Tribal Monitoring, First (5) Days. The Project Applicant shall retain a professional Tribal Monitor procured by the interested Tribes to observe the first (5) days of ground-disturbing activities which include excavating, digging and/or trenching. Tribal Monitoring Services will continue until all (5) days, consecutive or non-consecutive, of ground-disturbing activities are completed. If the Project's scheduled activities require the Tribal Monitor(s) to leave the Project for a period of time and return, confirmation shall be submitted to the Tribe by project applicant, in writing, upon completion of each set

of scheduled activities and a minimum of 48 hours' notice shall be submitted to the Tribe by Client, in writing, prior to recommencement. If cultural resources are encountered, the Tribal Monitor will have the authority to request ground disturbing activities cease within 60-feet of the discovery to assess and document potential finds in real time. Work on the other portions of the project outside of the buffered area may continue during this assessment period. A qualified archaeologist meeting Secretary of Interior standards shall also assess the find. Should the find be deemed significant, as defined by CEQA (as amended, 2015), the Project applicant shall retain a professional Tribal Monitor procured by the interested Tribes to observe all remaining ground-disturbing activities including, but not limited to, clearing, grading, excavating, digging, trenching, plowing, drilling, tunneling, quarrying, leveling, driving posts, auguring, blasting, stripping topsoil or similar activity, and archaeological work. If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to the interested Tribes for review and comment. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CUL 2. Disposition and Treatment of Inadvertent Discoveries. The Lead Agency and/or applicant shall, in good faith, consult with the interested Tribes on the disposition and treatment of any Tribal Cultural Resource encountered during all ground disturbing activities. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to the interested Tribes. The Lead Agency and/or applicant shall, in good faith, consult with the tribes throughout the life of the project.

c) *Would the project disturb any Native American tribal cultural resources or human remains, including those interred outside of dedicated cemeteries?*

Less Than Significant Impact with Mitigation. No indication of human remains were noted on the project site during the cultural resource field survey or uncovered during the records search. If human remains or potential human remains are observed during construction, work in the vicinity of the remains will cease, and they will be treated in accordance with the provisions of State Health and Safety Code Section 7050.5. The protection of human remains follows California Public Resources Codes, Sections 5097.94, 5097.98, and 5097.99.

CUL 3. In the Event of Inadvertent Discovery, Human Remains. If human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code shall be enforced for the duration of the Project. Inadvertent discoveries of human remains and/or funerary object(s) are subject to California State Health and Safety Code Section 7050.5, and the subsequent disposition of those discoveries shall be decided by the Most Likely Descendant (MLD), as determined by the Native American Heritage Commission (NAHC), should those findings be determined as Native American in origin.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
6. **Energy.** Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficient?				X

Project Impacts and Mitigation Measures

a) *Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

Less than Significant Impact. Energy will be used during construction, transporting soils, waste, supplies, etc. Although fossil fuels and other energy consuming equipment will be used for construction to prepare the site and construct the facility, the State of California requires all equipment not being used for over five minutes be turned off to prevent unnecessary, wasteful, inefficient consumption of energy resources. During construction, as much as feasible, building materials will be made of recycled materials, thus reducing energy use. Energy bound construction materials necessary for development (concrete, asphalt, pipes, steel, etc.) would not significantly increase demand given the small size of this project and overall development within the City.

Energy would be used for lighting, heating and air conditioning, refrigeration, appliances, i.e. normal operation of family living. As part of the assessment for the General Plan this would have been considered in zoning this area for development. The project would comply with Title 24 Building Energy Efficiency Standards to reduce energy usage through minimum efficiency standards for building features (appliances, air and heating systems, building insulation, roofing, and lighting).

Mitigation Measures: No mitigation measures are necessary.

b) *Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

No Impact. This project will comply with applicable regulations and City of Palmdale General Plan policies to prevent wasteful, inefficient, or unnecessary consumption of energy resources during construction and operation. The project will construct and operate in a manner consistent with energy efficiency goals contained in the City of Palmdale Energy Action Plan. Construction and operation would comply with CALGreen and Title 24 of the California Energy Code requirements (City of Palmdale 2022, Rincon 2022).

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
7. **Geology and Soils.** Would the project:				
a) Directly or indirectly cause 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?		X		
b) Result in substantial soil erosion or the loss of topsoil?			X	
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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Project Impacts and Mitigation Measures

Geotechnical Engineering and Geohazards Report, with Preliminary Percolation Testing, Proposed ELOP Center Project, Phase 1A NEC of 40th Street East & East Avenue Q, APN 3025-026-001, Palmdale, Los Angeles County, California, Earth Systems, December 2025, in its entirety, and the City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.7 Geology and Soils, to include analysis and findings, are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of injury, damage or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? 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?*

Less than Significant Impact with Mitigation. Information in this section was developed from or based on the incorporated FEIR and Geotechnical report.

Topography of a site may affect the intensity of an earthquake from one site to another. Topographic effects such as steep sided ridges or slopes may result in a higher intensity than sites located in relatively flat-lying areas. The proposed project site is relatively flat. The most recent CBC (California Building Code) seismic coefficient criteria will help minimize damage during an earthquake. The primary goal of seismic design is to protect life not to avoid all damage.

As noted in the FEIR: Projects carried out under the General Plan are required to be designed and constructed in accordance with state and local building codes to reduce the potential for exposure of people or structures to seismic risks to the maximum extent possible. This project would be required to comply with the seismic safety requirements in the latest California Building Code (CBC) and the Palmdale Municipal Code (PMC). Compliance with such requirements would reduce seismic ground shaking impacts to the maximum extent practicable with current engineering practices.

i) The proposed project site is not located within an Alquist-Priolo Earthquake Fault Zone. The San Andreas fault zone is located approximately 3.6 miles from the Mojave segment and 2.7 from the Cemetary fault, a subsidiary, within the San Andreas rift zone. Both southwest of the site (Geotechnical Report page 13).

ii) Depending on the location of an earthquake there could be strong ground shaking (Geotechnical Report page 13).

iii) Ground rupture occurs when movement on a fault breaks the ground surface and usually occurs along pre-existing fault traces where zones of weakness already exist. The site is not located within the State established Earthquake Fault Zone, Figure 4.7-3, Fault Map of Palmdale. The hazard associated with ground rupture for the site would be considered low since there are no known faults under the site. The site is not located in a seismically-induce liquefaction hazard area is indicated in the FEIR Figure 4.7-5, Liquefaction Hazard Zones of Palmdale.

iv) The site is relatively flat and not subject to landslide hazard.

Mitigation Measures:

GEO 1. Incorporate earthquake resistant seismic design into the construction of all structures following the appropriate parameters within the most recent CBC. Incorporate all recommendations provided within the Geotechnical Report.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Pages 4.7-10 through 4.7-15 of the incorporated FEIR discusses soil erosion and loss of topsoil. This is summarized in the paragraphs below.

Soil erosion is the removal of soil by water and wind. Factors that influence erosion potential include the amount of rainfall and wind, the length and steepness of the slope, and the amount and type of vegetative cover. Generally, soil erosion is not an issue or the effects are lessened where topography is level. The proposed site is relatively level. Excavation, grading, construction activities, and site preparation for development may result in the removal of topsoil or disturb and potentially expose underlying soils to wind and water erosion. The proposed project site will be subject to the National Pollutant Discharge Elimination System (NPDES) permit. Under the NPDES permit, development activities have to follow best management practices that reduce soil erosion, loss of topsoil, and pollution of waterways. Earthwork and ground disturbing activities will require compliance with grading permits which will minimize erosion. Due to the grading permit requirements, implementation of the NPDES permit, and the Stormwater Pollution Prevention Plan (SWPP) the proposed project will not result in substantial soil erosion or loss of topsoil.

Mitigation Measures: No mitigation measures are necessary.

c) 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact: The site is flat and not subject to landslide hazard. Based on the FEIR results, this site is considered to have very low susceptibility to liquefaction. Lateral spreading, which is associated with liquefaction would be unlikely. Further discussion on this can be seen in a) above. This was also reiterated in the incorporated Geotechnical Report.

Mitigation Measures: No mitigation measures are necessary.

d) 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?

Less Than Significant Impact. Expansive soils are soils that shrink and swell in response to changes in moisture content and potentially cause damage to structures. The expansion index of the onsite soils is “very low” (Geotechnical Report page 10).

Mitigation Measures: No mitigation measures are necessary.

e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact. Constructed facilities will connect to the local sewer system. No septic tanks or alternative wastewater disposal systems are planned.

Mitigation Measures: No mitigation measures are necessary.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

No Impact. There were no indication of any paleontological resource and no unique geological features present or expected.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?				X
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Project Impacts and Mitigation Measures

a) *Would the project generate greenhouse gas emissions, either directly or indirectly that may have a significant impact on the environment?*

No Impact. As specified in the incorporated report, tables 3 and 4 (pages 3 and 4) and on page 10 (Appendix D)**:** The annual and daily GHG emissions associated with the operation of the proposed project are presented in pages 3 and 4 of tables 3 and 4 and compared to the AVAQMD significance thresholds. The emissions are well below the applicable thresholds. Therefore, the proposed project would result in a less than significant impact with respect to GHG emissions

Additionally, the project does involve GHG emission reduction measures by complying with the most recent California Building Code (CBC), incorporating energy efficiency technologies and methods to reduce energy consumption, complying with applicable current and future CARB regulatory requirements aimed at reducing GHG and other pollutants emissions. These include In-use Off-Road Diesel-Fueled Fleets Regulation and Clean Truck Check.

Mitigation Measures: No mitigation measures are necessary.

b) *Would the project conflict with an applicable plan, policy, or regulation adoption for the purpose of reducing the emission of greenhouse gases?*

Less than Significant Impact. The County of Los Angeles adopted a Climate Action Plan (CAP) on June 25, 2024. The CAP included 2015 and 2018 GHG emission inventories and projections for future years. The 2045 CAP includes 10 strategies and 25 measures that, when combined, achieve all three of the GHG emissions reduction targets for 2030, 2035, and 2045. Many of the measures within the CAP are applicable to this project. This CAP addresses reducing GHG emissions associated with transportation by developing measures focused on reducing single-occupancy vehicle trips. This project is consistent with the CAP since nearly all students will arrive to the educational facility via bus each day.

Additionally, this CAP addresses reducing GHG emissions associated with building energy and water use. This project is consistent with the CAP since it involves the construction of buildings that would be required to comply with the most recent California Building Code (CBC), including Title 24, Part 6 of the CCR, known as the Building Energy Efficiency Standards for Residential and Nonresidential Buildings. These standards require new construction to incorporate energy efficiency technologies and methods to reduce energy consumption throughout the State. The CALGreen Code (Title 24, Part 11) was incorporated into the CBC in 2010 to add further energy-

efficiency building standards, while also reducing GHG emission.

Furthermore, the project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan since the project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan, including In-use Off-Road Diesel-Fueled Fleets Regulation and Clean Truck Check.

The project would be consistent with the City of Palmdale's 2045 General Plan to promote opportunities for high-quality childcare and early education.

The project would be consistent with the Local and Regional Transportation Plan/Sustainable Communities Strategy, Connect SoCal, Land Use Policies, by planting additional trees throughout the educational facility to sequester carbon, provide shade, contribute to stormwater management, provide habitat, and enhance community character.

The following are more specifics:

- Water Conservation and Wastewater:
    - Landscaping would include drought-tolerant specimens.
    - Interior plumbing would utilize low-flow fixtures.
    - Stormwater capture and treatment features in compliance with Low Impact Development (LID) requirements to allow infiltration of stormwater onsite.
- Water Reduction, Reuse, and Recycling:
    - Compliance with conservation waste recycling requirements.
    - Diverting construction waste from area landfills.
- Land Conservation and Tree Planting:
    - Landscaping would comply with the City's current water-efficient landscaping ordinance for drought-tolerance.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?			X	
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?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which 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?		X		
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 for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

Project Impacts and Mitigation Measures

Report of Phase I Environmental Site Assessment, AINs 3025-026-001, 002, 007, 008 and 011 NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California, Phase II Report of Sampling and Testing, AINs 3025-026-001, 002, 007, 008 and 011 NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California. Earth Systems 2025, and The City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.9 Hazards and Hazardous Materials, to include analysis and findings, are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a-b) Would the project create a significant hazard to the public or the environment through the routine transport, use, emission or disposal of hazardous materials and 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?

Less than Significant Impact. The proposed project on vacant land will be changing the existing land use into an after school extended opportunities location. Project construction would involve the use of potentially hazardous materials such as heavy equipment/vehicle fuels and fluids that could be released if a leak or spill occur. Standard construction best management practices (BMP) would be implemented to avoid or reduce the potential for such conditions to occur (checking equipment for leaks, secondary containment, etc.). Use of hazardous materials during construction is subject to all local, State, and federal regulations regarding the handling of hazardous materials. The transport, use, and storage of hazardous materials during construction of the project is subject to all applicable State and federal laws. The Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, California Hazardous Material Management Act, and hazardous waste management and cleanup under CCR Title 22 all must be complied with.

Individuals who work within the new facility would be expected to use common materials in the regular maintenance of buildings and landscaping, to include cleaning and degreasing solvents, fertilizers, and pesticides. These activities would only require minor quantities of such products and would not involve the use of extremely hazardous substances. Use of these materials would also be subject to compliance with existing regulations, standards, and guidelines established by federal, State, and local agencies related to storage, use, disposal of hazardous materials.

Other than the relatively small quantities of materials used by workers the use or storage of substantial quantities of hazardous materials, or generation of large quantities of hazardous waste would not occur.

The incorporated FEIR's extensive evaluation of whether a significant hazard to the public or environment through transport, use, emission or disposal determined that its implementation would not be significant. The FEIR focused on the highest likely land use (industrial and commercial) impact in making the following statement: The Plan would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or 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 (page 4.9-20).

Given that these uses were not considered to be a significant hazard it can be extrapolated that use of school facilities and the construction of them could not have a significant hazard potential.

Mitigation Measures: No mitigation measures are necessary.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Less Than Significant Impact. The proposed project is located next to a residential area and is a school facility. Its development and use would not be considered a use that would handle or have on-site transportation of hazardous materials in the amount that would create a significant impact to surrounding areas. No other schools are within one-quarter mile. The discussion in a through b above addresses the level of hazardous materials and the precautions and regulations associated with them.

Mitigation Measures: No mitigation measures are necessary.

d) Would the project be located on a site which 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?

Less Than Significant Impact with Mitigation. A Phase I Environmental Assessment was conducted for the proposed project site. The assessment determined through research of various databases as noted in the incorporated report the site was not included on a list of hazardous materials sites, however areas of concern were initially identified on the site. These areas were sampled during a Phase II Environmental and determined they would not create a significant hazard to the public or the environment. Both reports are provided in Appendix I.

Concerns were raised in the Phase I about earlier structures that had been removed from the site and the soils that remained due to potential asbestos, TPH, OCPs, and heavy metals. There was concern about the remains of an agricultural sump and the soil around and in the bottom due to potential OCPs, Heavy Metals, and TPH. Concerns were also raised about the soil piles within the site and general agricultural pesticide residue within the soils.

The soil piles, old structures area, former agricultural fields and the sump were sampled (see sampling location in the Phase II report). Although heavy metals were detected the highest concentrations detected and the average for each detected metal were much less than the EPA screening levels for residential and industrial. The detected concentration of Lead and Arsenic were less than the DTSC specific screening values for those metals. One sample (SS-F) contained trace amount of the OCP DDE at 0.011 mg/kg also less than any regulatory screen level. Other OCPs were not detected above laboratory reporting limits. TPH and PCBs were not detected above laboratory reporting limits for any of the samples analyzed. Asbestos was analyzed and not detected above laboratory reporting limits. Given the results of the initial screening sampling of specific areas at the site, the total concentrations of heavy metals, TPH and OCPs and asbestos from all the locations sampled were not above any regulatory reporting limits.

Mitigation Measures:

HAZ 1. Soil piles and debris within the site will be removed prior to developing those portions of the site. Dead WJTs are in the area where most of the debris is located east of Phase I development. Implementation of BIO 1 will cover removal of the dead WJTs.

e) Would the project be located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The nearest airport to the site is Air Force Plan 42, approximately 2.4 miles to the northwest. The Project site is located outside of the 65 dBA CNEL airport noise impact zone.

Mitigation Measures: No mitigation measures are necessary.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The proposed project would involve the construction of a small number of educational/recreational areas on existing vacant land. During construction, temporary and occasional lane closures on 40th Street East and/or Avenue Q may be required, but two-way traffic would be maintained on these roadways and at construction entry points. PMC Chapter 14.40 requires submittal of construction work site traffic control plan for any

street/lane closures for review and approval prior to the commencement of construction activities which would ensure construction would not interfere with local traffic or emergency response and evacuation procedures. Vehicles, including emergency response vehicles, would be able to access the project site via the main entrance. Construction vehicles would be parked within the project site avoiding obstacles to emergency vehicles on surrounding existing roads. Road improvements will be accomplished as part of this project which will improve emergency vehicle access. The project would not result in inadequate emergency access due to Fire Department review of site plans, site construction, and the actual structures, prior to occupancy to ensure that required fire protection safety features have been implemented.

Neither project construction or operations would physically interfere with an adopted emergency response plan or emergency evacuation plan.

Mitigation Measures: No mitigation measures are necessary.

g) *Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

Less than Significant Impact. The proposed project site is included in a Local Responsibility Area. The 2025 Fire Hazard Severity Map designation for this area is Moderate as noted on the CalFire website. These recommendations of the State Fire Marshall were adopted by the City of Palmdale in August 2025.

This development is subject to the conditions of approval from the Division of the State Architect (DSA) such as the number of fire hydrants, setbacks, fire flows, etc. The project would be required to comply with the latest California Fire Code. Given the required Fire Codes are already in place and must be complied with no mitigation measures are necessary.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
10. **Hydrology and Water Quality.** Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
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 off-site? ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site? 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? impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Project Impacts and Mitigation Measures

Palmdale ELOP – Preliminary Storm Drain Memo. BKF Engineers, 2026, and the City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.10 Hydrology and Water Quality are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

Less than Significant Impact. The proposed project consists of educational/recreational areas and associated infrastructure. Construction activities carried out under the proposed project include grading, excavation, trenching for foundations and utilities, soil compaction and moving, cut and fill activities, preparing pads for foundations, interior road construction, installation and realignment of utilities and construction of drainage facilities, etc. Construction of the proposed project has the potential to result in an increased potential for soil erosion during these earth moving activities until the projects impervious surfaces and structures are completed. The proposed project will apply for and incorporate into the construction process the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) adopted by the State Water Resources Control Board (SWRCB). This project would require development of a Stormwater Pollution Prevention Plan (SWPPP). Additionally, the project will need to comply with the DSA submission and approval requirements for detailed grading plans and permitting.

By incorporating and following the SWRCB regulations and applying best management practices into the construction process no water quality standards or waste discharge requirements will be violated. Best management practices employed will prevent surface and ground water quality from degradation.

Mitigation Measures: No mitigation measures are necessary.

b) 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?

Less than Significant Impact. The proposed project will implement further educational opportunity areas for the children of the City of Palmdale. Due to the size of this development, and limited use, the water demand would not be enough to substantially deplete groundwater supplies (see Element 19, Utilities and Service Systems). The project will require a will serve letter from the Palmdale Water District.

Water use during construction, such as for dust suppression or concrete mixing, would be temporary and minimal and would not substantially lower the groundwater level in the Antelope Valley based on the analysis in the incorporated FEIR, page 4.10-13.

The proposed project site would not interfere with groundwater recharge. As indicated in the incorporated FEIR, page 4.10-12, the natural recharge areas within the City of Palmdale are Little Rock Wash, Big Rock Wash, Amargosa Creek, and Anaverde Creek.

Mitigation Measures: No mitigation measures are necessary.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course or a stream or river or through the addition of impervious surfaces, in a manner that would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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 impede or redirect flood flows?

Less than Significant Impact. Under existing conditions, stormwater runoff sheet flows northwesterly across the site, with a portion infiltrating into native soils and the remainder continuing off-site along natural drainage patterns. Hydrologic analysis indicates that the pre-development runoff volume, for the 0.75-inch 24-hour percentile storm which was modeled, is approximately 5,459 cubic feet.

The incorporated storm drain memo focuses on the Phase 1 portion of the project site where impervious surfaces would be the highest, approximately 63% post-development. Stormwater runoff will be managed on-site post-development through volume-based infiltration rather than discharge to a storm drain system. The Phase 1 runoff scenario was modeled with an infiltration basin providing 38,000 cubic feet of storage. Post-development runoff volume is considered to be approximately 32,518 cubic feet. Additional infiltration basins will be added as the later Phases are developed to ensure no runoff from the site occurs due to development.

No increase in off-site stormwater runoff is anticipated, and post-development drainage conditions are expected to remain consistent with existing hydrologic conditions and are not expected to result in flooding or contribute runoff to any planned stormwater drainage systems by the City of Palmdale in the future.

Mitigation Measures. No mitigation measures are necessary.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The proposed project site is not coastal, within a floodplain, or within high-risk flood area (FEMA 2026). The proposed project site was researched on the Federal Emergency Management Agency's National Flood Hazard Layer Viewer. The proposed project site is designated to be in Flood Hazard Zone X/ 0.2 percent annual chance of flood hazard. This area has a low potential for flooding.

Mitigation Measures: No mitigation measures are necessary.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact: The incorporated FEIR has the following discussion: In Section 4.10.1c, page 4.10.3, Groundwater, the Antelope Valley Basin is exempt from the requirements of the Sustainable Groundwater Management Act. The Palmdale Water District has not adopted a groundwater management plan. No regional Groundwater Management Plan currently exists for the Basin. Additionally, Department of Water Resources' (DWR) Bulletin 118, California's Groundwater (2019), does not characterize the groundwater basin as overdrafted, however it was deemed a 'low-priority' basin by DWR (PWD 2020).

Page 4.10-17 concluded its analysis on whether the General Plan would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan in this manner: As discussed in Section 4.10.1c, *Groundwater*, the Antelope Valley Basin is exempt from the requirements of SGMA and the PWD and LACWD 40 have not adopted a groundwater management plan. No regional Groundwater Management Plan currently exists for the Basin. Thus, the Plan would not interfere with a sustainable groundwater management plan.

The analysis continues: Water quality in the Planning Area is governed by the Lahontan Regional Water Quality Control Board (LRWQCB), which sets water quality standards in the Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan identifies

beneficial uses for surface water and groundwater and establishes water quality objectives to attain those beneficial uses, together known as water quality standards. The Plan would not interfere with the beneficial uses of local surface water, and as described in Impact HWQ-1, above, would not violate water quality standards or degrade surface water quality. Therefore, the Plan would be consistent with the LRWQCB Basin Plan.

The FEIR concludes: Because the Plan would be consistent with the LRWQCB Basin Plan and projects carried out under the Plan would be subject to Plan policies that would help to protect local groundwater resources, impacts would be less than significant. Thus, the Plan would not

interfere with a sustainable groundwater management plan. Water quality in the Planning Area is governed by the Lahontan Regional Water Quality Control Board (LRWQCB), which sets water quality standards in the Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan identifies beneficial uses for surface water and groundwater and establishes water quality objectives to attain those beneficial uses, together known as water quality standards. The Plan would not interfere with the beneficial uses of local surface water.

The FEIR further states that since the Plan would be consistent with the LRWQCB Basin Plan and projects carried out under the Plan would be subject to Plan policies that would help to protect local groundwater resources, impacts would be less than significant.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
11. **Land Use and Planning.** Would the project:				
a) Physically divide an established community?				X
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?				X

Project Impacts and Mitigation Measures

The City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.11 Land Use Planning are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) Would the project physically divide an established community?

No Impact. The proposed project is located on vacant land bordered on the north, west, and east by vacant land. Residential housing exists south of the site. This educational facility will create another dimension of society to further enhance the quality of life of in this area. The proposed project will not divide an established community.

Mitigation Measures: No mitigation measures are necessary.

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?

No Impact. The incorporated FEIR discusses the regional and local land use plans, regulations, and polices that were reviewed and analyzed during development of the General Plan update. This includes Southern California Association of Governments (SCAG), SCAG's 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Palmdale Zoning Ordinance, Palmdale Specific Plans, etc. This discussion can be found in pages 4.11-1 to 12. The FEIR indicates on page 4.11-8 the following: Because the Plan and its policies are consistent with SCAG's RCP and RTP/SCS and other applicable plans, the Plan would not conflict with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

The proposed project is being constructed and operated in the EDFX zone. Therefore, the project cannot 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.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?				X
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?				X

Project Impacts and Mitigation Measures

The City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.12 Mineral Resources are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a-b) 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 and 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?

No Impact. No Impact. The proposed project site is not located within or near the Mineral Resources Zone. There are two Mineral Resources Zones-2 which consist of sand and gravel deposits found in flood plains and stream channels located north of the San Gabriel Mountains in the Little Rock and Big Rock Wash areas which are approximately three miles east. The full map of the Mineral Resources Zones can be found in the incorporated FEIR at page 4.12-3. The development of the proposed site would not result in the loss of known mineral resources.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?				X
b) Generation of excessive groundborne vibration or groundborne noise levels?				X
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?				X

Project Impacts and Mitigation Measures

a) *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?*

No Impact. Construction of the site will comply with established standards within the General Plan (City of Palmdale 2022, Rincon 2022). Construction noise would be considered within normal conventional standards for this type of development. Which would include complying with restricted construction hours and days. This development would not generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established by the General Plan, noise ordinance, or standards set forth by other agencies. Operational noise associated with the proposed project would primarily result from vehicular traffic generated by the users of the facility and circulation along adjacent roadways. Operational noise levels at the site would be within the "normally acceptable" range for the surrounding residential land uses.

Mitigation Measures: No mitigation measures are necessary.

b) *Would the project cause generation of excessive groundborne vibration or groundborne noise levels?*

No Impact. The residential communities surrounding the proposed project site would not be significantly impacted by excessive groundborne vibration or noise levels. Equipment and vehicles used to construct this development will be the same as all standard construction, no unique equipment associated with excessive groundborne vibration will be used.

Mitigation Measures: No mitigation measures are necessary.

c) Would the project be 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?

No Impact. This proposed project site is not located in the vicinity of an airstrip or airport. The nearest airport, Palmdale Regional (Plant 42), is approximately 2.4 miles northwest of the project site. The proposed project site is outside the Airport Influence Area and 65 dBA Community Noise Equivalent Level (CNEL) Noise Impact Zone. No impacts associated with the exposure of people using or working on the proposed project site to excessive airport noise would occur.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
14. **Population and Housing.** Would the project:				
a) 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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Project Impacts and Mitigation Measures

a) *Would the project induce substantial unplanned 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)?*

No Impact. The proposed project would not induce any unplanned population growth. The proposed project would provide educational activities to residents already within the City of Palmdale.

Mitigation Measures: No mitigation measures are necessary.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project site consists of vacant land. The proposed project will build a needed educational facility adjacent to the urban interface servicing children already residing within the City of Palmdale.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
15. **Public Services.** Would the project:				
Result in substantial adverse physical impacts associated with the provision of new or physically altered government 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 other performance objectives for any of the public services:			X	
Fire Protection?			X	
Police Protection?			X	
Schools, parks, other public facilities?			X	

Project Impacts and Mitigation Measures

Excerpts from City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, pages 14.15-8 to 13 and 14.16-5 are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) *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 other performance objectives for any of the following public services; fire or police protection, schools, parks, other public facilities?*

Less than Significant Impact. The proposed development will construct an educational opportunities facility. The number of individuals using the public services (fire protection, police protection, schools, parks, and other public facilities) would not be considered substantial or requiring new or altered facilities thereby leading to significant environmental impacts. The individuals using the facility would already be residing within the City. The FEIR provides background discussion, government codes, regulations, senate bills, and tables of existing facilities to include fire departments, schools, parks, etc. Additionally, the FEIR includes Goals and Policies the City will strive to implement to ensure adequate public services. See Section 4.15 Public Services, pages 4.15-6 to 4.15-13 and 14.16-5. Excerpts of the FEIR in respect to impacts on public services as noted in the Impact Analysis follows, comments outside of the FEIR are [bracketed]:

Fire (pages 4.15-8 to 10) – Any new development that occurs would be required to comply with all applicable federal, state, and local regulations governing the provision of fire protection services, including adequate fire access, fire flows, and number of hydrants. This includes the 2019 California Fire Code, which contains project-specific requirements such as construction standards in new structures, … road widths and configurations designed to accommodate the passage of fire trucks and engines, and requirements for minimum fire flow rates for water mains.

Police (pages 4.14-10 to 11) Police protection services are not "facility-driven," meaning such services are not as reliant on facilities in order to effectively patrol a beat. An expansion of, or intensification of development within, a beat does not necessarily result in the need for additional facilities if police officers and patrol vehicles are equipped with adequate telecommunications equipment in order to communicate with police headquarters……

New structures facilitated by the Plan would be in the existing service area of LACoSD and would not require expansion of the service area or for the LACoSD to respond to calls in a new or more distant area.

Development of the Plan [General Plan] would not result in the need to construct new police facilities. Impacts to police protection services would be less than significant.

As discussed in the FEIR in the above paragraphs that new structures would be in the existing service area - The proposed development is within the General Plan and the existing service area of LACoSD.

Schools (pages 4.15-12 to 13) – This development is associated with the Palmdale School District.

Parks (page 4.16-5) – Individuals using the facility would already be accounted for and no further impacts would be expected.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
16. **Recreation.**				
a) 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?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Project Impacts and Mitigation Measures

a-b) Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? Does the project include recreational facilities or require the construction of recreational facilities which might have an adverse physical effect on the environment?

No Impact. There would not be a need for expansion of recreational facilities to accommodate the development. As previously discussed, this is a project for Palmdale residents that are already present within the City.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
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?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				X
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?				X

Project Impacts and Mitigation Measures

Palmdale ELOP Transportation Analysis Parameters, Fehr & Peers 2026 (Appendix K), the City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.17 Transportation, and Analyzing Vehicle Miles Traveled (VMT) for CEQA Compliance, SB743 VMT Implementation Guidelines for the City of Palmdale, 2024, to include analysis and findings, are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) *Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

Less than Significant Impact. The proposed project consists of educational/recreational facilities for children in an area of the City with low traffic volume. Development of the facility would not conflict with a program plan, ordinance addressing circulation systems or facilities based on a review of the incorporated FEIR and the City's General Plan. Given the low vehicle volume associated with the facility (approximately 30 buses, 90 cars) there is no anticipated conflict with the City's proposed bike path along Avenue Q. Improvements to Avenue Q in coordination with City of Palmdale ensures no conflict with circulation, transit, roadway, bicycle, and pedestrians do not occur.

Mitigation Measures. No mitigation measures are necessary.

b) *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?*

No Impact. This project will not conflict or be inconsistent with the CEQA Guidelines section 15064.3, subdivision (b)(1). The project proposes a substantial busing program to reduce trips to/from the site. This is not a typical school that will allow parents to drop-off/pick-up. Students will be picked-up at each school, bused to the enrichment center, and then bused back to their school to be picked-up during both the school year and summer. The trips to/from each school

are already occurring and the only new trips associated with this project are buses, staff, and deliveries to the ELOP. Trip generation estimates are provided in Appendix K.

The City of Palmdale developed VMT Implementation Guidelines under which this project screens out (City of Palmdale 2024). Under the City's guidelines, page 6, this development would be presumed to cause less than significant impact as a public K-12 School facility.

Mitigation Measures: No mitigation measures are necessary.

c) *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curve or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

No Impact. The project will not increase hazards due to geometric design features. The project will be improving Avenue Q and 42nd Street East in coordination with the City of Palmdale. The new 42nd Street East north of Avenue Q will be aligned with the existing 42nd Street East south of Avenue Q. Currently the intersection and adjacent roadways have low traffic levels. The additional traffic will consist of 30 buses with four trips a day during the school year and two during the summer along with approximately 90 employee vehicle trips. No parental drop offs or pickups are allowed at this site except in emergencies. This facility would not be expected to have an impact on surrounding uses.

Mitigation Measures: No mitigation measures are necessary.

d) *Would the project result in inadequate emergency access?*

No Impact. The project designs will comply with applicable standards for emergency vehicle access and will be reviewed by the DSA and LACoFD during the project application process to ensure adequate configurations for emergency vehicle ingress and egress. During construction, temporary and occasional lane closures are likely however, traffic would still be maintained along Avenue Q and 42nd Street East. The proposed project construction would not result in inadequate emergency access to the project site.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
18. **Tribal Cultural Resources.** 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) 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)				X
b) A resource determined by the lead agency, in its discretion and is 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 Resources Code section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American Tribe.				X

Project Impacts and Mitigation Measures

a-b) 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), or 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) to 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?

No Impact. Based on records search results and tribal consultation discussed in element 5. Cultural Resources, the proposed project would have no impact regarding potential substantial adverse changes in the significance of a tribal cultural resource, as defined in Public Resources Code section 21074, listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources. As no evidence of known tribal resources have been

Identified. The Project would result in no impact to a known tribal cultural resource listed or eligible for listing in the California of Historical Resources, or in a local register of historical resources. However, CUL 1 through CUL 3 as noted in element 5. Cultural Resources, which reflect the Tribal responses, will be employed for any inadvertent finds.

Mitigation Measures: No further mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
19. **Utilities and Service Systems.**				
a) Require or result in the relocation or construction or new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider, which 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?			X	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impact the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Project Impacts and Mitigation Measures

Water Demand Projection. BKF Engineers BKF Engineers 2026, and the City of Palmdale 2045 General Plan Update, Final Environmental Impact Report SCH# 2021060494, August 2022, Section 4.19 Utilities and Service Systems, to include analysis and findings, are incorporated by reference per CEQA Guidelines (2025), Section 15150 Incorporation by Reference (a), page 254.

a) *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?*

Less than Significant Impact. The proposed project site is in an area serviced by existing utilities infrastructure. Information on water availability for the project site is taken from the incorporated Water Demand Projection, 2026.

Existing water infrastructure consists of a 20-inch ductile iron (DI) water transmission main runs along Avenue Q, serving a nearby residential development that includes an 8-inch DI water distribution main loop. Five public fire hydrants are connected directly to the 20-inch water main along Avenue Q; two of these hydrants are situated on the north side of Avenue Q within the project boundaries. Additional connections to the transmission main adjacent to the project site include an irrigation line and a blowoff valve.

An 8-inch DI distribution main loop will be installed and connected to the existing 20-inch water transmission main at two locations: one just east of the Avenue Q and 40th Street intersection, and the other just west of the Avenue Q and 42nd Street intersection. The distribution loop will run along Avenue Q and include at least five service connections: two 6-inch domestic water lines, two 8-inch fire water lines, and one 6-inch irrigation line.

Wastewater treatment: Based on the Palmdale Water Reclamation Plant 2025 Facilities Plan the Palmdale Plant has a permitted capacity of 15 million gallons per day. The website for the plant indicates the current daily flow is 12 million gallons per day. The rate of estimated flow for the ELOP is 39,118 gallons per day. This would not create a need for construction or expansion of water treatment facilities.

Stormwater drainage: Stormwater runoff will be managed on-site post-development through volume-based infiltration rather than discharge to a storm drain system. No facilities off-site will be required.

Southern California Edison (SCE) provides electricity to the City of Palmdale. Southern California Gas Company (SoCal Gas) provides natural gas to the City of Palmdale. Telecommunication utilities, including phone, internet, and television, are mainly a privately owned enterprise and are offered by a variety of companies in Palmdale and the surrounding area. Construction activities related to utility extensions are not anticipated to cause significant environmental effects. The work will occur within existing rights-of-way and will be integrated into the overall project construction plan. No additional electric power, natural gas, or telecommunications facilities would be required due to this development.

Mitigation Measures: No mitigation measures are necessary.

b) *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

Less than Significant Impact. Facilities such as classrooms, restrooms, cafeteria, etc. will require domestic water. In addition, the landscaping, multiple large sports fields to be constructed in Phase 2 will initially require use of domestic water until a reclaimed water system becomes available. Based on the Palmdale Water District (PWD) Development Services Processes and Guideline, Chapter 3, the total projected domestic water demand for the site would be 48,898 gallons per day. PWD conducted a fire flow test of a hydrant on the southeast corner of Avenue Q and 40th Street East. Results indicated the 20-inch water transmission main along Avenue Q had sufficient flow and pressure available to service the full site providing water for operations, irrigation, and fire protection. No impediments are anticipated for these services to be extended to this facility. Modeling and detailed figures are provided in the incorporated Water Demand Projection and provided in Appendix J.

As noted above, the project is within the PWD who would supply potable water to the educational facility. The project would be constructed in accordance with all applicable California Building Code (CBC) standards, which mandate water-efficient fixtures and features and requirements to adhere to water conservation measures for landscaping. These water conservation measures would be expected to lower the water usage by as much as 20% (USEPA). Additionally, the project will be required to obtain a Will Serve letter from PWD.

Mitigation Measures: No mitigation measures are necessary.

c) *Would the project result in a determination by the wastewater treatment provider which 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?*

Less than Significant Impact. The project will not exceed the treatment capacity of the Palmdale Water Reclamation Plant. The permitted capacity is 15 million gallons per day, current flow is 12 million gallons a day, site requirements are 39,118 gallons per day.

Mitigation Measures: No mitigation measures are necessary.

d-e) *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impact the attainment of solid waste reduction goals? Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Less than Significant Impact. During site grubbing and clearance, green waste would be generated and disposed of in the local Class III landfill. Trash and debris generated during construction of the project would also be disposed of at a Class III landfill. The Antelope Valley Landfill is the closest landfill to the project site. Fees for disposing of green waste and non-hazardous waste will be paid by the project proponent. Once the project has been constructed, facility trash will also be disposed of at the Antelope Valley Landfill. In 2016 the Los Angeles County Integrated Waste Management Plan indicated the landfill had approximately 20,400,000 cubic yards of remaining capacity and is permitted to accept up to 3,000 cubic yards of solid waste per day. Given that the average daily waste quantities in 2012 were 1,095 cubic yards and the projected remaining life of the landfill is 30 years, the proposed project would not generate solid waste above permitted capacities. The anticipated waste generated is not expected to exceed the capacity of the local trash conveyors or the local landfill. The project will comply with all federal, state, local management and reduction statutes/regulations for solid waste disposal.

Mitigation Measures: No mitigation measures are necessary.

	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
20. **Mandatory Findings of Significance**				
a) 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, 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?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

The following are Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

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?*

Less than Significant Impact with Mitigation. As discussed in Section 4, Biological Resources, the project site contains WJTs. An ITP from CDFW is required to take WJTs. BIO 1 would ensure that mitigation for the WJTs is determined and implemented prior to ground disturbance. Although the potential for Crotch's bumble bee presence is considered low due to the site's location on the desert floor and distance from the foothills and the nearest high floristic resources, BIO 2 surveys prior to ground disturbance will ensure no impacts to Crotch's bumble bee. No burrowing owl cover sites were present within the site, however California ground squirrel burrows could provide future potential cover sites. BIO 3 will ensure protection by surveying prior to ground disturbance to detect if burrowing owls have occupied the site since the last survey. The site has suitable migratory nesting bird habitat. BIO 4 will prevent impacts

to migratory nesting birds by surveying prior to ground disturbance. The project does not impact or eliminate important examples of the major periods of California history or prehistory. Impacts to potential on-site Cultural or Tribal resources would be reduced to less than significant levels through CUL 1, CUL 2, and CUL 3. As discussed in Section 7. Geology and Soils, the project site is subject to intense ground shaking and earthquake resistant design was recommended in the Geotechnical Report. GEO 1 would incorporate earthquake resistant seismic design into the construction and thereby reduce impacts. In Section 9. Hazards and Hazardous Materials, Haz 1 will remove soil piles and debris to further ensure no hazards are present.

Mitigation Measures: No further mitigation measures than those noted above are necessary.

b) *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Less Than Significant Impact. The proposed project site is heavily disturbed vacant land. The proposed project is consistent with the existing General Plan land use designation and zoning as discussed in Section 11, Land Use and Planning. This proposed project would not result in a cumulatively considerable impact.

Mitigation Measures: No mitigation measures are necessary.

c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less Than Significant Impact. There are no environmental effects to development of this project which would cause an adverse effect on human beings either directly or indirectly. This proposed project will provide needed educational support for the surrounding neighborhoods.

Mitigation Measures: No mitigation measures are necessary.

References

BKF Engineers 2026a. Palmdale School District ELOP Center – Water Demand Projection. BKF Engineers, 4675 MacArthur Court, Suite 400, Newport Beach, California, 92660. 23pp.

BKF Engineers 2026b. Palmdale ELOP – Preliminary Storm Drain Memo. BKF Engineers, 4675 MacArthur Court, Suite 400, Newport Beach, California, 92660. 11pp.

Calfire 2025. Fire Hazard Severity Zones Maps. https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008 . Accessed July 2025.

Caltrans 2025. Scenic Highway Systems List. Scenic Highways | Caltrans. 1pp.

City of Palmdale 2022. General Plan 2045. Palmdale 2045. Accessed November/December 2025

City of Palmdale 2024. Analyzing Vehicle Miles Traveled (VMT) for CEQA Compliance, SB743 VMT Implementation Guidelines for the City of Palmdale. City of Palmdale, 38300 Sierra Highway, Palmdale, California, 93550. 27pp. + attachment.

City of Palmdale 2025. Development Advisory Board Review of Pre-Application 25-0038; a Request to Construct an Expanded Opportunity Learning Program on Approximately 68 Acres on Five Contiguous Lots Located at the Northeast Corner of East Avenue Q and 40th Street East (APNs: 3025-026-001, -002, -007, -008, -011). City of Palmdale, 38300 Sierra Highway, Palmdale, California, 93550. 8pp. + attachments.

Department of Conservation. 2025. California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/

Earth Systems 2025a. Geotechnical Engineering and Geohazards Report, with Preliminary Percolation Testing, Proposed ELOP Center Project, Phase 1A NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California. Earth Systems, 79811B Country Club Drive, Bermuda Dunes, California, 92203. 56pp.

Earth Systems 2025b. Report of Phase I Environmental Site Assessment, AINs 3025-026-001, 002, 007, 008 and 011 NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California. Earth Systems, 79811B Country Club Drive, Bermuda Dunes, California, 92203. 18pp. + attachments.

Earth Systems 2025c. Phase II Report of Sampling and Testing, AINs 3025-026-001, 002, 007, 008 and 011 NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California. Earth Systems, 79811B Country Club Drive, Bermuda Dunes, California, 92203. 18pp. + attachments. 4pp. + attachments.

Fehr & Peers 2026. Palmdale ELOP Transportation Analysis Parameters. Fehr & Peers, 100 Oceangate, Suite 1425, Long Beach, California, 90802. 3pp.

Hagan, Mark 2026. Biological Resource Assessment of Extended Learning Opportunities Program Center, Palmdale, California. Mark Hagan, 44715 17th Street East, Lancaster, California, 93553. 17pp.

M. S. Hatch Consulting, LLC 2026. Air Quality and Greenhouse Gas Emissions Study – Expanded Learning Opportunities Program Center, Corner of 40th Street East and E Ave. Q, Palmdale, CA. M.S. Hatch Consulting, LLC, 11440 West Bernardo Court Suite 300, PMB #282, San Diego, California, 92127. 10pp. + attachments.

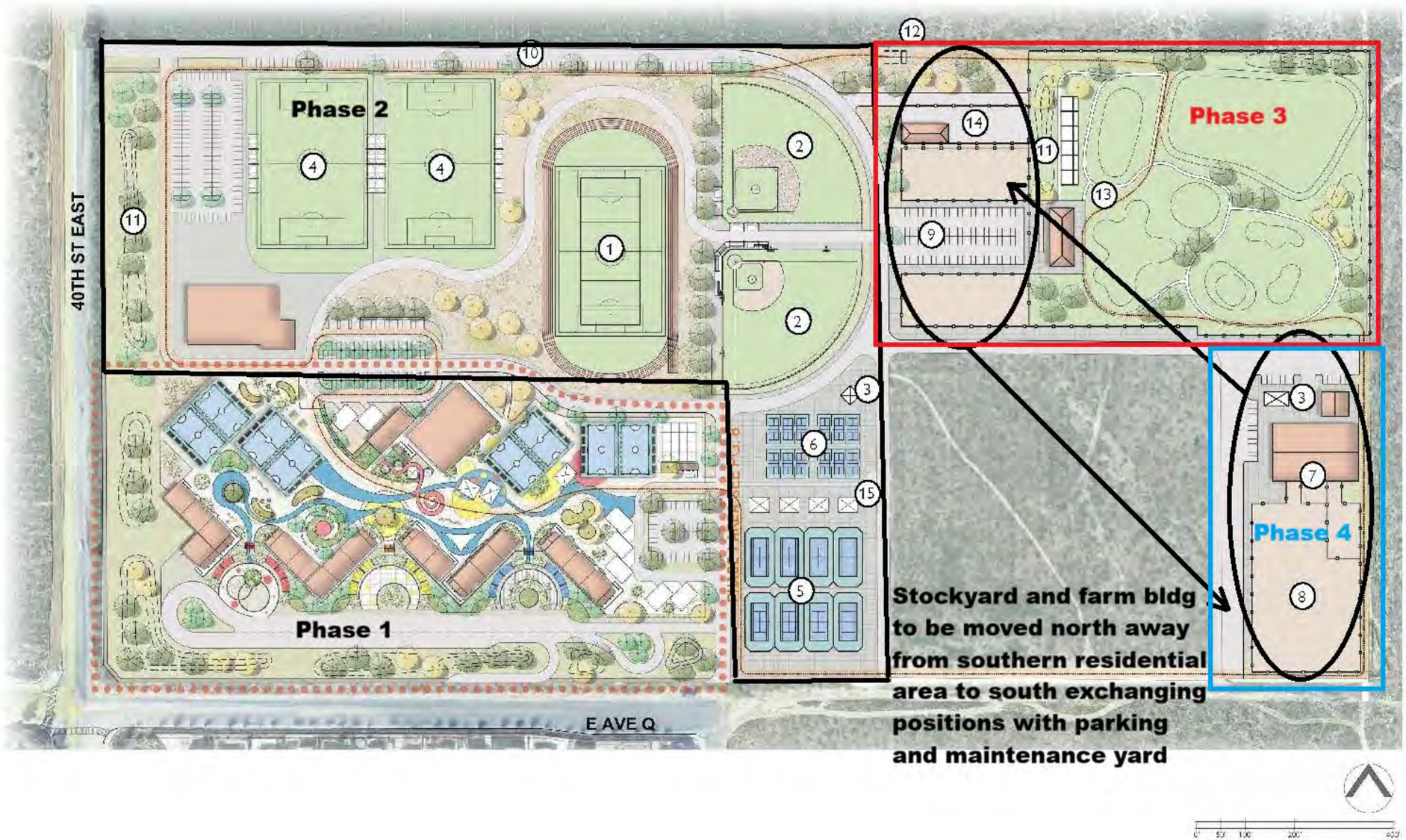
Rincon 2022. City of Palmdale 2045 General Plan Update Final Environmental Impact Report SCH# 2021060494. https://static1.squarespace.com/static/5c7dc93065a707492aca3e47/t/631fa8d1f119fa360cd7f0ee/1 521pp.

RT Factfinders 2025. Phase I Cultural Resource Investigation for the Expanded Learning Opportunities Program Center (ELOP), 67.4 Acres near the Intersection of 40th Street East and East Avenue Q, Palmdale, Los Angeles County, California. RT Factfinders, 4933 Cloudcroft Lane, Florence, Oregon, 97439. 10pp. + attachments.

Appendix A: Site Plan

DESIGN | MASTER SITE PLAN

BKF ENGINEERS NUVIS LANDSCAPE ARCHITECTURE LIONÄKIS

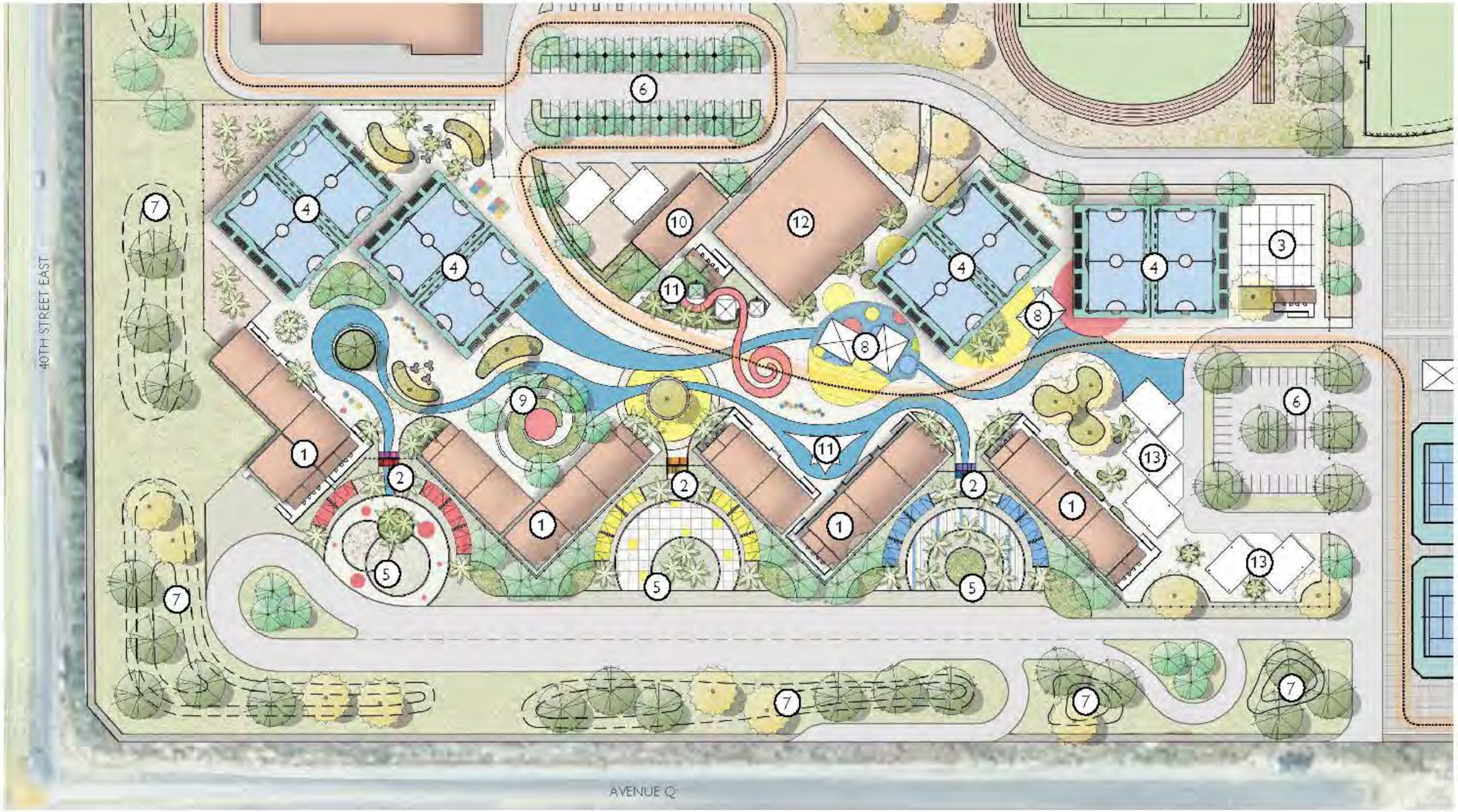


LEGEND

1. TRACK & FIELD WITH FLAG FOOTBALL OVERLAY
2. BASEBALL FIELD / SOFTBALL FIELD (250')
3. CONCESSIONS / RESTROOM MODULAR
4. SOCCER FIELD - (210' X 330') W/ SHADED BLEACHERS
5. TENNIS COURTS
6. PICKLEBALL COURTS
7. FARM BUILDING - URBAN BARN THEME
8. STOCKYARD / CORRAL
9. PARKING STALLS
10. ACCESS/MAINTENANCE ROAD
11. PLANTED BUFFER MOUNDS / BERMS WITH DROUGHT TOLERANT PLANTS AND BOULDERS
12. CROSS COUNTRY ROUTE (START/FINISH) 2 LAPS = 5 KILOMETERS / 3.1 MILES
13. GOLF ACADEMY
14. MAINTENANCE YARD
15. SHADE CANOPY WITH SEATING

CROSS COUNTRY ROUTE
INTERIOR FENCE
PHASE 01 AREA

DESIGN | PHASE 01 PLAN



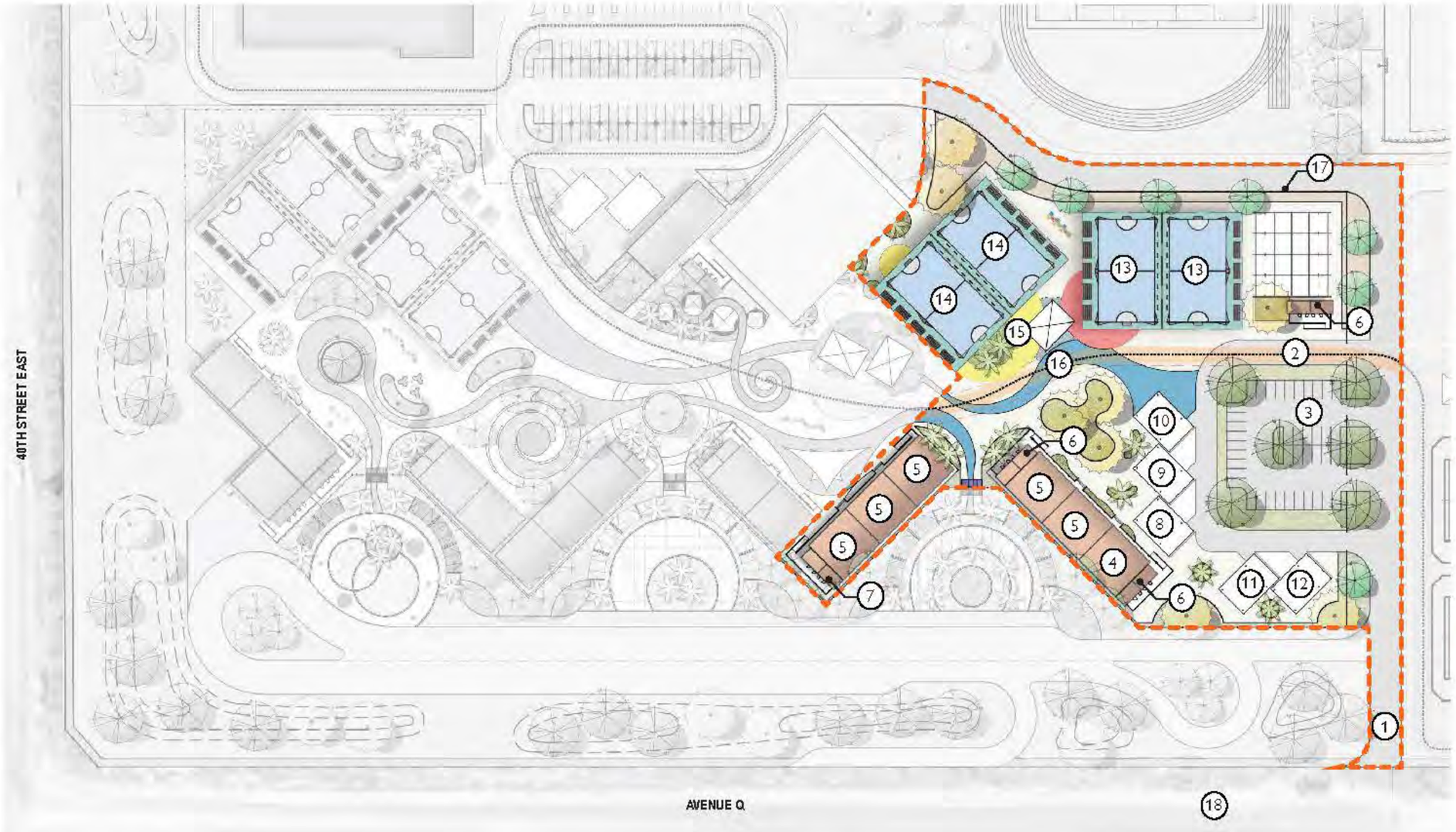
LEGEND

1. FLEXIBLE MODULAR BUILDINGS AND RESTROOMS
2. ENTRY PORTAL
3. HANDBALL COURT
4. MINI-PITCH SPORTS COURT WITH COVERING
5. BUS STAGING DROP OFF AND ENTRY PLAZA
6. STAFF PARKING
7. PLANTED BUFFER MOUNDS / BERMS WITH DROUGHT TOLERANT PLANTS AND BOULDERS
8. PLAYGROUND WITH SHADE STRUCTURES
9. AMPHITHEATER / OUTDOOR GROUP AREA
10. MODULAR FULL SERVICE KITCHEN
11. SMALL GROUP GATHERING AREA
12. CONCRETE PAD (FUTURE MULTIPURPOSE BUILDING)
13. SPECIALTY BUS PARKING WITH COVERED LEARNING

CROSS COUNTRY ROUTE

INTERIOR FENCE

PHASING | PHASE 01A



LEGEND

1. SITE ACCESS ALIGNED WITH (E) 42ND STREET
2. TEMPORARY BUS DROP OFF
3. STAFF PARKING
4. ADMIN MODULAR BUILDING | 1920 SQFT.
5. FLEXIBLE MODULAR STUDIOS (5) | 1920 SQFT.
6. MODULAR RESTROOM (3) | 420 SQ FT.
7. MODULAR ELECTRICAL ROOM | 420 SQFT.
8. TECHNOLOGY BUS COVERED PARKING
9. SCIENCE BUS COVERED PARKING
10. LIBRARY BUS COVERED PARKING
11. HEALTH BUS COVERED PARKING
12. FOOD TRUCK COVERED PARKING
13. MINI-PITCH SPORTS COURTS W/ COVERING (2)
14. MINI-PITCH SPORTS COURT (2)
15. PLAYGROUND WITH SHADE STRUCTURE
16. FIRE ACCESS LANE
17. INTERIOR FENCING
18. OFF-SITE IMPROVEMENTS OF AVE Q

○ IDENTIFIED AS A PRIORITY TO THE DISTRICT TO HAVE IN FIRST CONSTRUCTION PHASE

DESIGN | APPROACH - BUS DROP OFF/PICK UP



DESIGN | APPROACH - ENTRY PORTAL A



DESIGN | GATHERING - FLEXIBLE STUDIOS



DESIGN | GATHERING - OUTDOOR LEARNING



DESIGN | ACTIVE PLAY - SPORT COURTS



DESIGN | ACTIVE PLAY - PLAYGROUNDS



Appendix B: Zone Ordinance Designation

MINUTES
CITY COUNCIL/SA
CITY HALL COUNCIL CHAMBER
38300 SIERRA HIGHWAY, SUITE B
PALMDALE, CALIFORNIA
NOVEMBER 4, 2025

www.cityofpalmdale.org

1) CALL MEETING TO ORDER

Mayor Pro Tem Bettencourt called the meeting to order at 5:02 pm.

Note: All City Council memberships are reflected in their City Council titles.

2) ROLL CALL MAYOR PRO TEM BETTENCOURT, COUNCILMEMBERS BISHOP, LOA, OHLSEN, ALARCÓN

PRESENT: Laura Bettencourt, Austin Bishop, Richard J. Loa, Eric Ohlsen, Andrea Alarcón.
ABSENT: None.

3) PLEDGE OF ALLEGIANCE AND MOMENT OF SILENCE

Councilmember Bishop led the pledge of allegiance.

4) CONSENT CALENDAR

The following individuals provided public input: Jason Zink spoke in support of items 4.6, 4.8, and in objection to the design at Yellen Park (4.10); Ben Gocke expressed concerns regarding the Oasis Wellness project (4.4).

The following items were pulled for discussion 4.3, 4.4, and 4.6.

4.1) Waive full reading of the Resolution(s) and/or Ordinance(s) to be considered and voted on at this meeting. (This allows for reading the title only in lieu of reciting the entire text).

4.2) Receive and File the monthly and quarterly Investment Reports for September 2025.

4.3) Approve Agreement with Willdan Financial Services for comprehensive professional services to complete a full cost-of-service and user fee study for the City of Palmdale, for a total not to exceed amount of $150,000 for a term of 1 year.

Manager McIntosh presented the staff report.

public safety. The applicant provided additional information regarding rights-of-way and turn lanes. Discussion continued.

Mayor Pro Tem Bettencourt closed the public hearing.

Motion: Adopt Resolution No. CC 2025-087, approving a form of Density Bonus Agreement 25-0003, and authorize the Interim City Manager or his designee to exercise the option to amend the agreement as necessary.
Moved by Andrea Alarcón, seconded by Eric Ohlsen.

Vote: Motion carried (5-0)
Yes: Laura Bettencourt, Austin Bishop, Richard J. Loa, Eric Ohlsen, Andrea Alarcón.

A break was held from 7:35 p.m. - 7:51 p.m.

Councilmember Alarcón stepped away from the dais.

5.4) Adopt Ordinance No. 1663, an Ordinance of the City Council of the City of Palmdale approving Zone change 25-0002 and Zoning Ordinance Amendment 25-0003 to address inconsistencies and streamline review procedures; and adopt Resolution No. CC 2025-085, a Resolution of the City Council of the City of Palmdale approving General Plan Amendment 25-0002 to amend the land use map and finding that the project is consistent with program environmental impact report 22-002 prepared and certified in conjunction with the City's General Plan (Palmdale 2045).

Mayor Pro Tem Bettencourt opened the Public Hearing.

City Clerk Scott read the title of the Ordinance and the Resolution.

A motion was made and approved to introduce the ordinance.

Senior Manager Magana presented the staff report. Mayor Pro Tem Bettencourt requested clarification regarding the distinction between Residential One and Residential Two. Senior Manager Magana responded.

Discussion ensued between Council and staff.

Public Testimony: Jason Zink asked to postpone the vote. Colby Estes spoke about his time on the General Plan Advisory Committee and the concessions being made in the general plan for the projects.

Mayor Pro Tem Bettencourt closed the Public Hearing.

Motion: Adopt Ordinance No. 1663, approving Zone change 25-0002 and Zoning Ordinance Amendment 25-0003 to address inconsistencies and streamline review procedures; and adopt Resolution No. CC 2025-085

approving General Plan Amendment 25-0002.
Moved by Richard J. Loa, seconded by Austin Bishop.

Vote: Motion carried (4-0)
Yes: Laura Bettencourt, Austin Bishop, Richard J. Loa, Eric Ohlsen.
Absent: Andrea Alarcón.

5.5) Adopt Ordinance No. 1664, an Ordinance of the City Council of the City of Palmdale, California, amending Sections 8.04.410 and 8.04.430, and repealing Sections 8.04.440 through 8.04.510 of the Palmdale Municipal Code to prohibit fireworks, finding the Ordinance exempt from CEQA; and adopt Resolution No. CC 2025-091, a Resolution of the City Council of the City of Palmdale, California, making its express findings as required by Section 17958.7 of the Health and Safety Code of the State of California relating to the adoption of Ordinance No. 1664 prohibiting all fireworks, and finding it is not a project per CEQA.

Mayor Pro Tem Bettencourt opened the Public Hearing.

City Clerk Scott read the title of the Ordinance and Resolution.

A motion was made and approved to introduce the ordinance.

Public Safety Manager Vallarta presented the staff report.

The council discussed the benefits and drawbacks of safe and sane fireworks with staff.

The following individuals provided public testimony: David Harris, Rich Gallego, Adorable Babies, Joseph Hipps, Jeff Carlin, Cesia Hipps, Leslie Mendoza, Jody Carmen, John Kelly, David Cowon, Darryl Watkins, Colby Estes, Faith, Yul Gevargis, Michael Ross, Bobbie Vargo, Marsha Furman, and a gentleman with no name given spoke in support of safe and sane fireworks, some requested a public survey, putting it on the ballot, and stated how the funds raised have helped the community. Jason Zink requested a citywide cleanup and community outreach.

9:00 p.m. Councilmember Alarcón returned to the dais.

Mayor Pro Tem Bettencourt closed the Public Hearing.

There was continued discussion among the Council regarding the placement of safe and sane fireworks on the ballot and CalFire maps prohibiting the use of fireworks by an additional 30% within the City of Palmdale, and a request was made for the cost proposal to place it on the ballot.

Motion: Table the item and report back within 90 days.
Moved by Austin Bishop, seconded by Andrea Alarcón.

PALMDALE
a place to call home

CITY COUNCIL
SUCCESSOR AGENCY
CITY COUNCIL CHAMBER
38300 SIERRA HIGHWAY
SUITE B
PALMDALE, CA 93550
TUESDAY, NOVEMBER 4, 2025
5:00 PM
www.cityofpalmdaleca.gov

WELCOME

LEGISLATIVE BODY

LAURA BETTENCOURT, MAYOR PRO TEM
AUSTIN BISHOP, COUNCILMEMBER
RICHARD J. LOA, COUNCILMEMBER
ERIC OHLSEN, COUNCILMEMBER
ANDREA ALARCÓN, COUNCILMEMBER

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Translation QR Code.
Translation QR Code.pdf

Americans with Disabilities Act (ADA) Accommodations
In accordance with the Americans with Disabilities Act of 1990, if you require a disability-related modification or accommodation to participate in this meeting, please contact the City Clerk's Office at (661) 267-5151 at least 48 hours prior to the meeting.

Public Comment Information
The public is allotted to speak a total of three (3) minutes on the Consent Calendar, Public Hearing(s), Appointment, New Business, and Closed Session. Any person who would like to address the Legislative Body on any agendized item may complete a

speaker card for the City Clerk and identify the agenda item you would like to discuss. The Speaker cards are available in the foyer of the Council Chambers.

1. **CALL MEETING TO ORDER**

Note: All City Council memberships are reflected in their City Council titles.

2. **ROLL CALL**
   MAYOR PRO TEM BETTENCOURT, COUNCILMEMBERS BISHOP, LOA, OHLSEN, ALARCÓN

3. **PLEDGE OF ALLEGIANCE AND MOMENT OF SILENCE**

4. **CONSENT CALENDAR - Now is the time for public participation.**

   All matters listed under the Consent Calendar will be enacted by one motion unless an item(s) is pulled by Council, in which case the item(s) will be removed from the Consent Calendar and will be considered separately following this portion of the Agenda.

   4.1 Waive full reading of the Resolution(s) and/or Ordinance(s) to be considered and voted on at this meeting. (This allows for reading the title only in lieu of reciting the entire text).

   4.2 Receive and File the monthly and quarterly Investment Reports for September 2025.
   SR Monthly Investment Report Sep 2025.docx
   Rpt. Monthly Investment Reports Sept 2025.pdf

   4.3 Approve Agreement with Willdan Financial Services for comprehensive professional services to complete a full cost-of-service and user fee study for the City of Palmdale, for a total not to exceed amount of $150,000 for a term of 1 year.
   SR Agrmt No. A-9597 with Willdan Financial Services.docx
   Agrmt No. A-9597 with Willdan Financial Services.pdf

   4.4 Receive and file the annual activity report for Development Agreement pertaining to the Oasis Wellness Village project located at the southeast corner of Palmdale Boulevard and Tierra Subida Avenue.
   SR Rpt. Annual Activity Report for DA No. A-5595.docx
   Agrmt No. A-5595 Oasis Wellness Village.pdf

   4.5 Approve the Second Amendment to Agreement with Frazier Capital Valuation, Inc., for property valuation, appraisals, and broker services, increasing the

agreement by $100,000 for a total not to exceed amount of $140,000 and exercise the final one-year extension through January 20, 2027; and adopt Resolution No. CC 2025-090, a Resolution of the City Council of the City of Palmdale, authorizing the Interim City Manager to execute the Second Amendment to the Agreement with Frazier Capital Valuation, Inc., and granting authorization to pay all fees.

SR Agrmt No. A-7570 Second Amendment with Frazier Capital Valuation, Inc.docx
Agrmt No. A-7570 Second Amendment with Frazier Capital Valuation, Inc.pdf
Agrmt No. A-7570 First Amendment with Frazier Capital Valuation, Inc.pdf
Agrmt No. A-7570 with Frazier Capital Valuation, Inc.pdf
Reso. No. CC 2025-090.docx

4.6 Approve Agreement with Dudek to update the City's Sewer System Master Plan for a total not to exceed amount of $840,598 over a two (2) year term.

SR Agrmt No. A-9451 with Dudek.docx
Agrmt No. A-9451 with Dudek.pdf
Dudek Technical Proposal.pdf
Dudek Cost Proposal.pdf

4.7 Approve First Amendment to Takeover Agreement with Los Angeles County Sanitation District No. 20 (45th Street East Extension Trunk Sewer).

SR Agrmt No. A-6911 First Amendment with LACSD No. 20.docx
Agrmt No. A-6911 First Amendment with LACSD No. 20.pdf
Agrmt No. A-6911 with LACSD No. 20.pdf
Cost Estimate.pdf

4.8 Authorize a Resource Adequacy Agreement between Athos Storage, LLC, an SB Energy Company, and California Choice Energy Authority on behalf of Energy for Palmdale's Independent Choice (EPIC) for the purchase of long-term, mid-term reliability capacity.

SR RA Agrmt Athos Storage LLC and CalChoice.docx
RA Agrmt Athos Storage, LLC and CalChoice.pdf

4.9 Accept Notice of Completion (NOC) for Public Landscape Improvements for Tract 60732 located at 20th Street West and Quick Street.

SR NOC Public Landscape Improvements Tract 60732.docx
NOC Tract 60732.docx
List of Completed Public Improvements.pdf
Site Map.pdf
Site Photo.pdf

4.10 Accept Notice of Completion (NOC) for PN 795, Sam Yellen Park Phase 2 Project.

SR NOC PN 795 Sam Yellen Park Phase 2.docx
NOC PN 795 Sam Yellen Park Phase 2.docx
Project Photos.pdf

4.11 Approve the minutes from the previous meeting.
Mins 10 21 2025.pdf

5. **PUBLIC HEARING - Now is the time for public participation. Each public hearing will have its own public testimony.**

5.1 Conduct Public Hearing to obtain resident input on community needs and priorities for inclusion in the 2026-2027 Action Plan.
SR Public Hearing Action Plan.docx

5.2 Adopt Resolution No. CC 2025-086, a Resolution of the City Council of the City of Palmdale, approving a form of Density Bonus Agreement to facilitate the construction of a 264-unit multi-family residential development on one vacant parcel totaling approximately 9.95 acres located on the west side of 15th Street East and approximately 375 feet north of East Avenue Q.
SR Reso. No. CC 2025-086 (Agrmt No. A-9332).docx
Reso. No. CC 2025-086 (Agrmt No. A-9332).docx
Exh A Reso. No. CC 2025-086 Legal Description AGR 25-0002 (Agrmt No. A-9332).docx
Exh B Reso. No. CC 2025-086 Aerial Map AGR 25-0002 (Agrmt No. A-9332).docx
Exh C Reso. No. CC 2025-086 Density Bonus Agreement (Agrmt No. A-9332).pdf
Reso. No. PC-2025-023.pdf

5.3 Adopt Resolution No. CC 2025-087, a Resolution of the City Council of the City of Palmdale approving a form of Density Bonus Agreement 25-0003 to facilitate the construction of a 272-unit multi-family residential development on two vacant parcels totaling approximately 9.8 acres located at the northwest corner of east Avenue Q and 25th Street East, and authorize the Interim City Manager or his designee to exercise the option to amend the agreement as necessary, including minimal and/or non substantial changes.
SR Reso. No. CC 2025-087.docx
Reso. No. CC 2025-087 (A-9355).docx
Exh A Reso. No. CC 2025-087 Legal Description For AGR 25-0003 (A-9355).docx
Exh B Reso. No. CC 2025-087 Aerial Map For AGR 25-0003 (A-9355).docx
Exh C Reso. No. CC 2025-087 Density Bonus Housing Agreement (A-9355).pdf
Reso. No. PC-2025-015.pdf

5.4 Adopt Ordinance No. 1663, an Ordinance of the City Council of the City of Palmdale approving Zone change 25-0002 and Zoning Ordinance Amendment 25-0003 to address inconsistencies and streamline review procedures; and adopt Resolution No. CC 2025-085, a Resolution of the City Council of the City of Palmdale approving General Plan Amendment 25-0002 to amend the land use map and finding that the project is consistent with program environmental impact report 22-002 prepared and certified in conjunction with the City's General Plan

(Palmdale 2045).
SR Ord. No. 1663 and Reso. No. CC 2025-085.docx
Ord. No. 1663.docx
Reso. No. CC 2025-085.docx
Reso. No. PC 2025-022.pdf

5.5 Adopt Ordinance No. 1664, an Ordinance of the City Council of the City of Palmdale, California, amending Sections 8.04.410 and 8.04.430, and repealing Sections 8.04.440 through 8.04.510 of the Palmdale Municipal Code to prohibit fireworks, finding the Ordinance exempt from CEQA; and adopt Resolution No. CC 2025-091, a Resolution of the City Council of the City of Palmdale, California, making its express findings as required by Section 17958.7 of the Health and Safety Code of the State of California relating to the adoption of Ordinance No. 1664 prohibiting all fireworks, and finding it is not a project per CEQA.
SR Ord. No. 1664.docx
Ord. No. 1664.docx
Reso. No. CC 2025-091.docx

6. **NEW BUSINESS - Now is the time for public participation.**

6.1 Approve Community Grant Program.
SR Community Grant Program.docx

7. **CITY MANAGER'S REPORT**

8. **NON-AGENDA PUBLIC COMMENTS - Now is the time for public participation.**

9. **COUNCIL REPORTS, ANNOUNCEMENTS AND REQUESTS FOR FUTURE AGENDA ITEMS**

9.1 Council Reports
Monthly Informational Report Bettencourt 110725.docx
Monthly Informational Report Bishop 110425.docx
Monthly Informational Report Loa 110425.docx
Monthly Informational Report Ohlsen 110425 .docx

10. **CLOSED SESSION - Now is the time for public participation.**

PRESENTATION BY CITY ATTORNEY

10.1 CONFERENCE WITH LABOR NEGOTIATORS
Agency designated representatives: Salvador Mendez, Interim City Manager, and Linda Daube, Special Counsel
Employee organization: Teamsters Local 986

This closed session is being held pursuant to the authority of California Government Code Section 54957.6.

10.2 CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
Andrea Alarcón v. City of Palmdale
Los Angeles Superior Court 24STCP03201
This closed session is being held pursuant to the authority of California Government Code Section 54956.9(d)(1).

11. **ANNOUNCEMENT BY CITY ATTORNEY**

12. **ADJOURN** meeting to December 2, 2025, at 5:00 p.m. in the City Hall Council Chamber located at 38300 Sierra Highway, Suite B, Palmdale, California.

City Council Staff Report

DATE: **NOVEMBER 4, 2025**

TO: **HONORABLE MAYOR PRO TEM AND CITY COUNCIL**

FROM: **ECONOMIC AND COMMUNITY DEVELOPMENT DEPARTMENT PLANNING DIVISION**

DISTRICT: **ALL**

SUBJECT: **ADOPT ORDINANCE NO. 1663, AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PALMDALE APPROVING ZONE CHANGE 25-0002 AND ZONING ORDINANCE AMENDMENT 25-0003 TO ADDRESS INCONSISTENCIES AND STREAMLINE REVIEW PROCEDURES; AND ADOPT RESOLUTION NO. CC 2025-085; A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PALMDALE APPROVING GENERAL PLAN AMENDMENT 25-0002 TO AMEND THE LAND USE MAP AND FINDING THAT THE PROJECT IS CONSISTENT WITH PROGRAM ENVIRONMENTAL IMPACT REPORT 22-002 PREPARED AND CERTIFIED IN CONJUNCTION WITH THE CITY'S GENERAL PLAN (PALMDALE 2045)**

RECOMMENDATION

Staff recommend that the City Council:

1. Receive public testimony regarding Ordinance No. 1663 and Resolution No. CC 2025-085;

2. Adopt Ordinance No. 1663, an Ordinance of the City Council of the City of Palmdale, approving zone change 25-0002 and Zoning Ordinance Amendment 25-0003 to address inconsistencies and streamline review procedures;

3. Adopt Resolution No. CC 2025-085, a Resolution of the City Council of the City of Palmdale, approving General Plan Amendment 25-0002 to amend the land use map and finding that the project is consistent with Program Environmental Impact Report 22-002 prepared and certified in conjunction with the City's General Plan (Palmdale 2045); and,

4. Find that the request is consistent with Program Environmental Impact Report (PEIR) 22-002 prepared and certified in conjunction with the City's General Plan (Palmdale 2045).

BACKGROUND

Since adopting Palmdale 2045 in September 2022, the City has passed several ordinances to align the Palmdale Municipal Code (PMC) and zoning regulations with the new General Plan. Between 2023 and 2025, the City Council approved updates to clarify review procedures, fix inconsistencies, adjust land use and zoning maps, and refine residential, commercial, and industrial standards.

In October 2025, the Planning Commission recommended additional minor amendments (GPA 25-0002, ZOA 25-0003, ZC 25-0002) to further ensure consistency with Palmdale 2045.

DISCUSSION

The Planning Commission recommends that the City Council approve the proposed amendments to the General Plan land use and zoning maps and to the zoning ordinance to streamline review procedures for certain commercial uses.

The first project site, owned and operated by Southern California Edison (SCE), consists of two parcels totaling approximately 1.86 acres, located at the northwest corner of East Avenue R-8 and 40th Street East.

General Plan and Zone Change

GPA 25-0002 and ZC 25-0002 will update the General Plan Land Use and zoning maps to more accurately reflect the existing land uses of three project sites.

The first project site is owned and operated by SCE and consists of two parcels totaling approximately 1.86 acres, located at the northwest corner of East Avenue R-4 and 40th Street East, and is developed as an electrical substation. The designations are Utilities (U) and Single Family Residential 3 (SFR 3). The SFR 3 designation will be modified to Utilities. The zone of the project site will be modified from SFR 3 to Utilities and Rights-of-Way (U-ROW) to be consistent with the Utilities designation. The site will continue to be used as an electrical substation. Therefore, staff recommend that the General Plan Land Use designation be modified from SFR 3 to U, and the zone modified from SFR 3 to U-ROW, as shown in Figures 1 through 4.

FIGURE 1 - EXISTING LAND USE DESIGNATIONS

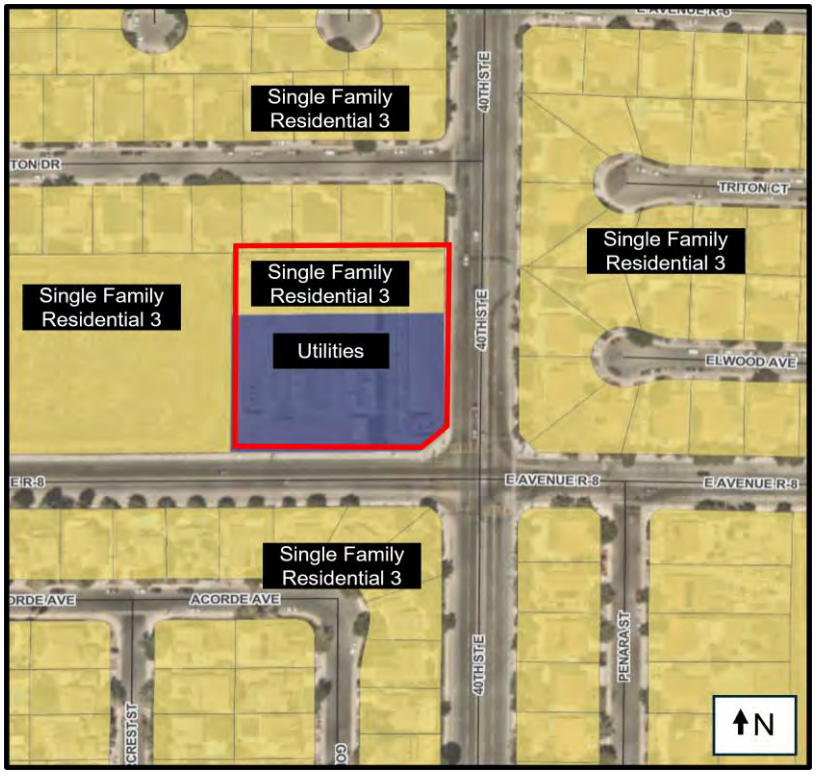


FIGURE 2 - PROPOSED LAND USE DESIGNATION

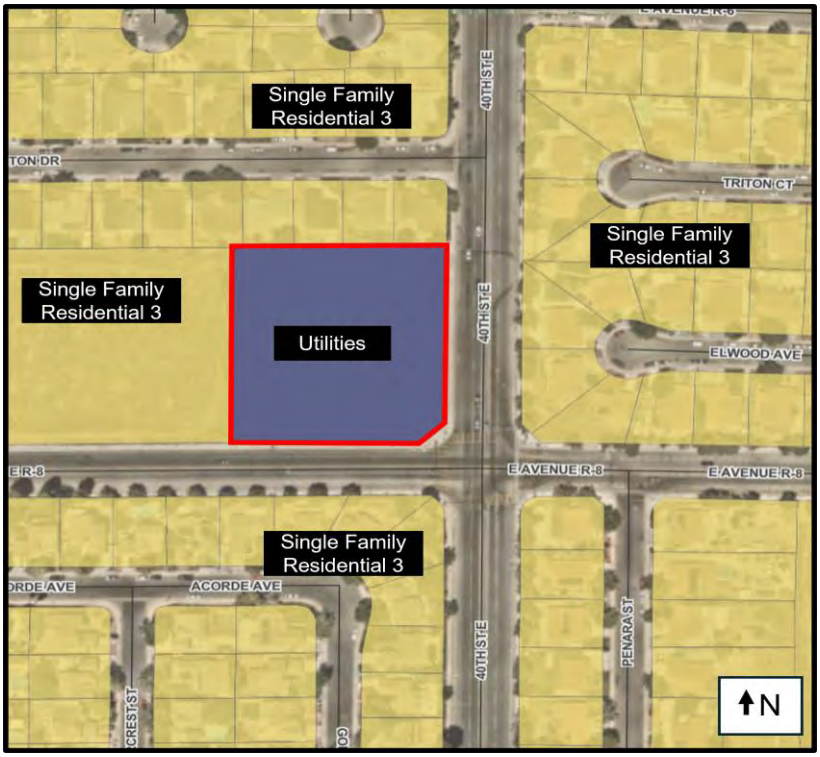


FIGURE 3 - EXISTING ZONE

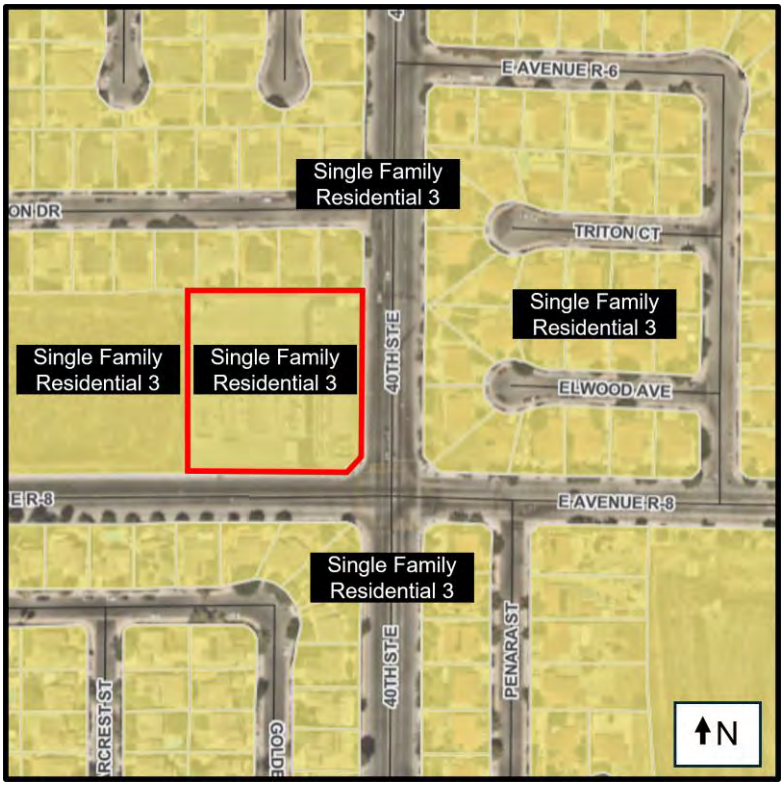
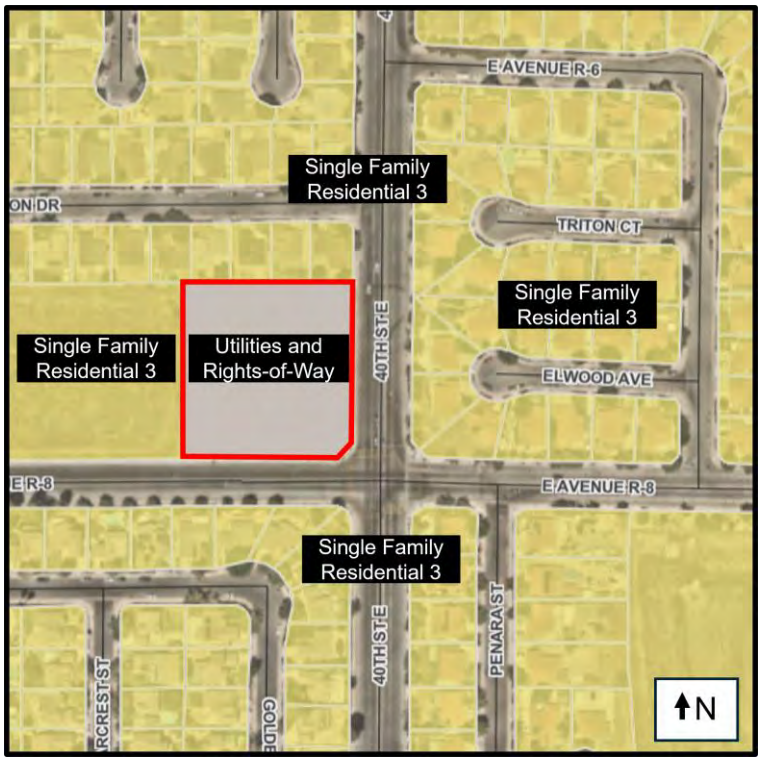


FIGURE 4 - PROPOSED ZONE



The second project site is owned and operated by the Palmdale School District (PSD) and consists of five vacant parcels with a total area of 67.6 acres and is located at the northeast corner of East Avenue Q and 40th Street East. The future uses of the project site will be intended to serve and further PSD's educational purposes, and for this reason, the existing land use designations, which include commercial and industrial designations, are not consistent. As a public school district site, any future on-site development will be subject to review by the Division of the State Architect (DSA), and off-site improvements will be reviewed by the City. The zone change will not have an adverse effect on surrounding properties or the community as the zone change will ensure consistency with the General Plan. Therefore, staff recommend that the General Plan Land Use designations be modified from Employment Flex (EMPFX) and Regional Commercial (RC) to Educational Flex (EDFX) and that the zones be modified from Light Industrial (LI), Office Flex (OFX), and Regional Commercial (RC) to Educational Flex (EDFX), as shown in Figures 5 through 8.

FIGURE 5 - EXISTING LAND USE DESIGNATIONS

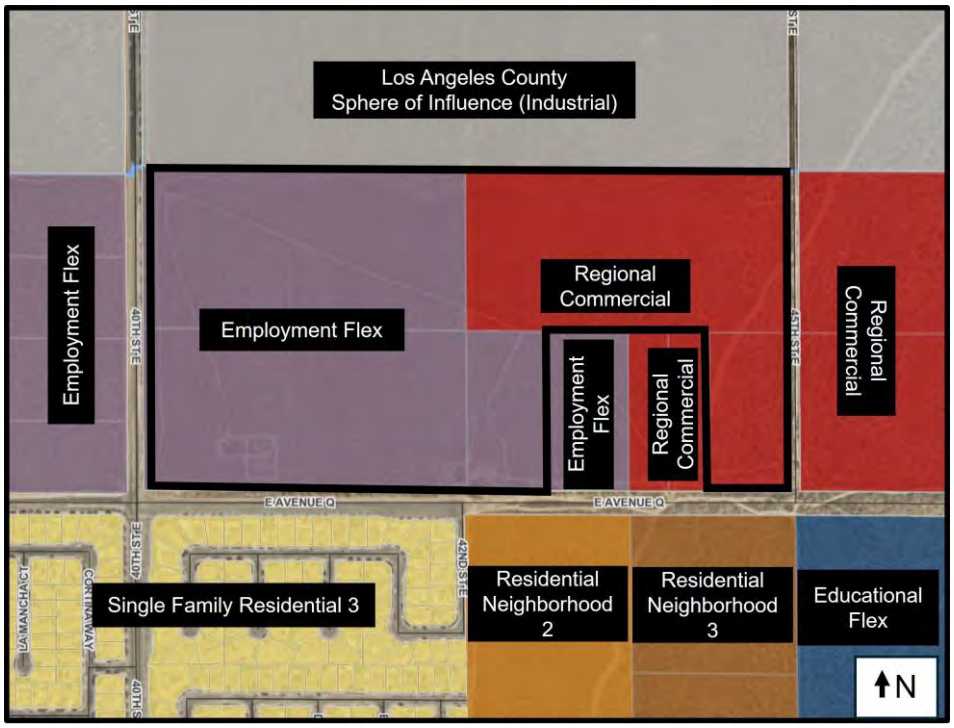


FIGURE 6 - PROPOSED LAND USE DESIGNATION

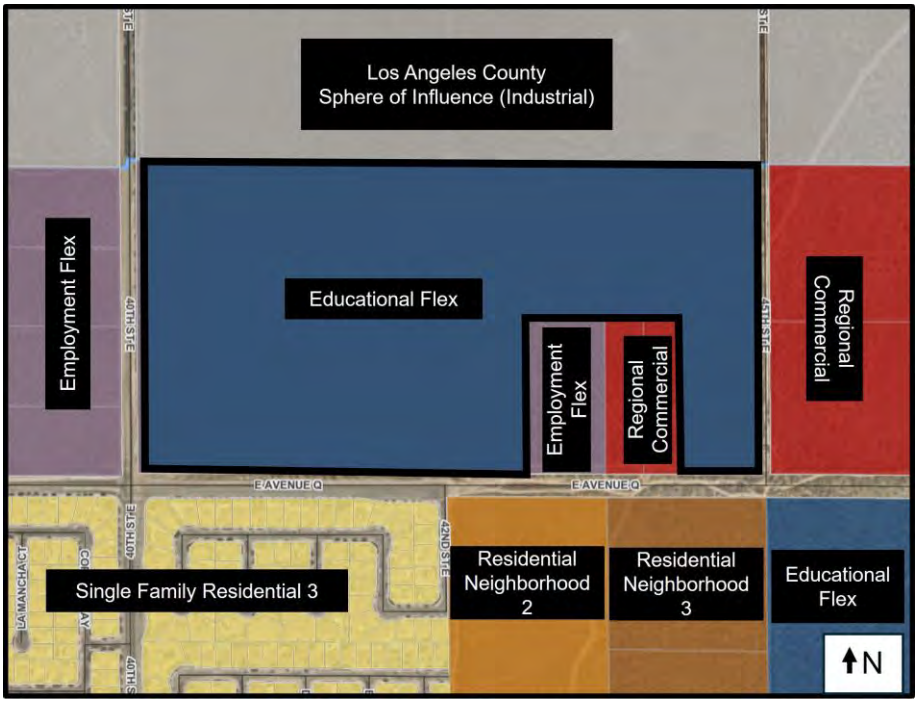


FIGURE 7 - EXISTING ZONES

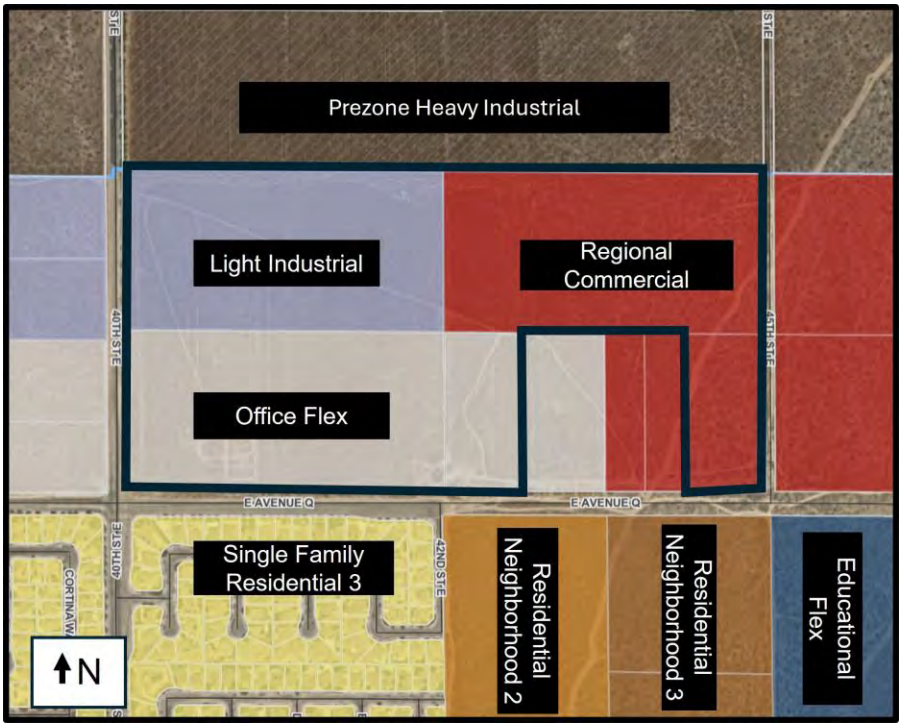
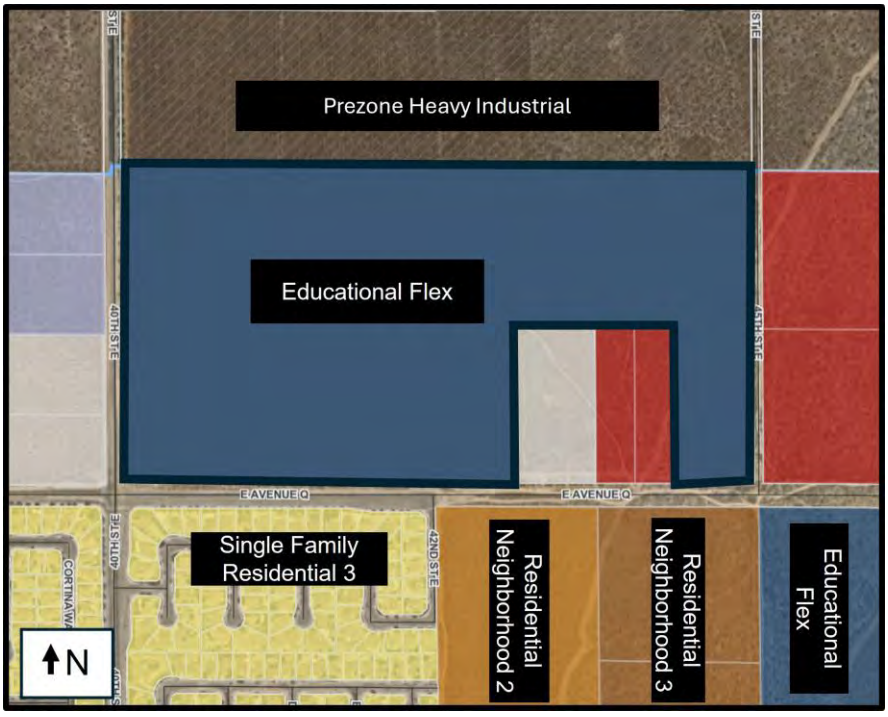


FIGURE 8 - PROPOSED ZONE



The third project site consists of two parcels with a total area of 40.9 acres, located at the northeast corner of East Palmdale Boulevard and 55th Street East. The project site is vacant and has a Land Use designation and zone of Residential Neighborhood 2 (RN 2), which allows residential development with a density range of 10 to 20 units per acre. The proposed amendment will modify the Land Use designation and zone to Residential Neighborhood 1 (RN 1), with a density range of 6 to 10 units per acre. The proposed modification will reduce the required density but has similar allowable uses, providing viable use of the site for future development. Therefore, staff recommend that the General Plan Land Use designation and the zone be modified from RN 2 to RN 1, as shown in Figures 9 through 12.

FIGURE 9 - EXISTING LAND USE DESIGNATION

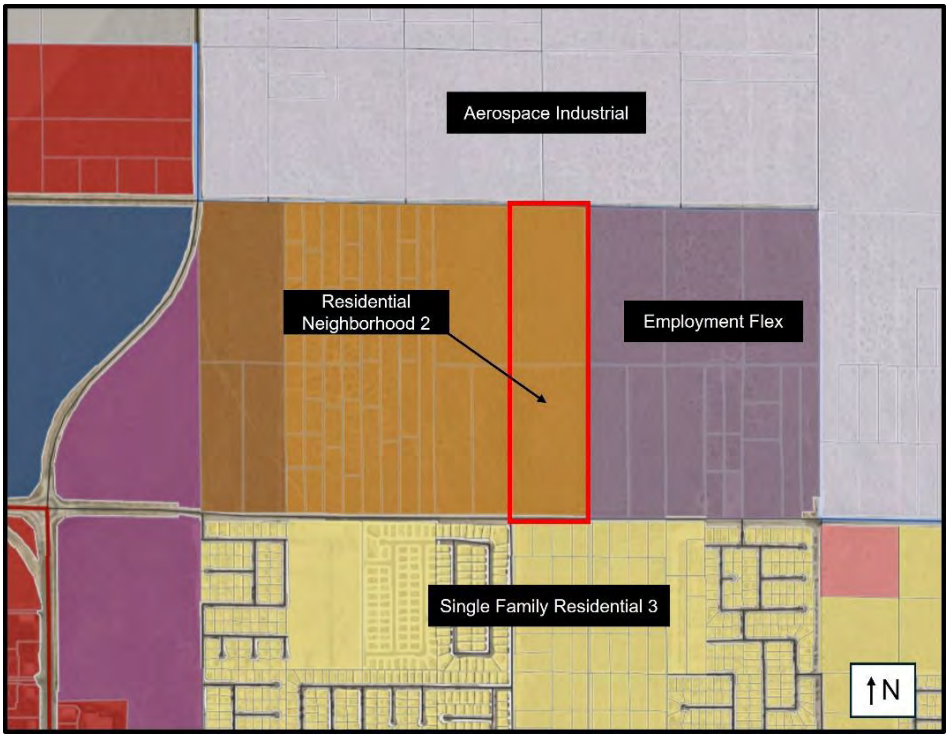


FIGURE 10 - PROPOSED LAND USE DESIGNATION

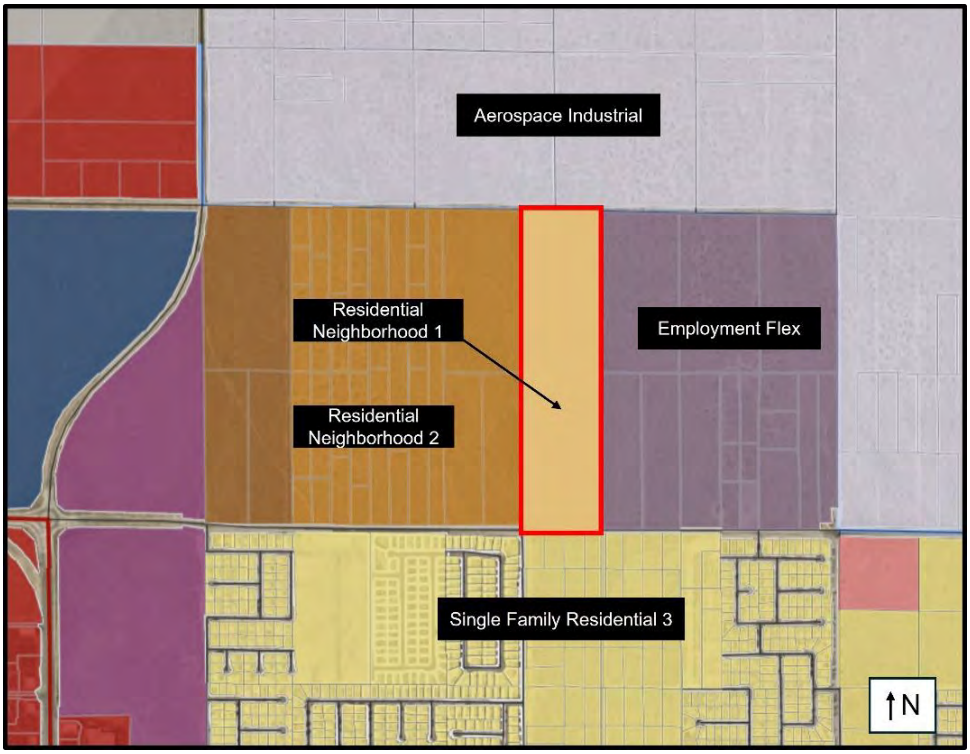


FIGURE 11 - EXISTING ZONE

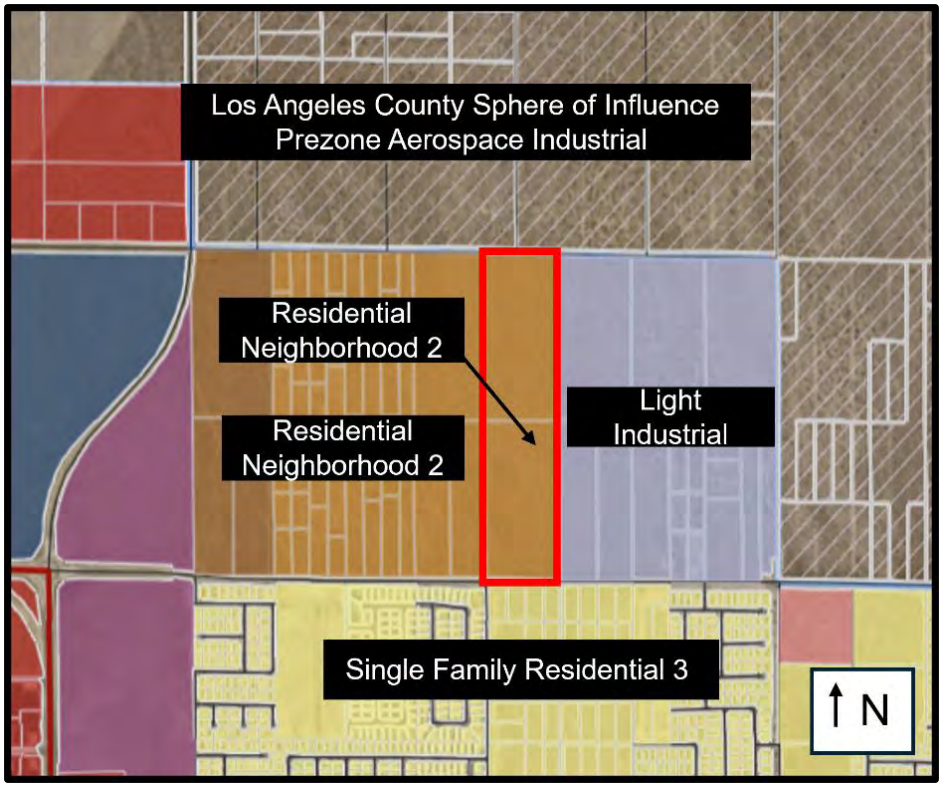
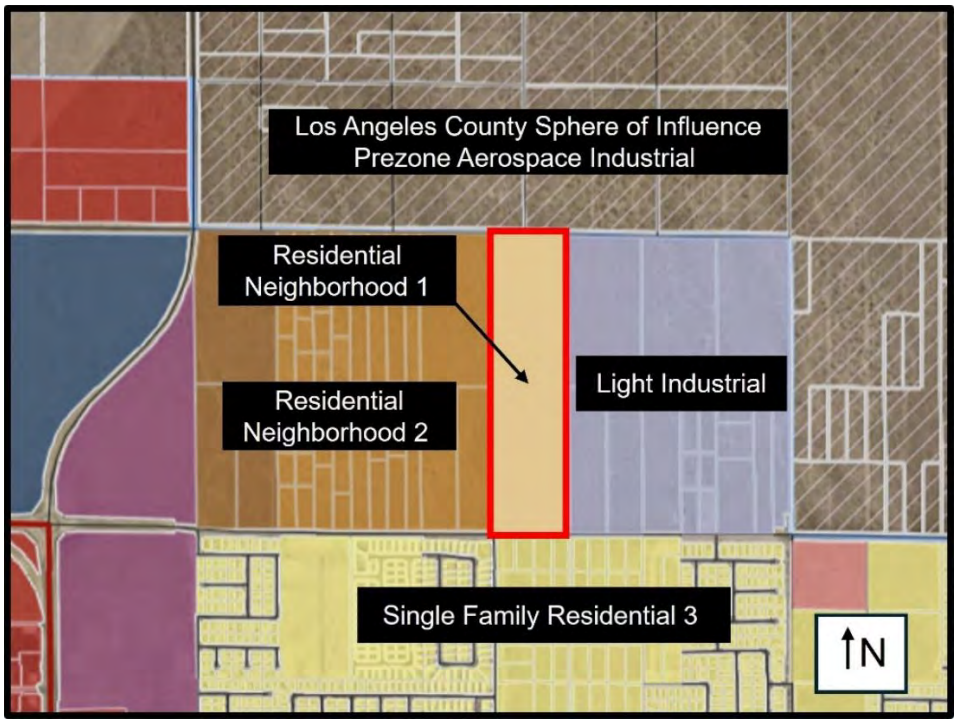


FIGURE 12 - PROPOSED ZONE



Zoning Ordinance Amendment

When Palmdale 2045 was adopted by the City Council on September 21, 2022, the Council directed Staff to collaborate with the Mainstreet Coalition to address concerns raised about the updated commercial development standards in the City. Since then, staff have been working diligently with the Mainstreet Coalition and have incorporated some modifications to resolve those concerns within a series of prior Zoning Ordinance Amendments. ZOA 25-0003 will further amend the special regulations for commercial uses in PMC Chapter 17.92, specifically Sections 17.92.050 (Drive-through restaurants and drive-through services) and 17.92.070 (Fueling station/vehicle and equipment services and repair) to conclude the coordination efforts with the Mainstreet Coalition.

Development standards for new drive-through restaurants will be simplified and streamlined. Currently, a new drive-through restaurant cannot be located closer than 500 feet from an existing or proposed drive-through restaurant, unless it meets a waiver requirement, in which case no more than three drive-through restaurants can be located within a 500-foot buffer, as measured in a straight line from the nearest proposed menu board to the nearest menu board of the subject property. To simplify this standard, the buffer will be uniformly set to a 250-foot buffer between the proposed menu board and any existing or other proposed menu board, and the waiver provision will be eliminated.

Development standards will also be modified for fueling stations to provide flexibility to the review process. Currently, a new fueling station must be located at a minimum distance of 500 feet from an existing or proposed fueling station. The proposed revision will require a minimum distance of 300 feet from an existing or proposed fueling station, which is measured in a straight line from the nearest proposed fueling pump to the nearest fueling pump of the subject project, in all directions.

The proposed amendments address concerns that were raised by the Mainstreet Coalition group when Palmdale 2045 was adopted and are necessary to clarify review procedures in a continued effort to streamline processes and provide flexibility. The proposed amendments provide for public safety, convenience, and general welfare by allowing for the siting of drive-through restaurants and fueling stations in locations that are suitable and appropriate by setting buffer requirements and requiring compliance with the development standards specific to these commercial uses.

FISCAL IMPACT

$0; There is no proposed development, therefore, this action has no fiscal impact. However, it will facilitate the development of housing and commercial areas, which will increase property value.

STRATEGIC PLAN

Goal IV: Maintain a desirable community where everyone wants to live, work, and play.

A. Support opportunities to celebrate rich traditions and diverse cultures in the community.

Prepared by:	Megan Taggart, Director of Economic and Community Development
Certified as to availability of Funds:	Janelle Samson, Director of Operations
Approved by:	Salvador Mendez, Interim City Manager
Approved as to form:	Alexandra Severino, City Attorney

ATTACHMENTS

Ord. No. 1663
Reso. No. CC-2025-085
Reso. No. PC-2025-022

Appendix C: Site and Surrounding Area Photographs



View from southwest corner looking east. Right of photo is Avenue Q and residential area to south of the project site.



View from southwest corner looking northeast across western half of site.



View from southwest corner looking north across western half of site.



Representative photo of soil and debris piles in middle of site.



Representative photo of western half of site looking south towards residential housing along southwestern boundary.



View of the southeastern boundary of the site.



View from northeast corner looking south along the eastern boundary of the site.



View from east boundary looking east southeast of the site at the adjacent eastern habitat across the future 42nd Street East (dirt road).



View from within the southeast portion of the site looking north across the site.



View from northeast corner looking northwest of north boundary of the site.



Example of Western Joshua tree on the eastern half of the site.



Adjacent habitat along the southeast of the site.

Appendix D: Air Quality Study

Date: January 27, 2026
To: Rene Barrera, LEED AP
Senior Project Manager
High Performance Learning Environments
117 E. Colorado Blvd., Suite 600
From: M. S. Hatch Consulting, LLC
Subject: Air Quality and Greenhouse Gas Emissions Study – Expanded Learning Opportunities Program Center, Corner of 40th Street East and E Ave. Q, Palmdale, CA

M. S. Hatch Consulting, LLC (MSHC) appreciates the opportunity to prepare the air quality and greenhouse gas (GHG) study for the proposed construction and operation of the Expanded Learning Opportunities Program (ELOP) Center project for High Performance Learning Environments (HPLE). At full build-out, the ELOP Center will serve more than 2,500 students through after-school programs operating in groups of approximately 40 students each. During the summer months, the center will accommodate approximately 1,500 students in full-day programs. The project involves the phased construction of an after-school educational and recreational enrichment center on a vacant lot located at the corner of 40th Street East and E Ave. Q, in the City of Palmdale, CA. The total area that will be under development is approximately 67.37 acres. This air quality study estimates the criteria pollutant and GHG emissions from the construction and operation of the proposed project at full buildout.

Executive Summary

Table 1 and Table 2 compare the estimated annual and maximum daily emissions summaries from the construction and operation of the proposed project to the significant emission thresholds in the Antelope Valley Air Quality Management District (AVAQMD) California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, dated August 2016, included in Attachment A. The estimated emissions of criteria pollutants and greenhouse gases for each year of construction and the total operational emissions **are below the applicable thresholds**. Since the construction and operational emissions are below the significance thresholds, emissions mitigation measures are not required.

Based on the estimated emissions of criteria pollutants, this project is not expected to have a significant air quality impact or conflict with, obstruct implementation of the applicable air quality plan, or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state Ambient Air Quality Standard.

The proposed project is not considered one of the project types that the AVAQMD CEQA and Federal Conformity Guidelines requires to be evaluated for potentially exposing sensitive receptors to substantial pollutant concentrations. As such, hazardous air pollutant (HAP) and toxic air contaminant (TAC) emissions were not calculated, and the project was not evaluated for potential health risks to sensitive receptors. Construction HAP and TAC emissions are temporary in nature and expected to be relatively low. Volatile

HAPs and TACs would be orders of magnitude lower than the estimated volatile organic compound (VOC) emissions and well below the applicable thresholds. Particulate matter emissions due to construction are also well below the applicable thresholds. Further, diesel particulate matter emissions would be minimized by utilizing construction equipment that meets the California appliable emission requirements for off-road equipment and by using electric or hybrid equipment, where feasible.

Since this project is an educational facility, it is not expected to result in objectionable odors affecting a substantial number of people. Construction activities may generate odors that would be short-term in nature and subject to AVAQMD Rule 402, Nuisance, requirements. As such, the proposed construction is not expected to create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

As shown in Table 1 and Table 2, the estimated GHG emissions for each year of construction and the total operational emissions are below the applicable thresholds. Further, the proposed project would be consistent with the applicable plans and policies required by CEQA such as the County of Los Angeles 2045 Climate Action Plan. Therefore, GHG emissions from the proposed project would have a less than significant impact on the environment.

Table 1. Annual Emissions Summary and Significance Thresholds

Emissions Source	Total Emissions (tons per year)						
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2e (MT/year)
Year 1 Construction Emissions (2026)	0.25	2.07	2.36	<0.01	0.20	0.12	504
Year 2 Construction Emissions (2027)	0.17	1.36	2.23	<0.01	0.17	0.07	457
Year 3 Construction Emissions (2028)	0.17	1.29	2.20	<0.01	0.17	0.07	455
Year 4 Construction Emissions (2029)	0.16	1.24	2.16	<0.01	0.16	0.06	450
Year 5 Construction Emissions (2030)	0.16	1.21	2.13	<0.01	0.16	0.06	446
Year 6 Construction Emissions (2031)	0.15	1.17	2.10	<0.01	0.16	0.06	442
Year 7 Construction Emissions (2032)	0.14	1.13	2.07	<0.01	0.16	0.06	440
Year 8 Construction Emissions (2033)	0.14	1.10	2.04	<0.01	0.15	0.06	435
Year 9 Construction Emissions (2034)	0.14	1.07	2.02	<0.01	0.15	0.05	432
Year 10 Construction Emissions (2035)	0.60	0.41	0.79	<0.01	0.06	0.02	168
Total Operational Emissions	0.96	0.38	2.93	0.01	0.72	0.19	1,159
Significant Emissions Threshold	**25**	**25**	**100**	**25**	**15**	**12**	**100,000**
Threshold Exceedance (Yes/No)	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: Reactive Organic Compounds, used interchangeably with Volatile Organic Compounds (VOC); NO_X: oxides of nitrogen; CO: Carbon monoxide; SO_X: Oxides of sulfur; $PM_{2.5}$: particulate matter less than 2.5 micrometers in diameter; PM_{10}: particulate matter less than 10 micrometers in diameter; CO_2e: Carbon dioxide equivalent; MT: metric ton. Due to rounding, some of the values may not match the CalEEMod output file.

Table 2. Maximum Daily Emissions Summary and Significance Thresholds

Emissions Source	Total Emissions (pounds per day)						
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2e
Year 1 Construction Emissions (2026)	3.31	32.79	31.25	0.07	7.58	4.14	9,102
Year 2 Construction Emissions (2027)	1.36	10.39	18.38	0.03	1.31	0.55	3,938
Year 3 Construction Emissions (2028)	1.29	9.87	18.06	0.03	1.27	0.52	3,906
Year 4 Construction Emissions (2029)	1.25	9.48	17.70	0.03	1.25	0.49	3,873
Year 5 Construction Emissions (2030)	1.21	9.24	17.39	0.03	1.23	0.48	3,838
Year 6 Construction Emissions (2031)	1.18	8.92	17.08	0.03	1.22	0.46	3,806
Year 7 Construction Emissions (2032)	1.15	8.65	16.75	0.03	1.20	0.45	3,774
Year 8 Construction Emissions (2033)	1.10	8.41	16.52	0.03	1.18	0.43	3,746
Year 9 Construction Emissions (2034)	1.07	8.22	16.27	0.03	1.17	0.42	3,710
Year 10 Construction Emissions (2035)	20.74	8.03	16.00	0.03	1.15	0.41	3,684
Total Operational Emissions	6.35	2.51	27.85	0.06	5.57	1.48	8,840
Significant Emissions Threshold	**137**	**137**	**548**	**137**	**82**	**65**	**548,000**
Threshold Exceedance (Yes/No)	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: Reactive Organic Compounds, used interchangeably with Volatile Organic Compounds (VOC); NO_X: oxides of nitrogen; CO: Carbon monoxide; SO_X: Oxides of sulfur; $PM_{2.5}$: particulate matter less than 2.5 micrometers in diameter; PM_{10}: particulate matter less than 10 micrometers in diameter; CO_2e: Carbon dioxide equivalent. Due to rounding, some of the values may not match the CalEEMod output file.

Project Description

The project involves the construction of an after-school educational and recreational enrichment center on a vacant lot that is approximately 67.37 acres. The project site is located at the corner of 40th Street East and E Ave. Q, in the City of Palmdale, CA. Figure 1 shows the site location; the proposed site plan is included in Figure 2.

Figure 1. Regional Vicinity

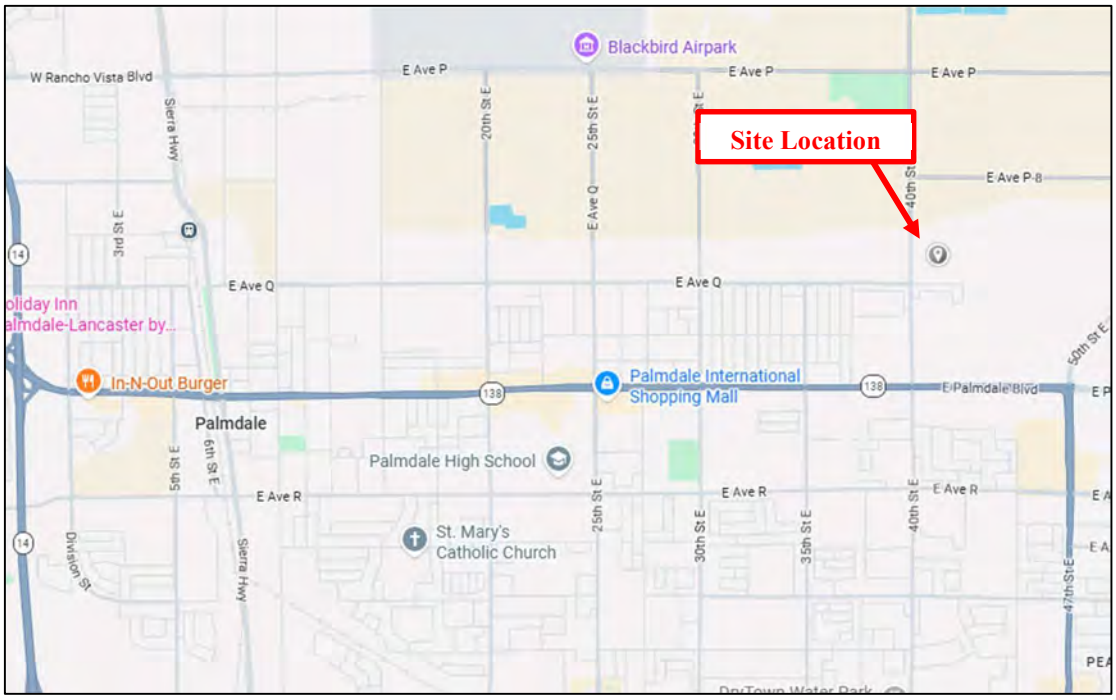


Figure 2. Site Plan – Proposed ELOP Center – Palmdale, CA



Sources of Emissions

The emissions associated with the proposed project consist of construction and operational emissions from the ELOP center at full buildout. Construction emissions are temporary and include emissions of criteria pollutants and GHG from construction activities during site preparation, grading, paving, building construction, and the application of architectural coatings. Operational emissions consist of area sources (i.e., re-applying architectural coatings, consumer products, and landscaping equipment), energy use (i.e., electricity and natural gas), mobile sources[1] (i.e., commuting), solid waste disposal, water, and wastewater (i.e., supplying and treating water and wastewater), and refrigerants (i.e., air conditioners).

Emissions Estimates

Table 3 and Table 4 present the annual and maximum daily emissions summaries from the construction and operation of the proposed project, respectively. Emissions were estimated using California Emissions Estimator Model (CalEEMod) Version 2022.1.1.24, and the detailed emissions report is included in Attachment B.

This proposed project is not considered one of the project types that the AVAQMD CEQA and Federal Conformity Guidelines require to be evaluated for potentially exposing sensitive receptors to substantial pollutant concentrations. As such, TAC emissions were not calculated, and the project was not evaluated for potential health risks to sensitive receptors.

[1] For mobile source operational data, default trip lengths are taken from the local Metropolitan Planning Organization (MPO) and Regional Transportation Planning Agency (RTPA).

Table 3. Annual Construction and Operational Emissions Summary

Emissions Source	Total Emissions (tons per year)						
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2e (MT/year)
Construction Emissions							
Year 1 Construction Emissions (2026)	0.25	2.07	2.36	<0.01	0.20	0.12	504
Year 2 Construction Emissions (2027)	0.17	1.36	2.23	<0.01	0.17	0.07	457
Year 3 Construction Emissions (2028)	0.17	1.29	2.20	<0.01	0.17	0.07	455
Year 4 Construction Emissions (2029)	0.16	1.24	2.16	<0.01	0.16	0.06	450
Year 5 Construction Emissions (2030)	0.16	1.21	2.13	<0.01	0.16	0.06	446
Year 6 Construction Emissions (2031)	0.15	1.17	2.10	<0.01	0.16	0.06	442
Year 7 Construction Emissions (2032)	0.14	1.13	2.07	<0.01	0.16	0.06	440
Year 8 Construction Emissions (2033)	0.14	1.10	2.04	<0.01	0.15	0.06	435
Year 9 Construction Emissions (2034)	0.14	1.07	2.02	<0.01	0.15	0.05	432
Year 10 Construction Emissions (2035)	0.60	0.41	0.79	<0.01	0.06	0.02	168
Operational Emissions							
Mobile	0.21	0.23	2.26	0.01	0.71	0.18	603
Area	0.74	<0.01	0.55	<0.01	<0.01	<0.01	2
Energy	0.01	0.14	0.12	<0.01	0.01	0.01	399
Water	N/A	N/A	N/A	N/A	N/A	N/A	38
Waste	N/A	N/A	N/A	N/A	N/A	N/A	117
Refrigerants	N/A	N/A	N/A	N/A	N/A	N/A	0.1
Total Operational Emissions	**0.96**	**0.38**	**2.93**	**0.01**	**0.72**	**0.19**	**1,159**
Significant Emissions Threshold	**25**	**25**	**100**	**25**	**15**	**12**	**100,000**
Threshold Exceedance (Yes/No)	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: Reactive Organic Compounds, used interchangeably with Volatile Organic Compounds (VOC); NO_X: oxides of nitrogen; CO: Carbon monoxide; SO_X: Oxides of sulfur; $PM_{2.5}$: particulate matter less than 2.5 micrometers in diameter; PM_{10}: particulate matter less than 10 micrometers in diameter; CO_2e: Carbon dioxide equivalent; MT: metric ton. Due to rounding, some of the values may not match the CalEEMod output file.

Table 4. Maximum Daily Construction and Operational Emissions Summary

Emissions Source	Total Emissions (pounds per day)						
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2e
Construction Emissions							
Year 1 Construction Emissions (2026)	3.31	32.79	31.25	0.07	7.58	4.14	9,102
Year 2 Construction Emissions (2027)	1.36	10.39	18.38	0.03	1.31	0.55	3,938
Year 3 Construction Emissions (2028)	1.29	9.87	18.06	0.03	1.27	0.52	3,906
Year 4 Construction Emissions (2029)	1.25	9.48	17.70	0.03	1.25	0.49	3,873
Year 5 Construction Emissions (2030)	1.21	9.24	17.39	0.03	1.23	0.48	3,838
Year 6 Construction Emissions (2031)	1.18	8.92	17.08	0.03	1.22	0.46	3,806
Year 7 Construction Emissions (2032)	1.15	8.65	16.75	0.03	1.20	0.45	3,774
Year 8 Construction Emissions (2033)	1.10	8.41	16.52	0.03	1.18	0.43	3,746
Year 9 Construction Emissions (2034)	1.07	8.22	16.27	0.03	1.17	0.42	3,710
Year 10 Construction Emissions (2035)	20.74	8.03	16.00	0.03	1.15	0.41	3,684
Operational Emissions							
Mobile	1.77	1.72	21.07	0.05	5.50	1.41	5,465
Area	4.54	<0.01	6.12	<0.01	0.01	0.01	25
Energy	0.04	0.79	0.67	<0.01	0.06	0.06	2,412
Water	N/A	N/A	N/A	N/A	N/A	N/A	233
Waste	N/A	N/A	N/A	N/A	N/A	N/A	704
Refrigerants	N/A	N/A	N/A	N/A	N/A	N/A	1
Total Operational Emissions	**6.35**	**2.51**	**27.85**	**0.06**	**5.57**	**1.48**	**8,840**
Significant Emissions Threshold	**137**	**137**	**548**	**137**	**82**	**65**	**548,000**
Threshold Exceedance (Yes/No)	**No**	**No**	**No**	**No**	**No**	**No**	**No**

ROG: Reactive Organic Compounds, used interchangeably with Volatile Organic Compounds (VOC); NO_X: oxides of nitrogen; CO: Carbon monoxide; SO_X: Oxides of sulfur; $PM_{2.5}$: particulate matter less than 2.5 micrometers in diameter; PM_{10}: particulate matter less than 10 micrometers in diameter; CO_2e: Carbon dioxide equivalent. Due to rounding, some of the values may not match the CalEEMod output file.

Emissions Calculation Methodology

Construction and operational emissions were based on five CalEEMod land use types*: Elementary School, Parking Lot, Other Asphalt Surfaces, Other Non-Asphalt Surfaces,* and *Golf Course.* A discussion on the land use types that were used for the emissions modeling is included in this section.

CalEEMod Land Use Type: Elementary School

The *Elementary School* land use type was used to model the emissions associated with the proposed housing development. This land use type is consistent with the Transportation Analysis provided by Fehr & Peers. The total building square footage (140,625 square feet), number of students at capacity (2,000), lot acreage (38.37 acres), total landscape area (507,711 square feet), and special landscape area (399,628 square feet) were provided by HPLE.[2]

[2] The total lot acreage includes the total landscaping area provided by HPLE on 1/24/2026. Special landscape areas are areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play, such as parks, sports fields, and other areas where turf provides a playing surface.

CalEEMod Land Use Type: Parking Lot

The *Parking Lot* land use type was used to model the emissions associated with ELOP Center parking. The total number of spaces (445) and acreage (3.18 acres) was provided by HPLE.

CalEEMod Land Use Type: Other Asphalt Surfaces

The *Other Asphalt Surfaces* land use type was used to model the emissions associated with new streets and student drop-off areas added for the ELOP Center. The total acreage (8.42 acres) was provided by HPLE.

CalEEMod Land Use Type: Other Non-Asphalt Surfaces

The *Other Non-Asphalt Surfaces* land use type was used to model the emissions associated with the large areas of concrete such as concrete sidewalks, concrete pads for future buildings, and small group gathering areas added for the ELOP Center. The total acreage (8.42 acres) was provided by HPLE.

CalEEMod Land Use Type: Golf Course

The *Golf Course* land use type was used to model the emissions associated with the golf teaching and driving area. This area is not a traditional course; however, the *Golf Course* land use type was used to conservatively estimate area-source operational emissions. The total acreage (8.98 acres), landscape area (52,103 square feet), and associated building area (6,000 square feet) was provided by HPLE.

Construction Emissions

Construction emissions were calculated using CalEEMod defaults and inputs provided by HPLE. The anticipated construction schedule and list of construction equipment were reviewed and verified by HPLE.

Table 5 provides the anticipated construction schedule. HPLE indicated that work would be conducted five days per week and provided the proposed start date (3/16/2026) and the end date (7/31/2035) for the entire project. The schedule was adjusted to place the *Paving Phase* before the *Building Construction Phase,* based on HPLE's proposed construction schedule. HPLE provided specific start and end dates for all construction phases; therefore, no default CalEEMod values were used for construction phase duration.

Table 6 provides the anticipated equipment that will be used during each construction phase, the hours per day the equipment will be operated, and the horsepower of the equipment. The values in Table 6 are based on CalEEMod default values.

Based on input from HPLE, this project will require 10,000 cubic yards of material export during the *Site Preparation* phase; as such, the emissions from material haul trips were included in the construction emissions. For fugitive dust emissions, CalEEMod defaults do not include any control of fugitive dust from construction sites. AVAQMD Rule 403 requires fugitive dust from any "active operation, open storage pile, or disturbed surface area" be controlled so that no presence of dust remains visible beyond the property line. To meet this requirement, it was assumed the site would be watered three times per day.

Table 5. Construction Schedule

Construction Phase	Start Date	End Date	Days/week	Total Days
Demolition	N/A	N/A	N/A	N/A
Site Preparation	3/16/2026	4/16/2026	5	24
Grading	4/17/2026	8/23/2026	5	91
Paving	8/24/2026	10/24/2026	5	45
Building Construction	10/25/2026	5/17/2035	5	2234
Architectural Coating	5/18/2035	7/31/2035	5	53

Table 6. Construction Equipment

Construction Phase	Equipment	Number of Equipment	Hours per day	Horsepower
Site Preparation	Rubber Tired Dozers	3	8	367
	Tractors/Loaders/Backhoes	4	8	84
Grading	Excavators	2	8	36
	Graders	1	8	148
	Rubber Tired Dozers	1	8	367
	Scrapers	2	8	423
	Tractors/Loaders/Backhoes	2	8	84
Paving	Pavers	2	8	81
	Paving Equipment	2	8	89
	Rollers	2	8	36
Building Construction	Cranes	1	7	367
	Forklifts	3	8	82
	Generator Sets	1	8	14
	Tractors/Loaders/Backhoes	3	7	84
	Welders	1	8	46
Architectural Coating	Air Compressors	1	6	37

Operational Emissions

Operational emissions consist of area sources (i.e., re-applying architectural coatings, consumer products, and landscaping equipment), energy use (i.e., electricity and natural gas), mobile sources (i.e., commuting), solid waste disposal, water, and wastewater (i.e., supplying and treating water and wastewater), and refrigerants (i.e., air conditioners). For area-source emissions, it was determined that fireplaces, woodstoves, emergency generators, and fire pumps would not be installed.[3] All other operational emissions sources were calculated using CalEEMod default factors.

[3] Based on data request form provided by HPLE on 1/24/2026.

Impact Discussion

Air Quality

Air Quality Impacts #1 and #2: Would the project conflict with or obstruct implementation of the applicable air quality plan or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

The estimated emissions of criteria pollutants for each year of construction and the total operational emissions are below the applicable AVAQMD Significant Emissions Thresholds. Therefore, this project does not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state Ambient Air Quality Standard. Further, the project is not expected to have a significant air quality impact on the environment or conflict with or obstruct implementation of the applicable air quality plan.

Air Quality Impact #3: Would the project expose sensitive receptors to substantial pollutant concentrations?

This project is an educational facility development that does not include any industrial activities or other processes that would expose sensitive receptors to substantial pollutant concentrations.

Air Quality Impact #4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Significant operational sources of odors are typically sewage treatment plants, landfills, recycling facilities, agricultural operations, and some industrial activities. Vehicles, especially those running on diesel, can contribute to odor and other air quality impacts. For this project, construction activities may generate odors that would be short-term in nature and subject to AVAQMD Rule 402, Nuisance, which prohibits the discharge of contaminants that could be detrimental or would cause a nuisance. Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Therefore, the proposed construction is not expected to create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

Since this project is an educational facility development, it is not expected to result in objectionable odors affecting a substantial number of people. Any activity that generates odor would be subject to AVAQMD Rule 402, Nuisance. Therefore, operational odor impacts would be less than significant.

GHG

GHG Impact #1: Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The annual and daily GHG emissions associated with the operation of the proposed project are presented in Tables 3 and 4 and compared to the AVAQMD significance thresholds. The emissions are well below the applicable thresholds. Therefore, the proposed project would result in a less than significant impact with respect to GHG emissions for GHG Impact #1.

GHG IMPACT #2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The County of Los Angeles adopted a Climate Action Plan (CAP) on June 25, 2024. The CAP included 2015 and 2018 GHG emission inventories and projections for future years. The 2045 CAP includes 10 strategies and 25 measures that, when combined, achieve all three of the GHG emissions reduction targets for 2030, 2035, and 2045. Many of the measures within the CAP are applicable to this project. This CAP addresses reducing GHG emissions associated with transportation by developing measures focused on reducing single-occupancy vehicle trips. This project is consistent with the CAP since nearly all students will arrive to the educational facility via bus each day.

Additionally, this CAP addresses reducing GHG emissions associated with building energy and water use. This project is consistent with the CAP since it involves the construction of buildings that would be required to comply with the most recent California Building Code (CBC), including Title 24, Part 6 of the CCR, known as the Building Energy Efficiency Standards for Residential and Nonresidential Buildings. These standards require new construction to incorporate energy efficiency technologies and methods to reduce energy consumption throughout the State. The CALGreen Code (Title 24, Part 11) was incorporated into the CBC in 2010 to add further energy-efficiency building standards, while also reducing GHG emission.

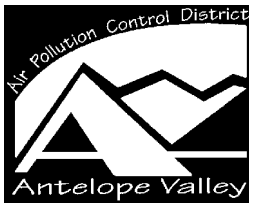
Furthermore, the project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan since the project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan, including In-use Off-Road Diesel-Fueled Fleets Regulation and Clean Truck Check.

The project would be consistent with the City of Palmdale's 2045 General Plan to promote opportunities for high-quality childcare and early education.

The project would be consistent with the Local and Regional Transportation Plan/Sustainable Communities Strategy, Connect SoCal, Land Use Policies, by planting additional trees throughout the educational facility to sequester carbon, provide shade, contribute to stormwater management, provide habitat, and enhance community character.

As such, the proposed project would result in a less than significant impact with respect to GHG emissions for GHG Impact #2.

ATTACHMENT A – Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines



Antelope Valley AQMD

California Environmental Quality Act (CEQA)

and

Federal Conformity

Guidelines

August 2016

AVAQMD Planning, Rule-making and Grants Section
AVAQMD Air Monitoring Section

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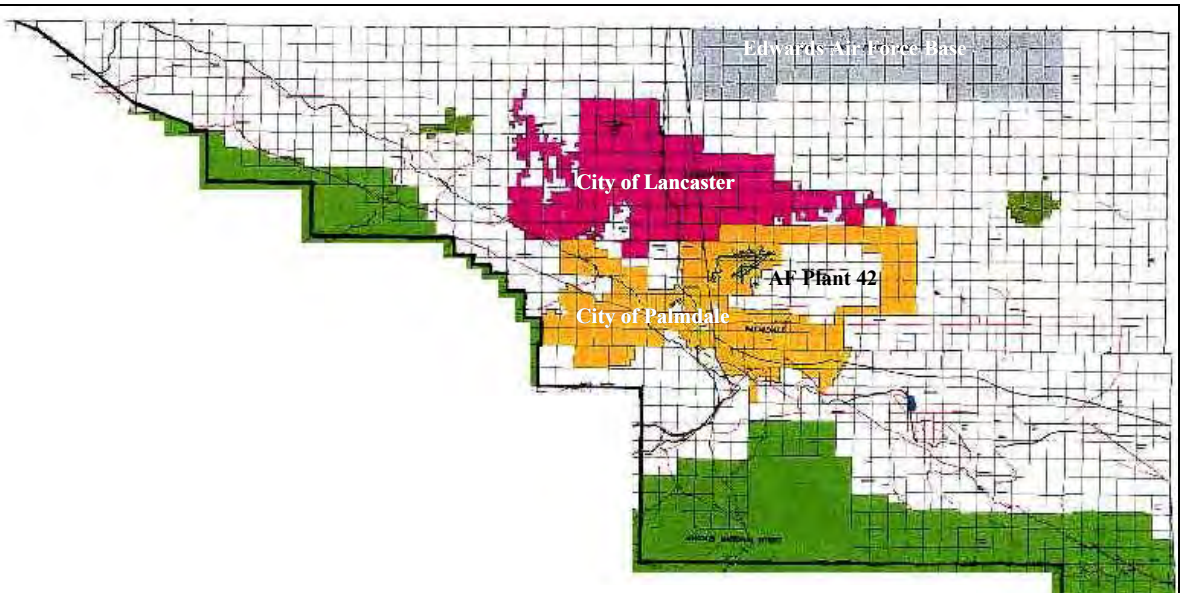
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Background

Under the California Environmental Quality Act (CEQA), the AVAQMD (District) is an expert commenting agency on air quality and related matters within its jurisdiction (or impacting on its jurisdiction). The District has dedicated resources to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. The District has adopted a federal attainment plan for ozone pursuant to the Federal Clean Air Act.

Purpose

These Guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the District by providing background information and guidance on the preferred analysis approach.



Map 1 - Antelope Valley Air Quality Management District Jurisdiction

Jurisdiction

The District has jurisdiction over the northern, desert portion of Los Angeles County (please refer to Map 1). This region includes the incorporated cities of Lancaster and Palmdale, Air Force Plant 42, and the southern portion of Edwards Air Force Base. The Kern County-Los Angeles County boundary forms the northern boundary of the District; the San Bernardino-Los Angeles County boundary forms the eastern boundary of the District.

Non-attainment Designations and Classification Status

The United States Environmental Protection Agency and the California Air Resources Board have designated portions of the District non-attainment for a variety of pollutants, and some of those designations have an associated classification. Please refer to Table 1 for a chart of these designations and classifications.

Table 1 – AVAQMD Designations and Classifications

Ambient Air Quality Standard	**AVAQMD**
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Proposed attainment in 2014; historical classification Severe-17
Eight-hour Ozone (Federal 84 ppb (1997))	Subpart 2 Nonattainment; classified Severe-15
Eight-hour Ozone (Federal 75 ppb (2008))	Nonattainment, classified Severe-15
Eight-hour Ozone (Federal 70 ppb (2015))	Expected nonattainment; classification to be determined
Ozone (State)	Nonattainment; classified Extreme
PM_{10} 24-hour (Federal)	Unclassifiable/attainment
$PM_{2.5}$ Annual (Federal)	Unclassified/attainment
$PM_{2.5}$ 24-hour (Federal)	Unclassified/attainment
$PM_{2.5}$ (State)	Unclassified
PM_{10} (State)	Nonattainment
Carbon Monoxide (State and Federal)	Attainment
Nitrogen Dioxide (State and Federal)	Attainment/unclassified
Sulfur Dioxide (State and Federal)	Attainment/unclassified
Lead (State and Federal)	Attainment
Particulate Sulfate (State)	Unclassified
Hydrogen Sulfide (State)	Unclassified
Visibility Reducing Particles (State)	Unclassified

Attainment Plans

The District has adopted a single attainment plan for ozone. Please refer to Table 2 for information regarding this attainment plan.

Table 2 – AVAQMD Attainment Plans

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
AVAQMD 2004 Ozone Attainment Plan (State and Federal)	4/2004	Federal one hour ozone	Entire District	NO_x and VOC	2007
AVAQMD Federal 8-Hour Ozone Attainment Plan	5/20/2008	Federal eight hour ozone (84 ppb)	Entire District	NO_x and VOC	2019 (revised from 2021)

*Note: A historical attainment date given in an attainment plan does not necessarily mean that the affected area has been re-designated to attainment; please refer to Table 1.

Rules and Regulations

The District maintains a set of Rules and Regulations to improve air quality and maintain good air quality. Please contact the District to obtain a copy of the District rulebook, or visit www.avaqmd.ca.gov.

Recommended Environmental Setting Elements

Air Quality Data

The District gathers a variety of air quality data at the Lancaster monitoring site. Table 3 details the data available from the District for this site.

Table 3 - Available Air Quality Data

Site	Address	Pollutants	Dates
Lancaster	W. Ponderosa	O_3, NO_x, CO, PM_{10} (Hi-Vol and TEOM)	7/1/97 to 11/01
Lancaster	W. Ponderosa	$PM_{2.5}$	1/1/99 to 11/01
Lancaster	43301 Division St.	O_3, NO_x, CO, PM_{10} (hourly), $PM_{2.5}$	11/01 to present

Meteorological Data

A variety of meteorological data is available from the District for the Lancaster site. Table 4 contains a list of the data available for the Lancaster site.

Table 4 - Available Meteorological Data

Site	Address	Data	Dates
Lancaster	W. Ponderosa	Wind speed/direction, pressure, temperature, humidity	7/1/97 to 11/01
Lancaster	43301 Division St.	Wind speed/direction, pressure, temperature, humidity	11/01 to present

Topography and Climate Discussion

The District covers a western portion of the Mojave Desert Air Basin (MDAB). The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 ft elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 ft).

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. MDAB annual average precipitation is presented in Table 5; the data displayed is 1981-2010 averages from the NOAA National Climate Data Center. The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

Table 5 - MDAB Average Annual Precipitation

Site	County	District	Precipitation (inches)
Baker	San Bernardino	MDAQMD	4.48
Barstow Daggett Airport	San Bernardino	MDAQMD	4.06
Barstow	San Bernardino	MDAQMD	5.30
Blythe Airport	Riverside	MDAQMD	3.77
Desert Center 2 NNE	Riverside	SCAQMD	3.92
Eagle Mountain	Riverside	SCAQMD	4.10
Goldstone Echo Number 2	San Bernardino	MDAQMD	5.88
Joshua Tree	San Bernardino	MDAQMD	5.11
Lancaster Wm J Fox Field	Los Angeles	AVAQMD	7.38
Mitchell Caverns	San Bernardino	MDAQMD	11.50
Mojave	Kern	EKAPCD	6.67
Mountain Pass 1 SE	San Bernardino	MDAQMD	9.94
Needles Airport	San Bernardino	MDAQMD	4.62
Palmdale Airport	Los Angeles	AVAQMD	8.30
Palmdale	Los Angeles	AVAQMD	7.40

Site	County	District	Precipitation (inches)
Parker Reservoir	San Bernardino	MDAQMD	6.16
Pearblossom	Los Angeles	AVAQMD	6.73
Randsburg	Kern	EKAPCD	7.26
Trona	San Bernardino	MDAQMD	3.88
Twentynine Palms	San Bernardino	MDAQMD	4.46
Victorville Pump Plant	San Bernardino	MDAQMD	6.15
Wrightwood	Los Angeles	AVAQMD	22.61

Recommended Impacts Discussion Elements

Direct Impacts

Direct impacts are the result of the project itself (from its construction and operation), in the form of project activity and trips generated by the project. For example, in the case of a subdivision project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), housing use activity (natural gas consumption) and trips to and from the housing (vehicle exhaust, tire wear) represent direct impacts. In the case of a new mine project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), material handling (drilling, blasting, transfers, crushing, screening, bagging), operational emissions (wind erosion, vehicle travel, vehicle exhaust, tire wear), and employee/customer/delivery travel (vehicle exhaust, tire wear) represent direct impacts.

Indirect Impacts

Indirect impacts are the result of changes that would not occur without the project. In the case of a subdivision project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the subdivision, construction and operation of new commercial/retail establishments, changes in traffic/circulation patterns that result in increased congestion/delays, etc. In the case of a new mine project, indirect impacts can be generated by nearby construction of infrastructure to support the mine, housing constructed and/or occupied by mine employees, changes in traffic/circulation patterns that result in increased congestion/delays, etc.

Cumulative Impacts

Cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to. In the case of a subdivision project, a given project has a cumulative impact with all other subdivision projects, from the standpoint of each type of impact (cumulative construction emissions, residential natural gas consumption, solvent use, transportation emissions, congestion, etc.). Similarly, a new mine project has a cumulative impact with all other mining projects, from the standpoint of each type of impact (cumulative construction emissions, diesel equipment emissions, blasting emissions, fugitive emissions, transportation, congestion, etc.).

Conformity Impacts

A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).

Sensitive Receptor Land Uses

Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criteria number 4 (refer to the significance threshold discussion):

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

Recommended Substantiation Discussion Elements

For projects applying the emissions-based significance thresholds, project emissions quantification is required. In addition the environmental documentation must include support for the quantification methodology used, including emission factors, emission factors source, assumptions, and sample calculations where necessary. For projects using a calculation tool such as CalEEMod or URBEMIS, the support section must specify the inputs and settings used for the evaluation.

Significance Thresholds

Any project is significant if it triggers or exceeds the most appropriate evaluation criteria. The District will clarify upon request which threshold is most appropriate for a given project; in general, the emissions comparison (criteria number 1) is sufficient:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 6;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s) [1];

[1] A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold.

4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.*

**Refer to the Sensitive Receptor Land Use discussion above*

A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

Table 6 – Significant Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Greenhouse Gases (CO2e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO_x)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	12	65
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

District Contacts

If an address is not listed, please use the general address, to the attention of the listed individual.

AVAQMD General and Rulebook	Crystal Goree (661) 723-8070 x1 Mailing and Physical Address: 43301 Division St., Suite 206 Lancaster, CA 93535-4649
Planning and Rules	Tracy Walters (760) 245-1661 x6122
Air Quality and Meteorological Data	Orlando Salinas (760) 245-1661 x1810
CEQA and Conformity	Alan De Salvio (760) 245-1661 x6726
Permitting	Bret Banks (661) 723-8070 x2

Appendix A – Basic Definitions of Major Air Pollutants

Technical and/or legal definitions exist for many of these pollutants, depending on context. The following definitions are for general, introductory purposes only:

Carbon Dioxide (CO_2) – Common product of combustion. Not a criteria pollutant, but considered an important "greenhouse gas." Important on a national or global scale.

Carbon Monoxide (CO) – Common product of incomplete combustion. A criteria pollutant with state and federal standards. Not a primary photochemical reaction compound, but involved in photochemical reactions. Dissipates rapidly, and is therefore only important on a local scale near sources.

Criteria Pollutants – Those air pollutants specifically identified for control under the Federal Clean Air Act (currently six: carbon monoxide, nitrogen oxides, lead, sulfur oxides, ozone and particulates).

Lead (Pb) – A heavy metal, present in the environment mainly due to historical use in motor vehicle fuel. Primarily associated with lead smelting operations. A criteria pollutant with state and federal standards. Primarily of concern near sources.

Oxides of Nitrogen (NO_x) – Common product of combustion in the presence of nitrogen. Includes NO_2, which is a criteria pollutant with state and federal standards. Locally and regionally important due to its involvement in the photochemical formation of ozone.

Oxides of Sulfur (SO_x) – Common product of combustion in the presence of sulfur. Associated primarily with diesel and coal burning. Includes SO_2, a criteria pollutant with state and federal standards. Primarily of concern near sources.

Ozone (O_3) – A gas mainly produced by a photochemical reaction between reactive organic gases and oxides of nitrogen in the presence of sunlight (also produced by molecular oxygen in the presence of ultraviolet light or electrical discharge). A strong oxidant that is damaging at ground level but necessary at high altitude (in the stratosphere, where it absorbs dangerous ultraviolet light). Also considered an important greenhouse gas. A criteria pollutant with state and federal standards.

Particulate Matter (TSP or PM_{30}) – Solid or liquid matter suspended in the atmosphere, excluding water. Includes aerosols and droplets that form in the atmosphere. Locally and regionally important.

Reactive/Volatile Organic Compounds/Gases (ROG, VOC, NMOG, NMOC) – A portion of total organic compounds or gases, excludes methane, ethane and acetone (due to low photochemical reactivity). "ROG" is generally used by the California Air Resources Board, "VOC" is generally used by the United States Environmental Protection Agency, but all four terms are interchangeable for most uses. Regionally important due to its involvement in the photochemical reaction that produces ozone.

Respirable Particulate Matter (coarse or PM_{10}, and fine or $PM_{2.5}$) – That portion of particulate matter that tends to penetrate into the human lung. The subscript refers to aerodynamic diameter. Criteria pollutants with state and federal standards. Locally and regionally important.

Total Organic Compounds/Gases (TOC or TOG) – Compounds containing at least one atom of carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and metallic carbonates. Primarily methane in the atmosphere, a "greenhouse gas."

ATTACHMENT B – California Emissions Estimator Model (CalEEMod) Detailed Emissions Report

135. HPLE ELOP Center - 40th St. E_E Ave. Q , Palmdale Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	135. HPLE ELOP Center - 40th St. E_E Ave. Q , Palmdale
Construction Start Date	3/16/2026
Operational Year	2035
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.50000
Precipitation (days)	13.0000
Location	34.589303005497015, -118.05486313272209
County	Los Angeles-Mojave Desert
City	Palmdale
Air District	Antelope Valley AQMD
Air Basin	Mojave Desert
TAZ	3655
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Elementary School	2,000.00	Student	38.3700	140,625	507,711	399,628	—	—

Parking Lot	445.000	Space	3.18000	0.00000	0.00000	0.00000	—	—
Other Asphalt Surfaces	8.42000	Acre	8.42000	0.00000	0.00000	0.00000	—	—
Other Non-Asphalt Surfaces	8.42000	Acre	8.42000	0.00000	0.00000	0.00000	—	—
Golf Course	8.98000	Acre	8.98000	0.00000	52,103.0	380,162	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	20.7368	32.6103	31.2525	0.07302	1.28844	6.29449	7.58293	1.18904	2.94648	4.13552	—	8,917.47	8,917.47	0.27979	0.57296	8.16884	9,102.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.28803	32.7943	30.7460	0.07302	1.28844	6.29449	7.58293	1.18904	2.94648	4.13552	—	8,892.87	8,892.87	0.22935	0.57296	0.21168	9,069.56
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.28877	11.3195	12.9255	0.02558	0.45550	0.68857	1.08539	0.41872	0.24544	0.66416	—	3,016.27	3,016.27	0.11175	0.10436	1.37664	3,042.20
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.60020	2.06581	2.35890	0.00467	0.08313	0.12566	0.19808	0.07642	0.04479	0.12121	—	499.378	499.378	0.01850	0.01728	0.22792	503.670

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.31093	32.6103	31.2525	0.07302	1.28844	6.29449	7.58293	1.18904	2.94648	4.13552	—	8,917.47	8,917.47	0.27979	0.57296	8.16884	9,102.13
2027	1.36222	10.3304	18.3841	0.02858	0.34176	0.96920	1.31096	0.31483	0.23544	0.55027	—	3,887.05	3,887.05	0.13276	0.14610	4.46514	3,938.37
2028	1.28927	9.81393	18.0601	0.02858	0.30542	0.96920	1.27462	0.28140	0.23544	0.51684	—	3,856.39	3,856.39	0.13277	0.14092	4.04613	3,905.75
2029	1.25126	9.42146	17.7001	0.02858	0.28083	0.96920	1.25003	0.25877	0.23544	0.49421	—	3,824.24	3,824.24	0.13145	0.14092	3.64883	3,873.17
2030	1.21474	9.18129	17.3877	0.02858	0.26530	0.96920	1.23450	0.24449	0.23544	0.47993	—	3,792.44	3,792.44	0.10736	0.13443	3.28066	3,838.47
2031	1.18367	8.88799	17.0775	0.02858	0.24841	0.96920	1.21762	0.22896	0.23544	0.46440	—	3,760.53	3,760.53	0.10605	0.13443	2.93023	3,806.18
2032	1.15032	8.59546	16.7499	0.02858	0.22918	0.96920	1.19838	0.21126	0.23544	0.44670	—	3,730.17	3,730.17	0.10605	0.12925	2.59755	3,773.93
2033	1.09747	8.35332	16.5227	0.02858	0.20875	0.96920	1.17796	0.19247	0.23544	0.42791	—	3,702.25	3,702.25	0.10605	0.12925	2.28558	3,745.70
2034	1.07043	8.18732	16.2709	0.02858	0.19754	0.96920	1.16675	0.18215	0.23544	0.41759	—	3,675.24	3,675.24	0.10475	0.09998	1.99236	3,709.64
2035	20.7368	7.97174	15.9996	0.02858	0.18483	0.96920	1.15403	0.17045	0.23544	0.40589	—	3,650.39	3,650.39	0.10475	0.09947	1.72674	3,684.38
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.28803	32.7943	30.7460	0.07302	1.28844	6.29449	7.58293	1.18904	2.94648	4.13552	—	8,892.87	8,892.87	0.22935	0.57296	0.21168	9,069.56
2027	1.30796	10.3931	16.6983	0.02909	0.34176	0.96920	1.31096	0.31483	0.23544	0.55027	—	3,796.28	3,796.28	0.13536	0.14610	0.11578	3,843.32
2028	1.26040	9.87141	16.4818	0.02858	0.30542	0.96920	1.27462	0.28140	0.23544	0.51684	—	3,767.43	3,767.43	0.13408	0.14092	0.10484	3,812.89
2029	1.22499	9.47895	16.2158	0.02858	0.28083	0.96920	1.25003	0.25877	0.23544	0.49421	—	3,737.02	3,737.02	0.10996	0.14092	0.09449	3,781.85
2030	1.19108	9.24447	16.0178	0.02858	0.26530	0.96920	1.23450	0.24449	0.23544	0.47993	—	3,706.89	3,706.89	0.10866	0.13573	0.08492	3,750.14
2031	1.16001	8.92189	15.7742	0.02858	0.24841	0.96920	1.21762	0.22896	0.23544	0.46440	—	3,676.54	3,676.54	0.10866	0.13443	0.07593	3,719.39
2032	1.10387	8.65397	15.5364	0.02858	0.22918	0.96920	1.19838	0.21126	0.23544	0.44670	—	3,647.58	3,647.58	0.10736	0.12925	0.06723	3,688.85
2033	1.07591	8.41182	15.3749	0.02858	0.20875	0.96920	1.17796	0.19247	0.23544	0.42791	—	3,620.86	3,620.86	0.10736	0.12925	0.05944	3,662.12
2034	1.05277	8.22173	15.2143	0.02858	0.19754	0.96920	1.16675	0.18215	0.23544	0.41759	—	3,595.11	3,595.11	0.10606	0.12407	0.05153	3,634.79
2035	1.03320	8.02557	14.9873	0.02858	0.18483	0.96920	1.15403	0.17045	0.23544	0.40589	—	3,571.39	3,571.39	0.10605	0.12407	0.04482	3,611.06

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.37182	11.3195	12.9255	0.02558	0.45550	0.62989	1.08539	0.41872	0.24544	0.66416	—	3,016.27	3,016.27	0.11175	0.07537	0.67498	3,042.20
2027	0.93591	7.43891	12.2313	0.02041	0.24411	0.68669	0.93081	0.22488	0.16677	0.39165	—	2,726.38	2,726.38	0.09669	0.10436	1.37664	2,761.27
2028	0.90535	7.08975	12.0739	0.02047	0.21876	0.68857	0.90733	0.20155	0.16723	0.36878	—	2,712.89	2,712.89	0.09603	0.10093	1.25012	2,746.62
2029	0.87572	6.78505	11.8507	0.02041	0.20059	0.68669	0.88728	0.18484	0.16677	0.35161	—	2,683.47	2,683.47	0.07854	0.10066	1.12611	2,716.56
2030	0.85243	6.61850	11.6746	0.02041	0.18950	0.68669	0.87619	0.17464	0.16677	0.34141	—	2,661.68	2,661.68	0.07761	0.09695	1.01029	2,693.52
2031	0.83024	6.38716	11.4990	0.02041	0.17744	0.68669	0.86413	0.16354	0.16677	0.33031	—	2,639.74	2,639.74	0.07761	0.09695	0.90256	2,671.47
2032	0.79230	6.19607	11.3426	0.02047	0.16415	0.68857	0.85272	0.15131	0.16723	0.31854	—	2,625.99	2,625.99	0.07689	0.09257	0.80267	2,656.30
2033	0.77016	6.00654	11.1966	0.02041	0.14911	0.68669	0.83580	0.13748	0.16677	0.30425	—	2,599.53	2,599.53	0.07668	0.09232	0.70402	2,629.66
2034	0.75364	5.88668	11.0462	0.02041	0.14110	0.68669	0.82780	0.13011	0.16677	0.29688	—	2,580.92	2,580.92	0.07668	0.08862	0.61513	2,609.86
2035	3.28877	2.26456	4.31243	0.00791	0.05036	0.27998	0.33034	0.04644	0.06781	0.11425	—	1,001.07	1,001.07	0.02945	0.03423	0.21535	1,012.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.25036	2.06581	2.35890	0.00467	0.08313	0.11495	0.19808	0.07642	0.04479	0.12121	—	499.378	499.378	0.01850	0.01248	0.11175	503.670
2027	0.17080	1.35760	2.23221	0.00373	0.04455	0.12532	0.16987	0.04104	0.03044	0.07148	—	451.383	451.383	0.01601	0.01728	0.22792	457.160
2028	0.16523	1.29388	2.20349	0.00374	0.03992	0.12566	0.16559	0.03678	0.03052	0.06730	—	449.150	449.150	0.01590	0.01671	0.20697	454.734
2029	0.15982	1.23827	2.16276	0.00373	0.03661	0.12532	0.16193	0.03373	0.03044	0.06417	—	444.280	444.280	0.01300	0.01666	0.18644	449.757
2030	0.15557	1.20788	2.13061	0.00373	0.03458	0.12532	0.15991	0.03187	0.03044	0.06231	—	440.671	440.671	0.01285	0.01605	0.16726	445.943
2031	0.15152	1.16566	2.09857	0.00373	0.03238	0.12532	0.15770	0.02985	0.03044	0.06028	—	437.038	437.038	0.01285	0.01605	0.14943	442.293
2032	0.14459	1.13078	2.07002	0.00374	0.02996	0.12566	0.15562	0.02761	0.03052	0.05813	—	434.762	434.762	0.01273	0.01533	0.13289	439.781
2033	0.14055	1.09619	2.04338	0.00373	0.02721	0.12532	0.15253	0.02509	0.03044	0.05553	—	430.382	430.382	0.01270	0.01528	0.11656	435.371
2034	0.13754	1.07432	2.01593	0.00373	0.02575	0.12532	0.15107	0.02375	0.03044	0.05418	—	427.300	427.300	0.01270	0.01467	0.10184	432.092
2035	0.60020	0.41328	0.78702	0.00144	0.00919	0.05110	0.06029	0.00848	0.01237	0.02085	—	165.739	165.739	0.00488	0.00567	0.03565	167.586

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.35320	2.42056	27.8547	0.05798	0.09859	5.46889	5.56748	0.09425	1.38802	1.48227	210.504	8,013.08	8,223.58	21.4178	0.24065	9.34510	8,840.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.21899	2.51176	16.7155	0.05292	0.08773	5.46889	5.55662	0.08604	1.38802	1.47406	210.504	7,512.36	7,722.86	21.4209	0.24877	0.77144	8,333.29
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.24758	2.07309	16.0698	0.04011	0.08523	3.87380	3.95903	0.08271	0.98330	1.06602	210.504	6,198.25	6,408.76	21.3734	0.19024	3.25792	7,003.04
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.95768	0.37834	2.93274	0.00732	0.01555	0.70697	0.72252	0.01510	0.17945	0.19455	34.8514	1,026.19	1,061.04	3.53861	0.03150	0.53939	1,159.43

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.76907	1.57665	21.0729	0.05286	0.02750	5.46889	5.49639	0.02581	1.38802	1.41383	—	5,391.70	5,391.70	0.16745	0.20360	8.80189	5,465.37
Area	4.54055	0.05146	6.11616	0.00036	0.01086	—	0.01086	0.00821	—	0.00821	—	25.1503	25.1503	0.00106	0.00022	—	25.2410
Energy	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	2,404.27	2,404.27	0.17417	0.01275	—	2,412.42
Water	—	—	—	—	—	—	—	—	—	—	9.29083	191.951	201.241	0.96458	0.02408	—	232.531
Waste	—	—	—	—	—	—	—	—	—	—	201.214	0.00000	201.214	20.1106	0.00000	—	703.978
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Total	6.35320	2.42056	27.8547	0.05798	0.09859	5.46889	5.56748	0.09425	1.38802	1.48227	210.504	8,013.08	8,223.58	21.4178	0.24065	9.34510	8,840.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.64016	1.71931	16.0499	0.04816	0.02751	5.46889	5.49640	0.02582	1.38802	1.41384	—	4,916.14	4,916.14	0.17162	0.21194	0.22823	4,983.81
Area	3.53525	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	2,404.27	2,404.27	0.17417	0.01275	—	2,412.42
Water	—	—	—	—	—	—	—	—	—	—	9.29083	191.951	201.241	0.96458	0.02408	—	232.531
Waste	—	—	—	—	—	—	—	—	—	—	201.214	0.00000	201.214	20.1106	0.00000	—	703.978
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Total	5.21899	2.51176	16.7155	0.05292	0.08773	5.46889	5.55662	0.08604	1.38802	1.47406	210.504	7,512.36	7,722.86	21.4209	0.24877	0.77144	8,333.29
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.17298	1.25526	12.3880	0.03517	0.01964	3.87380	3.89345	0.01844	0.98330	1.00174	—	3,589.63	3,589.63	0.12356	0.15331	2.71470	3,641.12
Area	4.03101	0.02538	3.01619	0.00018	0.00536	—	0.00536	0.00405	—	0.00405	—	12.4029	12.4029	0.00052	0.00011	—	12.4476
Energy	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	2,404.27	2,404.27	0.17417	0.01275	—	2,412.42
Water	—	—	—	—	—	—	—	—	—	—	9.29083	191.951	201.241	0.96458	0.02408	—	232.531
Waste	—	—	—	—	—	—	—	—	—	—	201.214	0.00000	201.214	20.1106	0.00000	—	703.978
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Total	5.24758	2.07309	16.0698	0.04011	0.08523	3.87380	3.95903	0.08271	0.98330	1.06602	210.504	6,198.25	6,408.76	21.3734	0.19024	3.25792	7,003.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.21407	0.22909	2.26080	0.00642	0.00358	0.70697	0.71055	0.00336	0.17945	0.18282	—	594.304	594.304	0.02046	0.02538	0.44945	602.829
Area	0.73566	0.00463	0.55045	0.00003	0.00098	—	0.00098	0.00074	—	0.00074	—	2.05344	2.05344	0.00009	0.00002	—	2.06084
Energy	0.00795	0.14462	0.12148	0.00087	0.01099	—	0.01099	0.01099	—	0.01099	—	398.054	398.054	0.02884	0.00211	—	399.404
Water	—	—	—	—	—	—	—	—	—	—	1.53820	31.7796	33.3178	0.15970	0.00399	—	38.4982
Waste	—	—	—	—	—	—	—	—	—	—	33.3132	0.00000	33.3132	3.32953	0.00000	—	116.552
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08994	0.08994
Total	0.95768	0.37834	2.93274	0.00732	0.01555	0.70697	0.72252	0.01510	0.17945	0.19455	34.8514	1,026.19	1,061.04	3.53861	0.03150	0.53939	1,159.43

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.14387	29.1635	28.8082	0.04890	1.24251	—	1.24251	1.14311	—	1.14311	—	5,297.94	5,297.94	0.21491	0.04298	—	5,316.12
Dust From Material Movement	—	—	—	—	—	5.12309	5.12309	—	2.62849	2.62849	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.14387	29.1635	28.8082	0.04890	1.24251	—	1.24251	1.14311	—	1.14311	—	5,297.94	5,297.94	0.21491	0.04298	—	5,316.12
Dust From Material Movement	—	—	—	—	—	5.12309	5.12309	—	2.62849	2.62849	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20672	1.91760	1.89424	0.00322	0.08170	—	0.08170	0.07516	—	0.07516	—	348.358	348.358	0.01413	0.00283	—	349.553
Dust From Material Movement	—	—	—	—	—	0.33686	0.33686	—	0.17283	0.17283	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03773	0.34996	0.34570	0.00059	0.01491	—	0.01491	0.01372	—	0.01372	—	57.6746	57.6746	0.00234	0.00047	—	57.8725
Dust From Material Movement	—	—	—	—	—	0.06148	0.06148	—	0.03154	0.03154	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09587	0.09163	1.62792	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	248.077	248.077	0.01061	0.00868	0.94411	251.873
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.07119	3.35516	0.81640	0.02411	0.04593	0.94266	0.98859	0.04593	0.26437	0.31030	—	3,371.45	3,371.45	0.00459	0.52130	7.22473	3,534.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07986	0.09992	1.09956	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	220.552	220.552	0.01100	0.00868	0.02450	223.438
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.06430	3.53084	0.83822	0.02411	0.04593	0.94266	0.98859	0.04593	0.26437	0.31030	—	3,374.38	3,374.38	0.00344	0.52130	0.18719	3,530.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00580	0.00707	0.08115	0.00000	0.00000	0.01491	0.01491	0.00000	0.00349	0.00349	—	14.9186	14.9186	0.00072	0.00057	0.02684	15.1336
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00445	0.23284	0.05429	0.00159	0.00302	0.06158	0.06460	0.00302	0.01728	0.02030	—	221.765	221.765	0.00030	0.03428	0.20470	232.192
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00106	0.00129	0.01481	0.00000	0.00000	0.00272	0.00272	0.00000	0.00064	0.00064	—	2.46994	2.46994	0.00012	0.00009	0.00444	2.50554
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00081	0.04249	0.00991	0.00029	0.00055	0.01124	0.01179	0.00055	0.00315	0.00371	—	36.7158	36.7158	0.00005	0.00568	0.03389	38.4421

3.3. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.04400	27.2253	27.5707	0.06093	1.12137	—	1.12137	1.03166	—	1.03166	—	6,598.58	6,598.58	0.26767	0.05353	—	6,621.22
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75892	6.78767	6.87378	0.01519	0.27958	—	0.27958	0.25721	—	0.25721	—	1,645.12	1,645.12	0.06673	0.01335	—	1,650.77
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13850	1.23875	1.25446	0.00277	0.05102	—	0.05102	0.04694	—	0.04694	—	272.369	272.369	0.01105	0.00221	—	273.304
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10957	0.10472	1.86048	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	283.517	283.517	0.01213	0.00992	1.07898	287.855
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02512	0.03062	0.35166	0.00000	0.00000	0.06463	0.06463	0.00000	0.01514	0.01514	—	64.6472	64.6472	0.00313	0.00247	0.11633	65.5790
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00458	0.00559	0.06418	0.00000	0.00000	0.01180	0.01180	0.00000	0.00276	0.00276	—	10.7031	10.7031	0.00052	0.00041	0.01926	10.8573
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07101	9.85401	12.9664	0.02340	0.37865	—	0.37865	0.34836	—	0.34836	—	2,397.24	2,397.24	0.09724	0.01945	—	2,405.47
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14252	1.31130	1.72547	0.00311	0.05039	—	0.05039	0.04636	—	0.04636	—	319.007	319.007	0.01294	0.00259	—	320.101
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02601	0.23931	0.31490	0.00057	0.00920	—	0.00920	0.00846	—	0.00846	—	52.8152	52.8152	0.00214	0.00043	—	52.9964
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26954	0.33725	3.71100	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	744.363	744.363	0.03711	0.02930	0.08267	754.104
Vendor	0.01636	0.71433	0.26636	0.00569	0.01037	0.19720	0.20757	0.00518	0.05448	0.05967	—	679.260	679.260	0.00102	0.09787	0.04536	708.494
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03959	0.04826	0.55430	0.00000	0.00000	0.10187	0.10187	0.00000	0.02387	0.02387	—	101.899	101.899	0.00494	0.00390	0.18336	103.368
Vendor	0.00231	0.09522	0.03490	0.00076	0.00138	0.02606	0.02744	0.00069	0.00720	0.00789	—	90.3350	90.3350	0.00014	0.01296	0.10060	94.2998
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00723	0.00881	0.10116	0.00000	0.00000	0.01859	0.01859	0.00000	0.00436	0.00436	—	16.8706	16.8706	0.00082	0.00065	0.03036	17.1137
Vendor	0.00042	0.01738	0.00637	0.00014	0.00025	0.00476	0.00501	0.00013	0.00131	0.00144	—	14.9560	14.9560	0.00002	0.00214	0.01666	15.6124
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73563	6.70781	9.24139	0.01671	0.24041	—	0.24041	0.22118	—	0.22118	—	1,712.20	1,712.20	0.06945	0.01389	—	1,718.07
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13425	1.22418	1.68655	0.00305	0.04387	—	0.04387	0.04036	—	0.04036	—	283.474	283.474	0.01150	0.00230	—	284.447
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31446	0.28386	5.19931	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	825.240	825.240	0.03451	0.02930	2.93835	837.772
Vendor	0.01789	0.65559	0.24685	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	664.730	664.730	0.00102	0.09736	1.52679	695.295
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26172	0.31055	3.50592	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	733.750	733.750	0.03711	0.02930	0.07613	743.484
Vendor	0.01636	0.69157	0.25447	0.00569	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	665.456	665.456	0.00102	0.09736	0.03965	694.534

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18788	0.23996	2.81069	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	539.153	539.153	0.02651	0.02093	0.90547	546.958
Vendor	0.01241	0.49114	0.17923	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	475.026	475.026	0.00073	0.06954	0.47117	496.239
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03429	0.04379	0.51295	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	89.2630	89.2630	0.00439	0.00346	0.14991	90.5551
Vendor	0.00227	0.08963	0.03271	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	78.6460	78.6460	0.00012	0.01151	0.07801	82.1580
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.71011	6.39243	9.26478	0.01676	0.21504	—	0.21504	0.19784	—	0.19784	—	1,717.16	1,717.16	0.06966	0.01393	—	1,723.05
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12959	1.16662	1.69082	0.00306	0.03925	—	0.03925	0.03611	—	0.03611	—	284.296	284.296	0.01153	0.00231	—	285.271
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27995	0.25717	4.88420	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	810.484	810.484	0.03451	0.02930	2.69722	822.774
Vendor	0.01789	0.63181	0.24065	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	648.447	648.447	0.00102	0.09217	1.34891	677.289
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25261	0.28386	3.30344	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	720.811	720.811	0.03581	0.02930	0.06993	730.507
Vendor	0.01636	0.66260	0.24309	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	649.167	649.167	0.00102	0.09217	0.03491	676.695
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18279	0.22150	2.63793	0.00000	0.00000	0.54832	0.54832	0.00000	0.12845	0.12845	—	531.069	531.069	0.02565	0.02098	0.83393	538.797
Vendor	0.01245	0.47582	0.17120	0.00371	0.00371	0.14025	0.14396	0.00371	0.03877	0.04249	—	464.660	464.660	0.00073	0.06602	0.41619	484.769
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03336	0.04042	0.48142	0.00000	0.00000	0.10007	0.10007	0.00000	0.02344	0.02344	—	87.9245	87.9245	0.00425	0.00347	0.13807	89.2040
Vendor	0.00227	0.08684	0.03124	0.00068	0.00068	0.02560	0.02627	0.00068	0.00708	0.00775	—	76.9298	76.9298	0.00012	0.01093	0.06890	80.2590
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68938	6.12975	9.21517	0.01671	0.19689	—	0.19689	0.18114	—	0.18114	—	1,712.02	1,712.02	0.06945	0.01389	—	1,717.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12581	1.11868	1.68177	0.00305	0.03593	—	0.03593	0.03306	—	0.03306	—	283.445	283.445	0.01150	0.00230	—	284.418
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.26823	0.23177	4.56909	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	796.386	796.386	0.03320	0.02930	2.46297	808.410
Vendor	0.01789	0.60803	0.22978	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	631.023	631.023	0.00102	0.09217	1.18586	659.703
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24349	0.25847	3.07818	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	708.435	708.435	0.01172	0.02930	0.06373	717.522
Vendor	0.01636	0.63882	0.23638	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	631.749	631.749	0.00102	0.09217	0.03076	659.273
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17392	0.20183	2.46888	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	520.501	520.501	0.00837	0.02093	0.76030	527.706
Vendor	0.01241	0.45347	0.16667	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	450.950	450.950	0.00073	0.06584	0.36582	470.954
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03174	0.03683	0.45057	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	86.1748	86.1748	0.00139	0.00346	0.12588	87.3678
Vendor	0.00227	0.08276	0.03042	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	74.6599	74.6599	0.00012	0.01090	0.06056	77.9718
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.94034	8.39196	12.8848	0.02340	0.26012	—	0.26012	0.23931	—	0.23931	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67167	5.99426	9.20340	0.01671	0.18580	—	0.18580	0.17093	—	0.17093	—	1,712.02	1,712.02	0.06945	0.01389	—	1,717.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12258	1.09395	1.67962	0.00305	0.03391	—	0.03391	0.03120	—	0.03120	—	283.445	283.445	0.01150	0.00230	—	284.418
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25651	0.20508	4.27937	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	782.898	782.898	0.00911	0.02800	2.23562	793.704
Vendor	0.01789	0.58425	0.22358	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	612.709	612.709	0.00102	0.08699	1.04504	639.703
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23438	0.23177	2.90239	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	696.620	696.620	0.01042	0.02930	0.05787	705.669
Vendor	0.01636	0.62073	0.23069	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	613.434	613.434	0.00102	0.08699	0.02705	639.410
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16834	0.18369	2.30891	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	511.785	511.785	0.00744	0.02093	0.68894	518.896

Vendor	0.01241	0.44055	0.16224	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	437.867	437.867	0.00073	0.06214	0.32135	456.724
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03072	0.03352	0.42138	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	84.7318	84.7318	0.00123	0.00346	0.11406	85.9092
Vendor	0.00227	0.08040	0.02961	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	72.4939	72.4939	0.00012	0.01029	0.05320	75.6158
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.15. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91839	8.11856	12.8454	0.02340	0.24323	—	0.24323	0.22377	—	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91839	8.11856	12.8454	0.02340	0.24323	—	0.24323	0.22377	—	0.22377	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65599	5.79897	9.17527	0.01671	0.17374	—	0.17374	0.15984	—	0.15984	—	1,712.02	1,712.02	0.06945	0.01389	—	1,717.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.11972	1.05831	1.67449	0.00305	0.03171	—	0.03171	0.02917	—	0.02917	—	283.445	283.445	0.01150	0.00230	—	284.418
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24740	0.20378	4.01374	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	770.236	770.236	0.00781	0.02800	2.01861	780.793
Vendor	0.01789	0.56565	0.21839	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	593.465	593.465	0.00102	0.08699	0.91163	620.326
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22526	0.20638	2.70382	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	685.512	685.512	0.01042	0.02800	0.05236	694.168
Vendor	0.01636	0.59695	0.22500	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	594.193	594.193	0.00102	0.08699	0.02357	620.165
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16183	0.16462	2.16521	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	503.591	503.591	0.00744	0.02093	0.62251	510.636
Vendor	0.01241	0.42356	0.15854	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	424.123	424.123	0.00073	0.06214	0.28005	442.938
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02953	0.03004	0.39515	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	83.3752	83.3752	0.00123	0.00346	0.10306	84.5416
Vendor	0.00227	0.07730	0.02893	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	70.2184	70.2184	0.00012	0.01029	0.04637	73.3334
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.17. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.89545	7.87082	12.7872	0.02340	0.22400	—	0.22400	0.20608	—	0.20608	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.89545	7.87082	12.7872	0.02340	0.22400	—	0.22400	0.20608	—	0.20608	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64136	5.63741	9.15876	0.01676	0.16044	—	0.16044	0.14760	—	0.14760	—	1,716.71	1,716.71	0.06964	0.01393	—	1,722.60
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11705	1.02883	1.67147	0.00306	0.02928	—	0.02928	0.02694	—	0.02694	—	284.222	284.222	0.01153	0.00231	—	285.197
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23698	0.17709	3.74941	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	758.690	758.690	0.00781	0.02800	1.81192	769.040
Vendor	0.01789	0.54756	0.21321	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	574.645	574.645	0.00102	0.08181	0.78563	599.835
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.19206	0.20378	2.52934	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	675.377	675.377	0.00911	0.02800	0.04685	683.995
Vendor	0.01636	0.57937	0.21982	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	575.373	575.373	0.00102	0.08181	0.02038	599.798
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13849	0.14689	2.02892	0.00000	0.00000	0.54832	0.54832	0.00000	0.12845	0.12845	—	497.469	497.469	0.00653	0.02005	0.56007	504.168
Vendor	0.01245	0.41177	0.15490	0.00371	0.00371	0.14025	0.14396	0.00371	0.03877	0.04249	—	411.805	411.805	0.00073	0.05860	0.24260	429.527
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02528	0.02681	0.37028	0.00000	0.00000	0.10007	0.10007	0.00000	0.02344	0.02344	—	82.3617	82.3617	0.00108	0.00332	0.09273	83.4707
Vendor	0.00227	0.07515	0.02827	0.00068	0.00068	0.02560	0.02627	0.00068	0.00708	0.00775	—	68.1789	68.1789	0.00012	0.00970	0.04016	71.1130
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.19. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87711	7.66646	12.7788	0.02340	0.20357	—	0.20357	0.18729	—	0.18729	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87711	7.66646	12.7788	0.02340	0.20357	—	0.20357	0.18729	—	0.18729	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62650	5.47604	9.12768	0.01671	0.14541	—	0.14541	0.13378	—	0.13378	—	1,712.02	1,712.02	0.06945	0.01389	—	1,717.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11434	0.99938	1.66580	0.00305	0.02654	—	0.02654	0.02441	—	0.02441	—	283.445	283.445	0.01150	0.00230	—	284.418
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20248	0.15170	3.53587	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	748.748	748.748	0.00781	0.02800	1.61557	758.901
Vendor	0.01789	0.53516	0.20803	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	556.665	556.665	0.00102	0.08181	0.67001	581.739
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18295	0.17839	2.38155	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	666.628	666.628	0.00911	0.02800	0.04203	675.241
Vendor	0.01585	0.56697	0.21463	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	557.395	557.395	0.00102	0.08181	0.01742	581.817
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13161	0.12835	1.91781	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	489.670	489.670	0.00651	0.02000	0.49702	496.288
Vendor	0.01205	0.40215	0.15113	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	397.837	397.837	0.00073	0.05844	0.20700	415.476
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02402	0.02342	0.35000	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	81.0704	81.0704	0.00108	0.00331	0.08229	82.1662
Vendor	0.00220	0.07339	0.02758	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	65.8665	65.8665	0.00012	0.00967	0.03427	68.7868

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.21. Building Construction (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86309	7.51935	12.7673	0.02340	0.19236	—	0.19236	0.17697	—	0.17697	—	2,396.84	2,396.84	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86309	7.51935	12.7673	0.02340	0.19236	—	0.19236	0.17697	—	0.17697	—	2,396.84	2,396.84	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61649	5.37096	9.11947	0.01671	0.13740	—	0.13740	0.12641	—	0.12641	—	1,712.03	1,712.03	0.06945	0.01389	—	1,717.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11251	0.98020	1.66430	0.00305	0.02508	—	0.02508	0.02307	—	0.02307	—	283.445	283.445	0.01150	0.00230	—	284.418
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18946	0.15039	3.29563	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	738.374	738.374	0.00651	0.00391	1.42611	741.127
Vendor	0.01789	0.51758	0.20803	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	540.026	540.026	0.00102	0.07663	0.56625	563.452
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17383	0.15300	2.23246	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	657.520	657.520	0.00781	0.02800	0.03686	666.094
Vendor	0.01585	0.54939	0.21463	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	540.758	540.758	0.00102	0.07663	0.01467	563.632
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12510	0.12649	1.77598	0.00000	0.00000	0.54683	0.54683	0.00000	0.12810	0.12810	—	482.939	482.939	0.00651	0.02000	0.44043	489.501
Vendor	0.01205	0.38923	0.15077	0.00370	0.00370	0.13987	0.14357	0.00370	0.03867	0.04237	—	385.953	385.953	0.00073	0.05473	0.17470	402.456
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02283	0.02308	0.32412	0.00000	0.00000	0.09980	0.09980	0.00000	0.02338	0.02338	—	79.9560	79.9560	0.00108	0.00331	0.07292	81.0425
Vendor	0.00220	0.07103	0.02752	0.00068	0.00068	0.02553	0.02620	0.00068	0.00706	0.00773	—	63.8989	63.8989	0.00012	0.00906	0.02892	66.6312
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.23. Building Construction (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84742	7.33637	12.6875	0.02340	0.17964	—	0.17964	0.16527	—	0.16527	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84742	7.33637	12.6875	0.02340	0.17964	—	0.17964	0.16527	—	0.16527	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22719	1.96689	3.40154	0.00627	0.04816	—	0.04816	0.04431	—	0.04431	—	642.595	642.595	0.02607	0.00521	—	644.800
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04146	0.35896	0.62078	0.00114	0.00879	—	0.00879	0.00809	—	0.00809	—	106.389	106.389	0.00432	0.00086	—	106.754
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18295	0.12500	3.10878	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	729.029	729.029	0.00651	0.00391	1.25388	731.609
Vendor	0.01789	0.51037	0.20335	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	524.530	524.530	0.00102	0.07612	0.47286	547.711
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16992	0.15170	2.08988	0.00000	0.00000	0.77200	0.77200	0.00000	0.18096	0.18096	—	649.299	649.299	0.00781	0.02800	0.03252	657.869
Vendor	0.01585	0.53750	0.20996	0.00518	0.00518	0.19720	0.20238	0.00518	0.05448	0.05967	—	525.263	525.263	0.00102	0.07663	0.01230	548.135
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04626	0.04067	0.62802	0.00000	0.00000	0.20525	0.20525	0.00000	0.04808	0.04808	—	178.992	178.992	0.00209	0.00751	0.14500	181.426
Vendor	0.00452	0.14291	0.05534	0.00139	0.00139	0.05250	0.05389	0.00139	0.01451	0.01590	—	140.710	140.710	0.00027	0.02054	0.05464	146.894
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00844	0.00742	0.11461	0.00000	0.00000	0.03746	0.03746	0.00000	0.00878	0.00878	—	29.6342	29.6342	0.00035	0.00124	0.02401	30.0372
Vendor	0.00083	0.02608	0.01010	0.00025	0.00025	0.00958	0.00983	0.00025	0.00265	0.00290	—	23.2962	23.2962	0.00005	0.00340	0.00905	24.3199
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.25. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76084	7.11822	9.93804	0.01395	0.31987	—	0.31987	0.29428	—	0.29428	—	1,510.59	1,510.59	0.06128	0.01226	—	1,515.78
Paving	0.67538	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76084	7.11822	9.93804	0.01395	0.31987	—	0.31987	0.29428	—	0.29428	—	1,510.59	1,510.59	0.06128	0.01226	—	1,515.78
Paving	0.67538	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.09380	0.87759	1.22524	0.00172	0.03944	—	0.03944	0.03628	—	0.03628	—	186.237	186.237	0.00755	0.00151	—	186.876
Paving	0.08327	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01712	0.16016	0.22361	0.00031	0.00720	—	0.00720	0.00662	—	0.00662	—	30.8337	30.8337	0.00125	0.00025	—	30.9395
Paving	0.01520	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08218	0.07854	1.39536	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	212.638	212.638	0.00909	0.00744	0.80924	215.891
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06845	0.08565	0.94248	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	189.045	189.045	0.00942	0.00744	0.02100	191.518
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00932	0.01135	0.13042	0.00000	0.00000	0.02397	0.02397	0.00000	0.00562	0.00562	—	23.9763	23.9763	0.00116	0.00092	0.04314	24.3219
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00170	0.00207	0.02380	0.00000	0.00000	0.00437	0.00437	0.00000	0.00102	0.00102	—	3.96955	3.96955	0.00019	0.00015	0.00714	4.02676
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.27. Architectural Coating (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08993	0.75540	1.09844	0.00173	0.00555	—	0.00555	0.00511	—	0.00511	—	133.527	133.527	0.00542	0.00108	—	133.985
Architectural Coatings	20.6103	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01306	0.10969	0.15950	0.00025	0.00081	—	0.00081	0.00074	—	0.00074	—	19.3889	19.3889	0.00079	0.00016	—	19.4554
Architectural Coatings	2.99273	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00238	0.02002	0.02911	0.00005	0.00015	—	0.00015	0.00014	—	0.00014	—	3.21005	3.21005	0.00013	0.00003	—	3.22106
Architectural Coatings	0.54617	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03659	0.02500	0.62176	0.00000	0.00000	0.15440	0.15440	0.00000	0.03619	0.03619	—	145.806	145.806	0.00130	0.00078	0.25078	146.322
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00501	0.00441	0.06803	0.00000	0.00000	0.02223	0.02223	0.00000	0.00521	0.00521	—	19.3886	19.3886	0.00023	0.00081	0.01571	19.6523
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00091	0.00080	0.01242	0.00000	0.00000	0.00406	0.00406	0.00000	0.00095	0.00095	—	3.21001	3.21001	0.00004	0.00013	0.00260	3.25366
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	1.76907	1.57665	21.0729	0.05286	0.02750	5.46889	5.49639	0.02581	1.38802	1.41383	—	5,391.70	5,391.70	0.16745	0.20360	8.80189	5,465.37
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	1.76907	1.57665	21.0729	0.05286	0.02750	5.46889	5.49639	0.02581	1.38802	1.41383	—	5,391.70	5,391.70	0.16745	0.20360	8.80189	5,465.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	1.64016	1.71931	16.0499	0.04816	0.02751	5.46889	5.49640	0.02582	1.38802	1.41384	—	4,916.14	4,916.14	0.17162	0.21194	0.22823	4,983.81
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	1.64016	1.71931	16.0499	0.04816	0.02751	5.46889	5.49640	0.02582	1.38802	1.41384	—	4,916.14	4,916.14	0.17162	0.21194	0.22823	4,983.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Elementary	0.21407	0.22909	2.26080	0.00642	0.00358	0.70697	0.71055	0.00336	0.17945	0.18282	—	594.304	594.304	0.02046	0.02538	0.44945	602.829
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.21407	0.22909	2.26080	0.00642	0.00358	0.70697	0.71055	0.00336	0.17945	0.18282	—	594.304	594.304	0.02046	0.02538	0.44945	602.829

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1,281.89	1,281.89	0.07952	0.00964	—	1,286.75
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	176.858	176.858	0.01097	0.00133	—	177.528
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	1,458.74	1,458.74	0.09049	0.01097	—	1,464.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	1,281.89	1,281.89	0.07952	0.00964	—	1,286.75
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	176.858	176.858	0.01097	0.00133	—	177.528
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	1,458.74	1,458.74	0.09049	0.01097	—	1,464.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	212.231	212.231	0.01317	0.00160	—	213.035
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	29.2808	29.2808	0.00182	0.00022	—	29.3918
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	241.512	241.512	0.01498	0.00182	—	242.427

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	945.527	945.527	0.08368	0.00178	—	948.149
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	945.527	945.527	0.08368	0.00178	—	948.149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	945.527	945.527	0.08368	0.00178	—	948.149
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.04358	0.79245	0.66566	0.00475	0.06023	—	0.06023	0.06023	—	0.06023	—	945.527	945.527	0.08368	0.00178	—	948.149
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.00795	0.14462	0.12148	0.00087	0.01099	—	0.01099	0.01099	—	0.01099	—	156.543	156.543	0.01385	0.00029	—	156.977
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00795	0.14462	0.12148	0.00087	0.01099	—	0.01099	0.01099	—	0.01099	—	156.543	156.543	0.01385	0.00029	—	156.977

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.23597	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.29927	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	1.00530	0.05146	6.11616	0.00036	0.01086	—	0.01086	0.00821	—	0.00821	—	25.1503	25.1503	0.00106	0.00022	—	25.2410
Total	4.54055	0.05146	6.11616	0.00036	0.01086	—	0.01086	0.00821	—	0.00821	—	25.1503	25.1503	0.00106	0.00022	—	25.2410
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.23597	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.29927	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.53525	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.59057	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05462	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09048	0.00463	0.55045	0.00003	0.00098	—	0.00098	0.00074	—	0.00074	—	2.05344	2.05344	0.00009	0.00002	—	2.06084
Total	0.73566	0.00463	0.55045	0.00003	0.00098	—	0.00098	0.00074	—	0.00074	—	2.05344	2.05344	0.00009	0.00002	—	2.06084

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Element School	—	—	—	—	—	—	—	—	—	—	9.29083	140.286	149.576	0.96137	0.02369	—	180.670
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	0.00000	51.6651	51.6651	0.00320	0.00039	—	51.8610
Total	—	—	—	—	—	—	—	—	—	—	9.29083	191.951	201.241	0.96458	0.02408	—	232.531
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	9.29083	140.286	149.576	0.96137	0.02369	—	180.670
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	0.00000	51.6651	51.6651	0.00320	0.00039	—	51.8610
Total	—	—	—	—	—	—	—	—	—	—	9.29083	191.951	201.241	0.96458	0.02408	—	232.531
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	1.53820	23.2259	24.7641	0.15917	0.00392	—	29.9120
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	0.00000	8.55375	8.55375	0.00053	0.00006	—	8.58618
Total	—	—	—	—	—	—	—	—	—	—	1.53820	31.7796	33.3178	0.15970	0.00399	—	38.4982

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	196.713	0.00000	196.713	19.6607	0.00000	—	688.231
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	4.50089	0.00000	4.50089	0.44985	0.00000	—	15.7471
Total	—	—	—	—	—	—	—	—	—	—	201.214	0.00000	201.214	20.1106	0.00000	—	703.978

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	196.713	0.00000	196.713	19.6607	0.00000	—	688.231
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	4.50089	0.00000	4.50089	0.44985	0.00000	—	15.7471
Total	—	—	—	—	—	—	—	—	—	—	201.214	0.00000	201.214	20.1106	0.00000	—	703.978
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	32.5680	0.00000	32.5680	3.25506	0.00000	—	113.944
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Golf Course	—	—	—	—	—	—	—	—	—	—	0.74517	0.00000	0.74517	0.07448	0.00000	—	2.60711
Total	—	—	—	—	—	—	—	—	—	—	33.3132	0.00000	33.3132	3.32953	0.00000	—	116.552

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.54321	0.54321
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08994	0.08994
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08994	0.08994

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	3/16/2026	4/16/2026	5.00000	24.0000	—

Grading	Grading	4/17/2026	8/23/2026	5.00000	91.0000	—
Building Construction	Building Construction	10/25/2026	5/17/2035	5.00000	2,234.00	—
Paving	Paving	8/24/2026	10/24/2026	5.00000	45.0000	—
Architectural Coating	Architectural Coating	5/18/2035	7/31/2035	5.00000	53.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	52.0833	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	0.00000	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	59.0625	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	23.0484	10.2000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	11.8125	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	219,938	73,312.5	52,324.3

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00000	10,000.00	105.000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	20.0200

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Elementary School	0.00000	0%
Paving	Parking Lot	3.18000	100%
Paving	Other Asphalt Surfaces	8.42000	100%
Paving	Other Non-Asphalt Surfaces	8.42000	0%
Paving	Golf Course	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00000	531.983	0.03300	0.00400
2027	0.00000	531.983	0.03300	0.00400
2028	0.00000	531.983	0.03300	0.00400
2029	0.00000	531.983	0.03300	0.00400
2030	0.00000	531.983	0.03300	0.00400
2031	0.00000	531.983	0.03300	0.00400
2032	0.00000	531.983	0.03300	0.00400
2033	0.00000	531.983	0.03300	0.00400
2034	0.00000	531.983	0.03300	0.00400
2035	0.00000	531.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Elementary School	440.000	0.00000	0.00000	114,714	7,724.50	0.00000	0.00000	2,013,887
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Golf Course	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)

Elementary School	Wood Fireplaces	0	0
Elementary School	Gas Fireplaces	0	0
Elementary School	Propane Fireplaces	0	0
Elementary School	Electric Fireplaces	0	0
Elementary School	No Fireplaces	0	0
Elementary School	Conventional Wood Stoves	0	0
Elementary School	Catalytic Wood Stoves	0	0
Elementary School	Non-Catalytic Wood Stoves	0	0
Elementary School	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
Other Asphalt Surfaces	Wood Fireplaces	0	0
Other Asphalt Surfaces	Gas Fireplaces	0	0
Other Asphalt Surfaces	Propane Fireplaces	0	0
Other Asphalt Surfaces	Electric Fireplaces	0	0
Other Asphalt Surfaces	No Fireplaces	0	0
Other Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0

Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Golf Course	Wood Fireplaces	0	0
Golf Course	Gas Fireplaces	0	0
Golf Course	Propane Fireplaces	0	0
Golf Course	Electric Fireplaces	0	0
Golf Course	No Fireplaces	0	0
Golf Course	Conventional Wood Stoves	0	0
Golf Course	Catalytic Wood Stoves	0	0
Golf Course	Non-Catalytic Wood Stoves	0	0
Golf Course	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	219,938	73,312.5	52,324.3

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	879,517	531.983	0.0330	0.0040	2,950,297
Parking Lot	121,344	531.983	0.0330	0.0040	0.00000
Other Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Golf Course	0.00000	531.983	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	4,848,480	16,121,908
Parking Lot	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Golf Course	0.00000	8,363,161

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	365.000	0.00000
Parking Lot	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000

Other Non-Asphalt Surfaces	0.00000	0.00000
Golf Course	8.35140	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Elementary School	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
Elementary School	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.00004	1.000000	0.00000	1.000000
Elementary School	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Golf Course	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Golf Course	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	31.1300	annual days of extreme heat
Extreme Precipitation	1.45000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	4	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	88.6994
AQ-PM	6.32234
AQ-DPM	16.0423
Drinking Water	50.6931
Lead Risk Housing	90.5986
Pesticides	56.4828
Toxic Releases	98.7747
Traffic	14.4500
Effect Indicators	—
CleanUp Sites	50.3173
Groundwater	0.00000

Haz Waste Facilities/Generators	91.6082
Impaired Water Bodies	0.00000
Solid Waste	22.0848
Sensitive Population	—
Asthma	91.6874
Cardio-vascular	85.2941
Low Birth Weights	87.9651
Socioeconomic Factor Indicators	—
Education	92.7487
Housing	79.5691
Linguistic	61.5374
Poverty	91.8467
Unemployment	94.3129

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	19.82548441
Employed	6.723983062
Median HI	14.29488002
Education	—
Bachelor's or higher	8.520467086
High school enrollment	100
Preschool enrollment	7.070447838
Transportation	—
Auto Access	35.49339151
Active commuting	40.30540228

Social	—
2-parent households	65.41768254
Voting	20.50558193
Neighborhood	—
Alcohol availability	80.5338124
Park access	17.07943026
Retail density	41.52444501
Supermarket access	9.893494161
Tree canopy	19.99230078
Housing	—
Homeownership	42.78198383
Housing habitability	5.735916848
Low-inc homeowner severe housing cost burden	13.43513409
Low-inc renter severe housing cost burden	0.384960862
Uncrowded housing	10.95855255
Health Outcomes	—
Insured adults	37.31553959
Arthritis	60.6
Asthma ER Admissions	25.2
High Blood Pressure	51.5
Cancer (excluding skin)	87.6
Asthma	13.4
Coronary Heart Disease	37.1
Chronic Obstructive Pulmonary Disease	17.9
Diagnosed Diabetes	19.9
Life Expectancy at Birth	11.5
Cognitively Disabled	41.3
Physically Disabled	65.4

Heart Attack ER Admissions	37.4
Mental Health Not Good	8.1
Chronic Kidney Disease	27.1
Obesity	13.8
Pedestrian Injuries	19.6
Physical Health Not Good	9.8
Stroke	26.0
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	7.4
No Leisure Time for Physical Activity	14.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	10.6
Elderly	98.5
English Speaking	11.0
Foreign-born	64.9
Outdoor Workers	5.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	82.8
Traffic Density	17.5
Traffic Access	23.0
Other Indices	—
Hardship	89.2
Other Decision Support	—
2016 Voting	5.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	88.0000
Healthy Places Index Score for Project Location (b)	13.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Based on information provided by the client
Construction: Construction Phases	Based on a start date of 3/32/2026 and end date of 7/31/2035 provided by the client. Paving phase adjusted to be before building construction phase based on information provided by the client.
Construction: Dust From Material Movement	Based on information provided by the client
Operations: Vehicle Data	Based on the Traffic Study provided by the client. 438 Daily Trips (with busses) for 2000 students.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	3.83854	38.3700
Building Area	sq. ft	167,207	140,625
Landscape Area	sq. ft	—	507,711
Special Landscape Area	sq. ft	507,711	399,628
Lot Area	acre	4.00500	3.18000
Landscape Area	sq. ft	—	0.00000
Special Landscape Area	sq. ft	—	0.00000
Landscape Area	sq. ft	—	52,103.0
Special Landscape Area	sq. ft	52,103.0	380,162
Recreational Building Area	sq. ft	0.00000	6,000.00

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	Start Date	6/30/2026	3/16/2026
Site Preparation	Site Preparation	End Date	8/25/2026	4/16/2026
Site Preparation	Site Preparation	Work Days per Phase	40.0000	24.0000
Grading	Grading	Start Date	8/26/2026	4/17/2026
Grading	Grading	End Date	1/27/2027	8/23/2026
Grading	Grading	Work Days per Phase	110.000	91.0000
Building Construction	Building Construction	Start Date	1/28/2027	10/25/2026
Building Construction	Building Construction	End Date	5/1/2031	5/17/2035
Building Construction	Building Construction	Work Days per Phase	1,110.00	2,234.00
Paving	Paving	Start Date	5/2/2031	8/24/2026

Paving	Paving	End Date	8/15/2031	10/24/2026
Paving	Paving	Work Days per Phase	75.0000	45.0000
Architectural Coating	Architectural Coating	Start Date	8/16/2031	5/18/2035
Architectural Coating	Architectural Coating	End Date	11/29/2031	7/31/2035
Architectural Coating	Architectural Coating	Work Days per Phase	75.0000	53.0000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Site Preparation	Material Imported	Cubic Yards	—	0.00000
Site Preparation	Material Exported	Cubic Yards	—	10,000.00
Site Preparation	Total Acres Graded	acres	36.0000	105.000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
Elementary School	Weekday Trip Rate	size/day	1.89000	0.22000
Golf Course	Weekday Trip Rate	size/day	3.74000	0.00000
Golf Course	Saturday Trip Rate	size/day	3.74000	0.00000
Golf Course	Sunday Trip Rate	size/day	3.74000	0.00000

ATTACHMENT C – Construction and Operational Fuel Estimates

C1 - Construction Fuel Consumption

Construction Schedule

*Construction Schedule input on data request form; construction schedule verified by Tim Haley on 1/26/2026

Phase Number	Phase Name	Phase Type	Start Date	End Date	Days/Week	Number of Days	Notes
1	Site Preparation	Site Preparation	3/16/2026	4/16/2026	5	24	All start and end dates were provided by the client. No default values were used.
2	Grading	Grading	4/17/2026	8/23/2026	5	91	All start and end dates were provided by the client. No default values were used.
3	Paving	Paving	8/24/2026	10/24/2026	5	45	All start and end dates were provided by the client. No default values were used.
4	Building Construction	Building Construction	10/25/2026	5/17/2035	5	2234	All start and end dates were provided by the client. No default values were used.
5	Architectural Coating	Architectural Coating	5/18/2035	7/31/2035	5	53	All start and end dates were provided by the client. No default values were used.
					Total	2447	

Off-road Equipment

*All default values; construction equipment verified by Tim Haley on 1/26/2026

Phase Number	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Usage Hours (Total per Day) Added	Usage Hours (Total Project) Added	Horse Power	Load Factor	Fuel Rate (gal/hr) Added	Diesel Gallons Used Added
1	Site Preparation	Rubber Tired Dozers	3	8	24	576	367	0.40	7.50	4,320
1	Site Preparation	Tractors/Loaders/Backhoes	4	8	32	768	84	0.37	1.59	1,220
2	Grading	Excavators	2	8	16	1,456	36	0.38	0.70	1,018
2	Grading	Graders	1	8	8	728	148	0.41	3.10	2,257
2	Grading	Rubber Tired Dozers	1	8	8	728	367	0.40	7.50	5,461
2	Grading	Scrapers	2	8	16	1,456	423	0.48	10.37	15,105
2	Grading	Tractors/Loaders/Backhoes	2	8	16	1,456	84	0.37	1.59	2,312
3	Paving	Pavers	2	8	16	720	81	0.42	1.74	1,252
3	Paving	Paving Equipment	2	8	16	720	89	0.36	1.64	1,179
3	Paving	Rollers	2	8	16	720	36	0.38	0.70	503
4	Building Construction	Cranes	1	7	7	15,638	367	0.29	5.44	85,040
4	Building Construction	Forklifts	3	8	24	53,616	82	0.20	0.84	44,928
4	Building Construction	Generator Sets	1	8	8	17,872	14	0.74	0.53	9,460
4	Building Construction	Tractors/Loaders/Backhoes	3	7	21	46,914	84	0.37	1.59	74,501
4	Building Construction	Welders	1	8	8	17,872	46	0.45	1.06	18,903
5	Architectural Coating	Air Compressors	1	6	6	318	37	0.48	0.91	289
									Total Construction Gallons (Diesel)	**267,746**

Notes:

Fuel flow rate calculated based on the values in the table below; Fuel Flow Rate = horsepower (hp) x BSFC / HHV x Load Factor

Calculation table used to calculate the fuel flow rate

Fuel	BSFC (Btu/hp-hr)	HHV (Btu/gal)	Value	Units
Diesel	7,000	137,000	0.0511	gal/hp-hr

*Fuel usage rate calculation based on the following:

BSFC = 7,000 BTU/hp-hr (Source: AP-42, Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.3.1)

HHV (diesel) = 137,000 BTU/gal (Source: AP-42, Appendix A - Miscellaneous Data and Conversion Factors)

C2 - Fuel Consumption Calculations, Operational, Fuel & Energy

Palmdale - Operational Fuel Consumption and Energy Consumption from Vehicle Trips (based on EMFAC2025 (v2.0.0) factors)

Total VMT from CalEEMod Output File for Palmdale =	**2,013,887**	**miles/year**	
Total Fuel Consumption for Palmdale (including Gasoline, Diesel, Natural Gas) =	**52,048**	**gallons/year**	**0.087% Percent of total for AVAQMD**
Total Energy Consumption for Palmdale from Electric Vehicles and Plug in Hybrid Vehicles =	**356,364**	**kwh/year**	**0.097% Percent of total for AVAQMD**
Total Fuel Consumption in AVAQMD (including Gasoline, Diesel, Natural Gas) =	**59,892,426**	**gallons/year**	
Total Energy Consumption in AVAQMD from Electric Vehicles and Plug in Hybrid Vehicles =	**369,171,372**	**kwh/year**	

Note: cVMT = represents conventional VMT which is powered by conventional fuel, e.g. gasoline, diesel, or natural gas. eVMT = represents electric VMT, which is powered by battery or electricity. Total VMT = sum of cVMT and eVMT

	EMFAC2021 (v1.0.2) Data											Palmdale Data						
Vehicle Category	**Total VMT in AVAQMD for Vehicle Category (miles/day)**	**Fuel Type**	**For Vlookup**	**cVMT per Vehicle Category & Fuel Type**	**eVMT per Vehicle Category & Fuel Type**	**Total VMT**	**% of VMT per Vehicle Category**	**% of cVMT per Vehicle Category**	**% of eVMT per Vehicle Category**	**Energy Consumption (kWh/mile)**	**Fuel Consumption (gal/mile)**	**Palmdale Vehicle Fleet Mix from CalEEMod**	**Palmdale Miles/year per Vehicle Category**	**Total VMT per Vehicle Category & Fuel Type**	**cVMT per Vehicle Category (mile/year)**	**eVMT per Vehicle Category (mile/year)**	**Fuel Consumption (gal/year)**	**Energy Consumption (kwh/year)**
HHDT	179,176.21	Gasoline	HHDT-Gasoline	8.92	0.00	8.92	0.005%	100%	0%	0.0000	0.1863	1.33%	26,849	1.34	1.34	0.00	0.25	0.00
		Diesel	HHDT-Diesel	150088.87	0.00	150088.87	83.766%	100%	0%	0.0000	0.1366			22490.64	22490.64	0.00	3072.96	0.00
		Natural Gas	HHDT-Natural Gas	923.73	0.00	923.73	0.516%	100%	0%	0.0000	0.1353			138.42	138.42	0.00	18.73	0.00
		Electricity	HHDT-Electricity	0.00	28154.69	28154.69	15.713%	0%	100%	1.7838	0.0000			4218.95	0.00	4218.95	0.00	7525.59
		Plug-in Hybrid	HHDT-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
LDA	2,277,656.34	Gasoline	LDA-Gasoline	943058.96	0.00	943058.96	41.405%	100%	0%	0.0000	0.0379	55.35%	1,114,595	461495.77	461495.77	0.00	17507.08	0.00
		Diesel	LDA-Diesel	1547.72	0.00	1547.72	0.068%	100%	0%	0.0000	0.0270			757.48	757.48	0.00	20.48	0.00
		Natural Gas	LDA-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDA-Electricity	0.00	1223045.92	1223045.92	53.698%	0%	100%	0.3324	0.0000			598510.36	0.00	598510.36	0.00	198932.92
		Plug-in Hybrid	LDA-Plug-in Hybrid	34603.60	75400.14	110003.74	4.830%	31%	69%	0.3671	0.0408			53831.59	16933.67	36897.92	690.40	13543.86
LDT1	211,998.15	Gasoline	LDT1-Gasoline	140659.12	0.00	140659.12	66.349%	100%	0%	0.0000	0.0447	3.23%	65,003	43129.00	43129.00	0.00	1929.42	0.00
		Diesel	LDT1-Diesel	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Natural Gas	LDT1-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDT1-Electricity	0.00	70288.57	70288.57	33.155%	0%	100%	0.3738	0.0000			21551.93	0.00	21551.93	0.00	8055.85
		Plug-in Hybrid	LDT1-Plug-in Hybrid	378.46	672.00	1050.46	0.496%	36%	64%	0.4286	0.0407			322.10	116.05	206.05	4.72	88.32
LDT2	1,472,454.73	Gasoline	LDT2-Gasoline	807764.38	0.00	807764.38	54.858%	100%	0%	0.0000	0.0428	18.84%	379,414	208140.24	208140.24	0.00	8898.81	0.00
		Diesel	LDT2-Diesel	1816.67	0.00	1816.67	0.123%	100%	0%	0.0000	0.0280			468.12	468.12	0.00	13.09	0.00
		Natural Gas	LDT2-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LDT2-Electricity	0.00	629398.49	629398.49	42.745%	0%	100%	0.4152	0.0000			162179.90	0.00	162179.90	0.00	67336.34
		Plug-in Hybrid	LDT2-Plug-in Hybrid	11794.29	21680.90	33475.19	2.273%	35%	65%	0.4890	0.0408			8625.71	3039.09	5586.62	123.89	2732.10
LHDT1	172,329.79	Gasoline	LHDT1-Gasoline	85990.10	0.00	85990.10	49.899%	100%	0%	0.0000	0.0660	2.81%	56,623	28254.19	28254.19	0.00	1864.48	0.00
		Diesel	LHDT1-Diesel	59098.11	0.00	59098.11	34.294%	100%	0%	0.0000	0.0457			19418.16	19418.16	0.00	888.09	0.00
		Natural Gas	LHDT1-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LHDT1-Electricity	0.00	27241.58	27241.58	15.808%	0%	100%	0.5623	0.0000			8950.90	0.00	8950.90	0.00	5033.39
		Plug-in Hybrid	LHDT1-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
LHDT2	118,698.72	Gasoline	LHDT2-Gasoline	21531.24	0.00	21531.24	18.139%	100%	0%	0.0000	0.0679	0.86%	17,326	3142.87	3142.87	0.00	213.36	0.00
		Diesel	LHDT2-Diesel	72148.90	0.00	72148.90	60.783%	100%	0%	0.0000	0.0488			10531.42	10531.42	0.00	514.44	0.00
		Natural Gas	LHDT2-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	LHDT2-Electricity	0.00	25018.58	25018.58	21.077%	0%	100%	0.5623	0.0000			3651.91	0.00	3651.91	0.00	2053.59
		Plug-in Hybrid	LHDT2-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
MCY	27,001.39	Gasoline	MCY-Gasoline	27001.39	0.00	27001.39	100.000%	100%	0%	0.0000	0.0261	2.51%	50,562	50561.82	50561.82	0.00	1319.44	0.00
		Diesel	MCY-Diesel	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Natural Gas	MCY-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MCY-Electricity	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Plug-in Hybrid	MCY-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
MDV	986,857.59	Gasoline	MDV-Gasoline	660559.22	0.00	660559.22	66.936%	100%	0%	0.0000	0.0528	12.51%	251,903	168613.07	168613.07	0.00	8895.26	0.00
		Diesel	MDV-Diesel	34786.20	0.00	34786.20	3.525%	100%	0%	0.0000	0.0411			8879.47	8879.47	0.00	365.15	0.00
		Natural Gas	MDV-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MDV-Electricity	0.00	241631.02	241631.02	24.485%	0%	100%	0.4958	0.0000			61678.28	0.00	61678.28	0.00	30578.39
		Plug-in Hybrid	MDV-Plug-in Hybrid	14631.46	35249.69	49881.15	5.055%	29%	71%	0.6110	0.0409			12732.58	3734.80	8997.78	152.92	5497.87
MH	9,516.57	Gasoline	MH-Gasoline	6987.04	0.00	6987.04	73.420%	100%	0%	0.0000	0.2013	0.43%	8,749	6423.84	6423.84	0.00	1293.09	0.00
		Diesel	MH-Diesel	2529.53	0.00	2529.53	26.580%	100%	0%	0.0000	0.0973			2325.63	2325.63	0.00	226.32	0.00
		Natural Gas	MH-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	MH-Electricity	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Plug-in Hybrid	MH-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
MHDT	112,283.26	Gasoline	MHDT-Gasoline	25545.16	0.00	25545.16	22.751%	100%	0%	0.0000	0.1703	1.67%	33,571	7637.51	7637.51	0.00	1300.98	0.00
		Diesel	MHDT-Diesel	57853.71	0.00	57853.71	51.525%	100%	0%	0.0000	0.1048			17297.16	17297.16	0.00	1812.66	0.00
		Natural Gas	MHDT-Natural Gas	602.45	0.00	602.45	0.537%	100%	0%	0.0000	0.1066			180.12	180.12	0.00	19.20	0.00
		Electricity	MHDT-Electricity	0.00	28281.94	28281.94	25.188%	0%	100%	1.2462	0.0000			8455.76	0.00	8455.76	0.00	10537.73
		Plug-in Hybrid	MHDT-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
OBUS	3,842.28	Gasoline	OBUS-Gasoline	1525.27	0.00	1525.27	39.697%	100%	0%	0.0000	0.1903	0.06%	1,298	515.07	515.07	0.00	98.02	0.00
		Diesel	OBUS-Diesel	1636.49	0.00	1636.49	42.592%	100%	0%	0.0000	0.1385			552.63	552.63	0.00	76.52	0.00
		Natural Gas	OBUS-Natural Gas	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Electricity	OBUS-Electricity	0.00	680.52	680.52	17.711%	0%	100%	1.2429	0.0000			229.81	0.00	229.81	0.00	285.64
		Plug-in Hybrid	OBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
SBUS	10,286.07	Gasoline	SBUS-Gasoline	2919.77	0.00	2919.77	28.386%	100%	0%	0.0000	0.0997	0.33%	6,573	1865.86	1865.86	0.00	186.01	0.00
		Diesel	SBUS-Diesel	5502.17	0.00	5502.17	53.491%	100%	0%	0.0000	0.1299			3516.14	3516.14	0.00	456.92	0.00
		Natural Gas	SBUS-Natural Gas	407.14	0.00	407.14	3.958%	100%	0%	0.0000	0.2427			260.18	260.18	0.00	63.15	0.00
		Electricity	SBUS-Electricity	0.00	1456.99	1456.99	14.165%	0%	100%	1.3743	0.0000			931.09	0.00	931.09	0.00	1279.56
		Plug-in Hybrid	SBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
UBUS	9,713.58	Gasoline	UBUS-Gasoline	-	-	0.00	0.000%	-	-	-	-	0.07%	1,420	0.00	0.00	0.00	0	0.00
		Diesel	UBUS-Diesel	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00
		Natural Gas	UBUS-Natural Gas	461.05	0.00	461.05	4.747%	100%	0%	0.0000	0.3339			67.42	67.42	0.00	22.51	0.00
		Electricity	UBUS-Electricity	0.00	9252.52	9252.52	95.254%	0%	100%	2.1306	0.0000			1352.98	0.00	1352.98	0.00	2882.68
		Plug-in Hybrid	UBUS-Plug-in Hybrid	-	-	0.00	0.000%	-	-	-	-			0.00	0.00	0.00	0	0.00

C3 - Fuel Consumption Calculations, Operational, Natural Gas & Electricity

Operational Natural Gas Usage:

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	879,517	531.983	0.0330	0.0040	2,950,297
Parking Lot	121,344	531.983	0.0330	0.0040	0.00000
Other Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Golf Course	0.00000	531.983	0.0330	0.0040	0.00000

Elementary School: 2,950,297 kBTU/yr

Conversion: *1 kBTU: 1,000 BTU
*1 therm: 100,000 BTU

29,503 therms/yr

Operational Electricity Usage:

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Elementary School	879,517	531.983	0.0330	0.0040	2,950,297
Parking Lot	121,344	531.983	0.0330	0.0040	0.00000
Other Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	531.983	0.0330	0.0040	0.00000
Golf Course	0.00000	531.983	0.0330	0.0040	0.00000

Elementary School : 879517
Parking Lot: 121344
Total: 1,000,861 kWh/yr

Conversion: *1 MWh: 1000 kWh

1001 MWh/yr

Appendix E: Biological Resource Assessment

Biological Resource Assessment of Proposed Extended Learning Opportunities Program Center Palmdale, California

January 7, 2026

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Biological Resource Assessment of Extended Learning Opportunities Program Center, Palmdale, California

Mark Hagan, Wildlife Biologist, 44715 17th Street East, Lancaster, CA 93535

Abstract

Development has been proposed for a school extended learning center, APNs 3025-026-001, 002, 007, 008, and 011, Palmdale, California. The approximately 70 acre (28 ha) study area was located north of Avenue Q, and east of 40th Street East, T6N, R11W, a portion of the S1/2 of the SW1/4 of Section 21, S.B.B.M. A line transect survey was conducted on 12, 15 and 16 December 2025 to inventory biological resources. The western portion of the study site was characteristic of old agricultural fields. The eastern portion of the study area was characteristic of a highly disturbed Joshua tree (*Yucca brevifolia*) woodland and desert scrub understory. A total of 26 plant species and 26 wildlife species or their sign were observed during the line transect survey. No desert tortoises (*Gopherus agassizii*) or their sign were observed within the study area. The study area did not provide suitable habitat for Mohave ground squirrels (*Xerospermophilus mohavensis*). An old desert kit fox (*Vulpes macrotis*) den and scat were observed within the study area. No burrowing owls (*Athene cunicularia*) or their sign were observed within the study area. Vegetation within the study area provided potential nesting sites for migratory birds. No Swainson's hawk (*Buteo swainsoni*) nests have been documented within 5 miles of the project site in the last 5 years. No bumble bees were observed during the field surveys. Western Joshua trees were present within the eastern portion of study area. No other sensitive plants, specifically alkali mariposa lily (*Calochortus striatus*), desert cymopterus (*Cymopterus deserticola*), and Barstow woolly sunflower (*Eriophyllum mohanense*) are expected to occur within the study area due to the lack of suitable habitat. No other state or federal listed species are expected to occur within the study area. No wetlands, riparian vegetation or ephemeral drainage channels were observed in the study area.

Recommended Protection Measures:

Coordination with the California Department of Fish and Wildlife (CDFW) and submission of WJT census and an application for an Incidental Take Permit (ITP) will be accomplished. Compensation and mitigation for impacts to WJTs will be determined either through the Section 2081 permit process and development of a California Endangered Species Act (CESA) ITP or under the Western Joshua Tree Conservation Act (WJTCA) ITP process.

If possible, removal of vegetation will occur outside the breeding season for migratory birds. Breeding generally lasts from February to July but may extend beyond this time frame. If vegetation removal will occur during or close to the nesting season, a qualified biologist will survey all potential nesting areas to be disturbed as close as possible but no more than one week prior to removal. If active bird nests are found, impacts to nests will be avoided by either delaying work or establishing initial buffer areas of a minimum of 50 feet around active migratory bird species nests. The project biologist will determine if the buffer areas should be increased or decreased based on the nesting bird response to disturbances.

A take avoidance (preconstruction) burrowing owl (*Athene cunicularia*) survey will be accomplished no more than 14 days prior to ground disturbance activities to ensure no owls have moved into the study site. If burrowing owls are found to have moved into the site, an Incidental Take Permit will be obtained prior to ground disturbing activities.

Desert kit fox is a protected species, and no permits for take are available. The "U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance, January 2011" will be used as guidelines for addressing desert kit fox issues if more recent sign is detected on the study site prior to or during construction (USFWS, 2011).

Preconstruction surveys to determine the presence of any bumble bee species will be conducted. If bumble bees are observed a more focused survey will be conducted to identify the species. If Crotch's bumble bee (*Bombus crotchii*) is found to occur, an Incidental Take Permit will be obtained prior to ground disturbing activities.

Significance: With implementation of protection measures and given the adjacent land uses, and highly impacted condition of the study area, this project would not result in a significant impact to biological resources.

Development has been proposed for a proposed school extended learning center, APNs 3025-026-001, 002, 007, 008, and 011, Palmdale, California (Figure 1). Development would include installation of access roads, parking, and utilities (water, sewer, electric, etc.). The project area would be graded in sections, as each phase is developed, prior to construction activities.

An assessment of biological resources is an integral part of environmental analyses (Gilbert and Dodds 1987). The purpose of this study was to provide an assessment of biological resources potentially occurring within or utilizing the proposed project area. Specific focus was on the presence/absence of protected, rare, threatened, and endangered species of plants and wildlife that would be expected to use the existing habitat. Species of concern included the desert tortoise (*Gopherus agassizii*), Mohave ground squirrel *(Xerospermophilus mohavensis),* desert kit fox *(Vulpes macrotis),* burrowing owl *(Athene cunicularia),* Swainson's hawk *(Buteo swainsoni),* Crotch's bumblebee (*Bombus crotchii*), Western Joshua tree (WJT) (*Yucca brevifolia*), alkali mariposa lily (*Calochortus striatus*), desert cymopterus (*Cymopterus deserticola*), and Barstow woolly sunflower (*Eriophyllum mohanense*).

Study Area

The approximately 70 acre (28 ha) study area was located north of Avenue Q, and east of 40th Street East, T6N, R11W, a portion of the S1/2 of the SW1/4 of Section 21, S.B.B.M. (Figures 2 and 3). Avenue Q formed the southern boundary of the study area. Joshua tree and desert scrub habitat were located southeast of Avenue Q. Single-family housing was located southwest of Avenue Q. A dirt road (42nd Street East) formed the eastern boundary of the study area. Highly disturbed Joshua tree and desert scrub habitat occurred along the eastern boundary of the study area. The western boundary of the study area was formed by 40th Street East. Joshua tree/desert scrub habitat and old agricultural fields were located west of 40th Street East. Old agricultural fields were located northwest of the study area. Joshua tree and desert scrub habitat were located northeast of the study area.

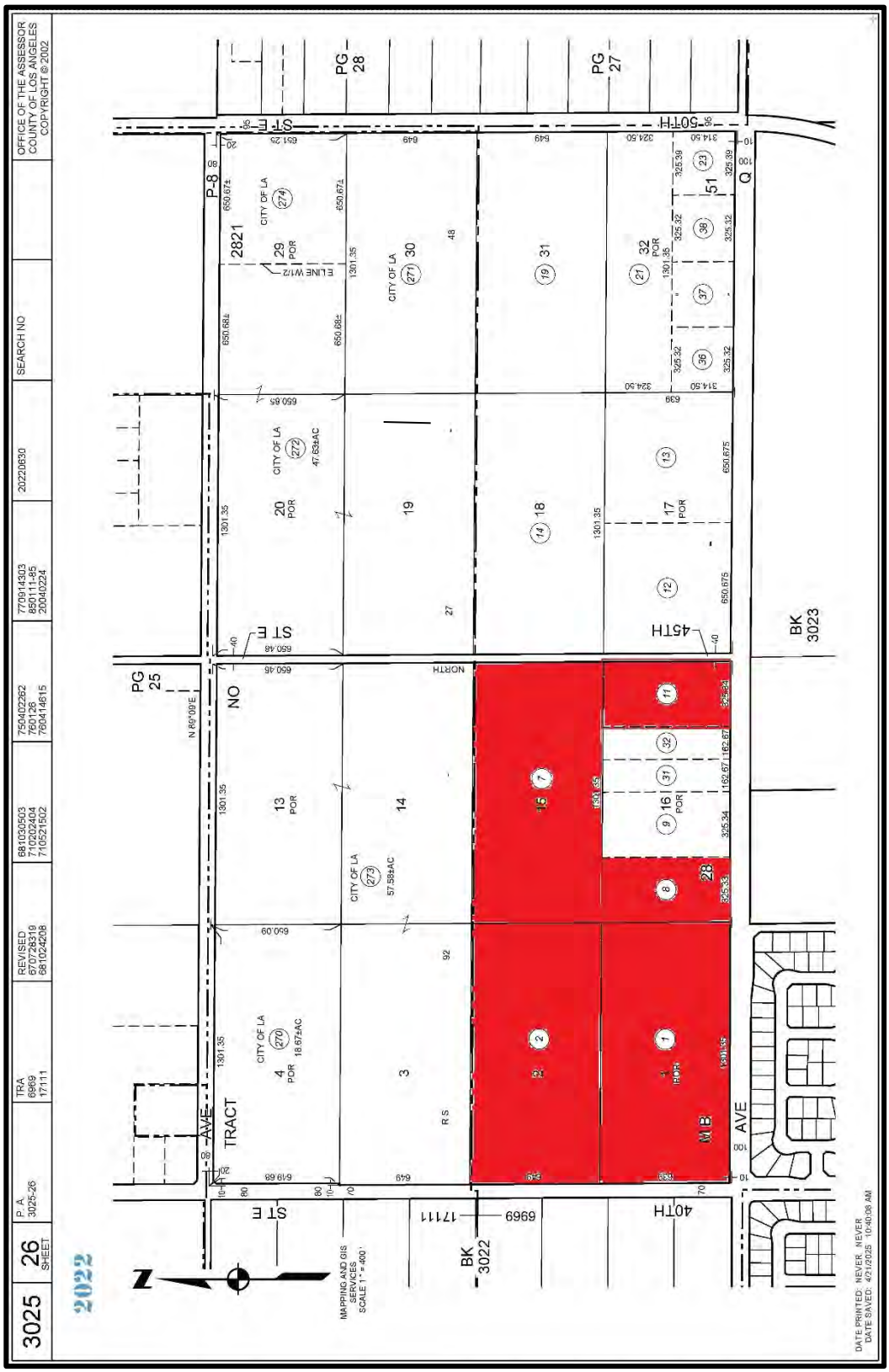


Figure 1. Location of proposed project site as depicted on APN map.

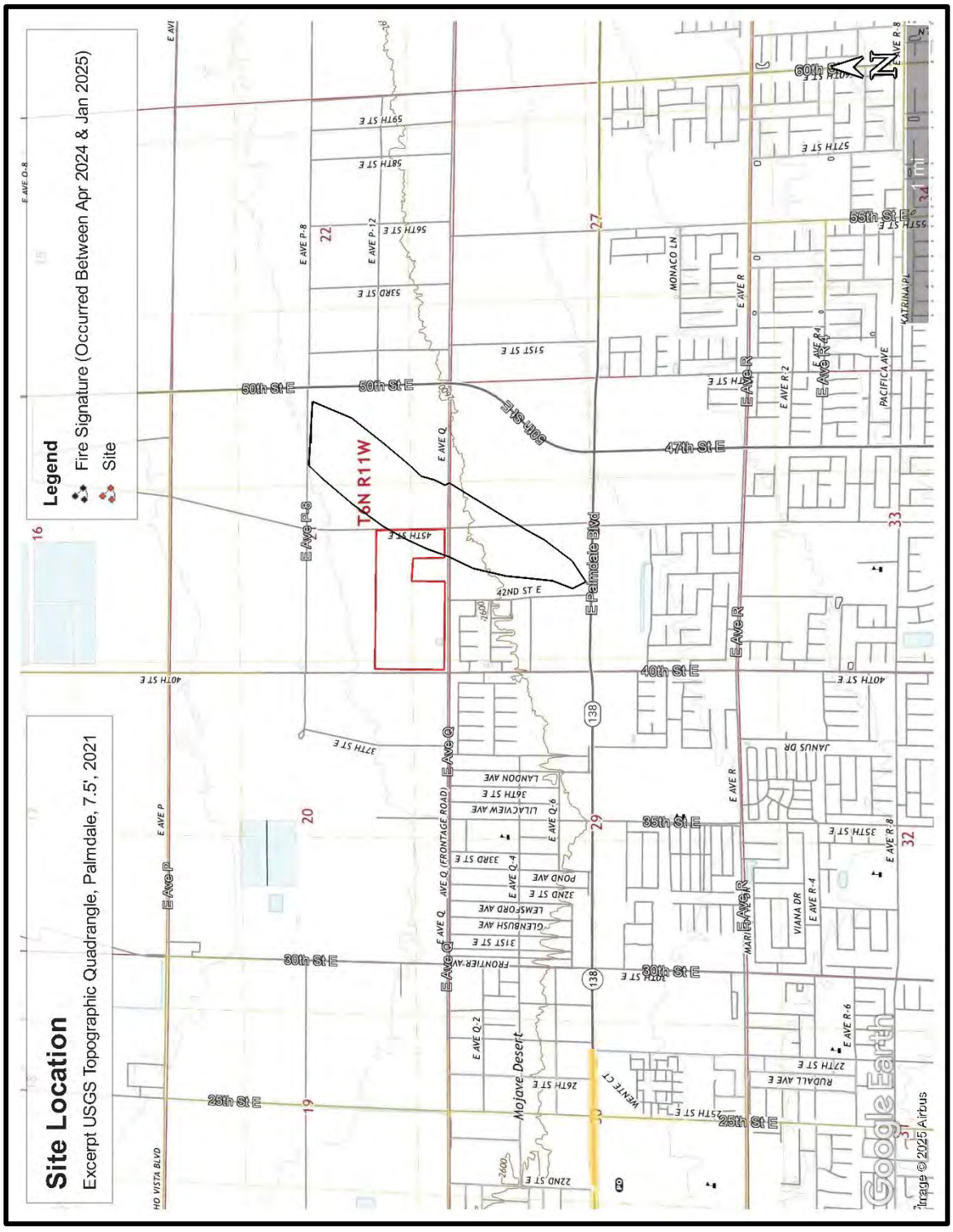


Figure 2. Approximate location of study area as depicted on excerpt from USGS Quadrangle, Palmdale, California, 7.5' 2021.

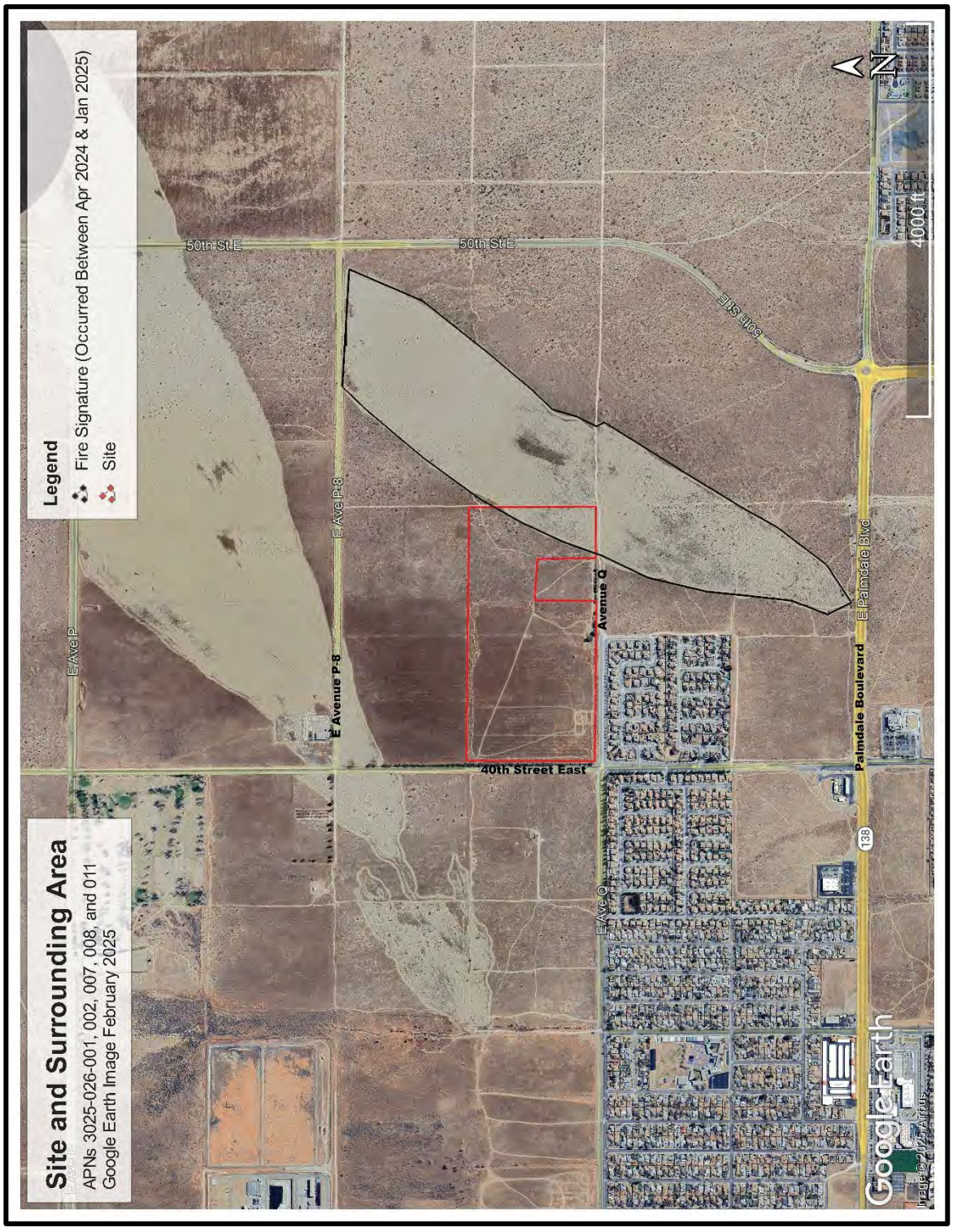


Figure 3. Approximate location of study area, Google Earth, February 2025, showing surrounding land use.

Methods

A line transect survey was conducted to inventory plant and wildlife species occurring within the proposed project area (Cooperrider et al. 1986, Davis 1990). The USFWS (2019) has provided recommendations for survey methodology to determine presence/absence and abundance/distribution of desert tortoises. Line transects in the western portion of the study area were walked in an east-west orientation. Line transects were approximately 1300 feet (396 m) long and were spaced about 100 feet (30 m) apart (U.S. Fish & Wildlife Service 2019). Line transects in the northeastern portion of the study area were walked in an east-west orientation. Line transects were approximately 1300 feet (396 m) long and were spaced about 50 feet (15 m) apart. Line transects in the western area of the southeastern portion of the study area were walked in a north-south orientation. Line transects were approximately 640 feet (195 m) long and were spaced about 35 feet (11 m) apart. Line transects in the eastern area of the southeastern portion of the study area were walked in a north-south orientation. Line transects were approximately 640 feet (195 m) long and were spaced about 100 feet (30 m) apart. The California Department of Fish and Game (2012) prepared recommendations for burrowing owl survey methodology. Consistent with the survey protocol the entire site was surveyed and adjacent areas were evaluated (CDFG 2012). A habitat assessment was conducted for Mohave ground squirrels (MGS) to determine whether suitable habitat was present for the species (CDFW 2019, Leitner and Leitner 2017, Leitner 2021).

All observations of plant and animal species were recorded in field notes. Field guides were used to aid in the identification of plant and animal species (Arnett and Jacques 1981, Blatt 2019, Borror and White 1970, Burt and Grossenheider 1976, Gould 1981, Jaeger 1969, Knobel 1980, Robbins et al. 1983, Stark 2000). Observations were aided with the use of 10x42 binoculars. Observations of animal tracks, scat, and burrows were also utilized to determine the presence of wildlife species inhabiting the study site (Cooperrider et al. 1986, Halfpenny 1986, Lowrey 2006, Murie 1974). Aerial photos, previous biological study (Hagan 2025), eBird (2025), California Natural Diversity Database (Palmdale 2025) and USGS topographic map were reviewed. Photos of the study site were taken (Figures 4 and 5).

Results

A total of 34 line transects were walked on 12, 15, and 16 December 2025. Weather conditions on 12 December 2025 consisted of mild temperatures (estimated 65 degrees F), 0% cloud cover, and light wind, estimated 4-6 mph (6-10 kph). Weather conditions on 15 December 2025 consisted of mild temperatures (estimated 65 degrees F), 0% cloud cover, and no wind to slight breeze. Weather conditions on 16 December 2025 consisted of mild temperatures (estimated 65 degrees F), 10% cloud cover, and no wind to slight breeze. Sandy clay loam surface soil texture was observed throughout the western portion of the study area. Sandy loam surface soil texture was observed throughout the eastern portion of the study area. Topography of the study site was approximately 2,600 feet (792 m) above sea level. No blue line streams were delineated on the U.S.G.S. topographic map within the study area. No wetlands, riparian vegetation or ephemeral drainage channels were observed within the study area.



Figure 4. Representative photographs of the study site. Top photo is view of western portion of study area looking north. Bottom photo is view of eastern portion of the study area looking south.



Figure 5. Representative photographs of the study site. Top photo is view of central portion of study area looking north. Bottom photo depicts homeless encampments adjacent to southern portion of the study area.

The western portion of the study site was characteristic of old agricultural fields. The eastern portion of the study area was characteristic of a highly disturbed Joshua tree (*Yucca brevifolia*) woodland and desert scrub understory. A total of 26 plant species were observed during the line transect survey (Table 1). The dominant perennial shrub species throughout the study area were rabbit brush (*Chrysothamnus nauseosis*) and four-wing saltbush (*Atriplex canescens*). Cheatgrass (*Bromus tectorum*) and red-stem filaree (*Erodium cicutarium*) were the dominant annual species within the study area. Western Joshua trees were present within the eastern portion of study area. No alkali mariposa lilies, Barstow woolly sunflowers, desert cymopterus, or suitable habitat were observed within the study area.

Twenty-six wildlife species or their sign were observed during the line transect survey (Table 2). No desert tortoises or their sign were observed during the field survey. No burrowing owls or their sign were observed within the study site during the field survey. California ground squirrel (*Citellus beecheyi*) burrows and scat were observed within the eastern portion of the study site. Seven inactive bird nests were observed in Joshua trees within the study area. No Swainson's hawk nests have been documented within 5 miles of the study site in the last 5 years (eBird 2025). No suitable nesting habitat for Swainson's hawk was present on the site. An old desert kit fox den and scat were observed within the study area. No bumble bees were observed during the field survey. No suitable Mohave ground squirrel habitat was present within the study area (CDFW 2019, Leitner and Leitner 2017, Leitner 2021).

Scattered litter and debris were observed throughout most of the study area; however, the heaviest concentrations of trash dumping were along Avenue Q and 40th Street East. Debris varied across the site but consisted mainly of scattered household garbage, tires, roofing debris, concrete debris and asphalt concrete debris. Multiple debris piles were observed located near the former retention pond and near the center of the site. Homeless encampments, adjacent to the southern boundary of the study area, inhabited by people and domestics dogs, were observed during the field surveys. The western part of the site was previously farmed and has soil berms along the eastern and northern margins of this area. Concrete irrigation piping was observed and a water well with concrete irrigation standpipe was observed in the southwestern and southcentral portion of the study area. Fire has occurred along the eastern boundary and impacted a portion of the study area.

Discussion

It is likely that some annual species were not visible during the time the field survey was performed. The study area was highly disturbed by human impacts. Although not observed, several common wildlife species would be expected to occur within the proposed project area (Table 3).

Human impacts within the study area are expected to continue. Burrowing animals within the study site are not expected to survive construction activities. More mobile species, such as birds, are expected to survive construction activities. Development of this site will result in a minimal loss of cover and foraging opportunities for the common wildlife species occurring within and adjacent to the study area. There is no designated critical habitat within the study area. There are no local or regional ordinances that pertain to the biological resources other than those addressed within this report. There were no indications of migratory wildlife corridors existing within the study area.

Table 1. List of plant species that were observed during the line transect survey of proposed school site, Palmdale, California.

Common Name	Scientific Name
Salt cedar	*Tamarix aphylla*
Pine tree	*Pinus* sp.
Western Joshua tree	*Yucca brevifolia*
Four-wing saltbush	*Atriplex canescens*
Peachthorn	*Lycium cooperi*
Anderson thorn	*Lycium andersonii*
Mormon tea	*Ephedra nevadensis*
Winter fat	*Eurotia lanata*
Cheesebush	*Hymenoclea salsola*
Rabbit brush	*Chrysothamnus nauseosis*
Turkey mullein	*Eremocarpus setigerus*
Dune primrose	*Oenothera deltoides*
Blue mantle	*Eriastrum diffusum*
Autumn vinegar-weed	*Lessingia germanorum*
Desert rhubarb	*Rumex hymenosepalus*
Buckwheat sp.	*Eriogonum* sp.
Desert croton	*Croton californicus*
Annual burweed	*Franseria acanthicarpa*
Sahara mustard	*Brassica tournefortii*
Tumble mustard	*Sisymbrium altisissiimum*
Fiddleneck	*Amsinckia tessellata*
Red-stem filaree	*Erodium cicutarium*
Russian thistle	*Salsola iberica*
Desert needlegrass	*Stipa comata*
Schismus	*Schismus* sp.
Cheatgrass	*Bromus tectorum*

Table 2. List of wildlife species, or their sign, that were observed during the line transect survey of proposed school site, Palmdale, California.

Common Name	Scientific Name
Rodents	Order: Rodentia
Kangaroo rat	*Dipodomys* sp.
Pocket gopher	*Thomomys bottae*
California ground squirrel	*Citellus beecheyi*
Desert cottontail	*Sylvilagus auduboni*
Black-tailed jackrabbit	*Lepus californicus*
Coyote	*Canis latrans*
Desert kit fox	*Vulpes macrotis*
Domestic dog	*Canis familiaris*
Hawk sp.	*Buteo* sp.
Mourning dove	*Zenaida macroura*
Rock dove	*Columba livia*
Common raven	*Corvus corax*
Owl	Order: Strigiformes
Northern mockingbird	*Mimus polyglottos*
Yellow-rumped warbler	*Dendroica coronata*
Western meadowlark	*Sturnella neglecta*
Mountain bluebird	*Sialia currucoides*
Horned lark	*Eremophila alpestris*
House sparrow	*Passer domesticus*
House finch	*Carpodacus mexicanus*
Chicken	*Gallus gallus*
Harvester ants	Order: Hymenoptera
Ants, small black	Order: Hymenoptera
Spider	Order: Araneida
Butterfly, yellowish	Order: Lepidoptera

Table 3. List of wildlife species that may occur within the proposed study area, proposed school site, Palmdale, California.

Common Name	Scientific Name
Deer mouse	*Peromyscus maniculatus*
Merriam kangaroo rat	*Dipodomys merriami*
Desert woodrat	*Neotoma lepida*
Domestic cat	*Felis* sp.
Black-chinned hummingbird	*Archilochus alexandri*
Great horned owl	*Bubo virginianus*
Say's phoebe	*Sayornis saya*
White crowned sparrow	*Zonotrichia leucophrys*
Side blotched lizard	*Uta stansburiana*
Western whiptail	*Cnemidophorus tigris*
Gopher snake	*Pituophis melanoleucus*
European honey bees	Order: Hymenoptera
Darkling beetle	*Coelocnemis californicus*
Cabbage white butterfly	*Pieris rapae*
Fly	Order: Diptera

The desert tortoise is a state endangered and federally listed threatened species. The study site was located within the geographic range of the desert tortoise. The study site was not located in critical habitat designated for the Mojave population of the desert tortoise. The surrounding development precludes the presence of desert tortoises in the adjacent areas. Desert tortoises are not present within the study area. No protection measures are recommended for desert tortoises.

The Mohave ground squirrel (MGS) is a state listed threatened species. The project area was located within the southern edge of the geographic range of MGS (Figure 6, CDFW 2019). However, the foremost expert, Dr. Philip Leitner, has concluded that MGS are essentially extirpated from this area of Los Angeles County. An updated status report (Leitner 2021) on MGS contained the following conclusion: "There is substantial evidence that Mohave ground squirrel populations are absent or critically diminished in several geographic areas within the historical range. In particular, the species appears to be extirpated from the southernmost portions of the range." He then states further in the document "These results are consistent with all survey efforts in recent years, strongly suggesting that the species is essentially extirpated in Los Angeles County" (Leitner 2021). Several MGS surveys have not discovered MGS in the southernmost portion of the range since 2008. The project site and surrounding habitat are outside the known MGS population areas (Figure 6, CDFW 2019).

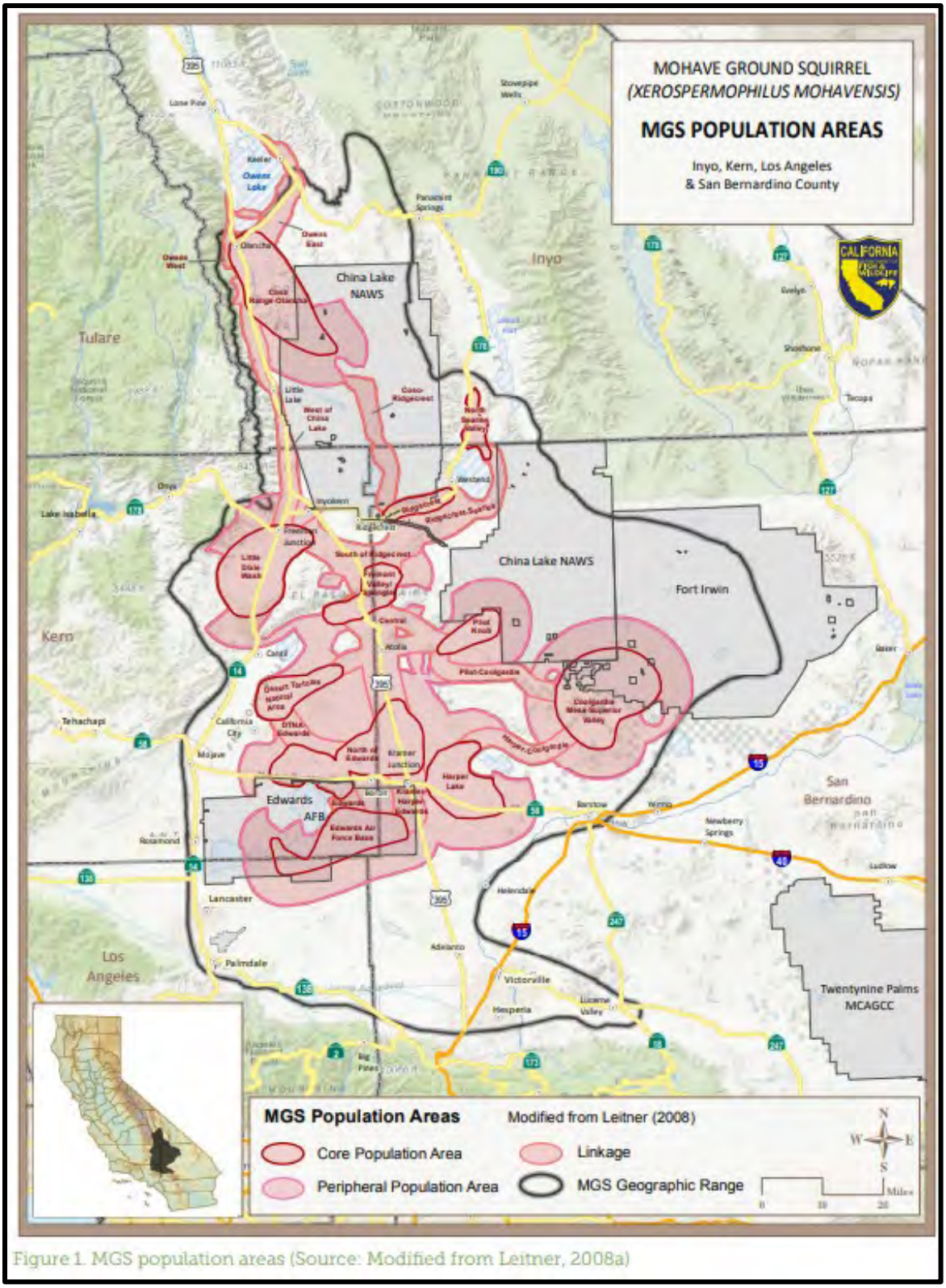


Figure 1. MGS population areas (Source: Modified from Leitner, 2008a)

Figure 6. Map depicting geographic range and population areas for Mohave ground squirrels.

Site occupancy by MGS has been positively related to the presence and quantity (represented by length) of ephemeral stream channels, suggesting that certain characteristics of these drainages enhance suitability of the habitat for the species (Logan 2016). As noted in the results of this assessment, there are no ephemeral stream channels within the study area. MGS habitat consists of a variety of desert scrub habitats, to include a specific assemblage of required shrub and annual species within those habitats, none of which occur within the project site. MGS foraging behavior changes depending on season and whether it has been a dry or wet season. Stems and leaves from shrubs are necessary to provide forage during times annuals are unavailable. The lack of preferred shrubs within and around the study site precludes MGS presence. A table listing MGS habitats and a discussion of required shrubs and annuals can be found in the 2019 CDFW publication titled "A Conservation Strategy for the Mohave Ground Squirrel." Based on review of the 2019 CDFW publication and Leitner's review of MGS data results from 2013 to 2020 no MGS are expected to be present within the study area (CDFW 2019, Leitner 2021). Given the lack of suitable habitat, presence of CGS, and historical data, no protection measures are recommended for MGS.

Desert kit foxes are a protected species. Desert kit fox dens and old scat were observed within the study site. The condition of the desert kit fox scat and the den site appeared to indicate no recent use or occupancy.

Burrowing owls are a candidate species for listing as threatened or endangered by the California Department of Fish and Wildlife (CDFW). No burrowing owls or their sign were observed within the study area. California ground squirrel burrows were present which can provide potential future cover sites for burrowing owls. No burrowing owls have been observed within 5 miles of the project site (eBird 2025) in the last 5 years.

Many species of birds and their active nests are protected under the Migratory Bird Treaty Act. Vegetation within the study site provides nesting habitat for migratory birds.

Swainson's hawk are state listed as threatened. No Swainson's hawks were observed during the field surveys. No Swainson's hawk nests have been documented within 5 miles of the project site in the last 5 years (eBird 2025). No suitable nesting habitat was present within the study site. Swainson's hawks nesting and foraging activities appear to be closely tied to areas with active agricultural fields and row trees based on a review of eBird observations and the California Natural Diversity Database within the Antelope Valley. Swainson's hawks are frequently observed in flight over the Antelope Valley with the highest frequency on the east side of Lancaster and Palmdale between 50th and 90th Street East. Given that no suitable nesting habitat is present on the site and this is not the type of area that has been historically used for nesting and foraging (eBird 2025), no mitigation measures specifically for Swainson's hawk are recommended.

Crotch's bumble bees are a candidate species for listing as state threatened or endangered. Crotch's bumble bee has a life cycle based on the survival of the queens produced each year. The colony completely dies out each year except for the new queens. The new queens hibernate and restart individual colonies in the spring. Having enough floristic resources during a colony's entire life span is imperative to ensuring the new queen's survival to mate, hibernate, and start a new colony. If flowers have died out and no perennials are blooming the colony is left with no

way to persist. Crotch's bumble bee observations (approximately 90%) from 2018 to 2025 (19 observations) have occurred mainly in areas of high floristic presence such as the Poppy Preserve or close to the foot hills. One observation was made in Palmdale in a backyard and one at Antelope Valley College (AVC). No bumble bees were observed during the field surveys. It is unlikely Crotch's bumble bee would use this site.

The Western Joshua Tree (WJT) is a candidate species under the California Endangered Species Act (CESA) and is also fully protected under the Western Joshua Tree Conservation Act (WJTCA). Coordination with the California Department of Fish and Wildlife (CDFW), a WJT census, and submission of an application for an Incidental Take Permit (ITP) is necessary for take of WJT. An ITP can be applied for either through the Section 2081 permit process and development of a CESA ITP or under the WJTCA ITP process. Compensation and mitigation for impacts to WJTs will be determined through one of these processes.

Other than WJT no suitable habitat for sensitive plant species was present within the study site. Based on the results of the field survey no other sensitive plant species are expected to occur within the study area and no protection measures are recommended. No other state or federal listed species are expected to occur within the proposed project area (California Natural Diversity Database 2025a, California Natural Diversity Database 2025b).

Landscape design should incorporate the use of native plants to the maximum extent feasible. Native plants that have food and cover value to wildlife should be used in landscape design (Adams and Dove 1989). Diversity of native plants should be maximized in landscape design (Adams and Dove 1989).

Recommended Protection Measures:

Coordination with the California Department of Fish and Wildlife (CDFW) and submission of WJT census and an application for an Incidental Take Permit (ITP) will be accomplished. Compensation and mitigation for impacts to WJTs will be determined either through the Section 2081 permit process and development of a California Endangered Species Act (CESA) ITP or under the Western Joshua Tree Conservation Act (WJTCA) ITP process.

If possible, removal of vegetation will occur outside the breeding season for migratory birds. Breeding generally lasts from February to July but may extend beyond this time frame. If vegetation removal will occur during or close to the nesting season, a qualified biologist will survey all potential nesting areas to be disturbed as close as possible but no more than one week prior to removal. If active bird nests are found, impacts to nests will be avoided by either delaying work or establishing initial buffer areas of a minimum of 50 feet around active migratory bird species nests. The project biologist will determine if the buffer areas should be increased or decreased based on the nesting bird response to disturbances.

A take avoidance (preconstruction) burrowing owl (*Athene cunicularia*) survey will be accomplished no more than 30 days prior to ground disturbance activities to ensure no owls have moved into the study site. If burrowing owls are found to have moved into the site, an Incidental Take Permit will be obtained prior to ground disturbing activities.

Desert kit fox is a protected species, and no permits for take are available. The "U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance, January 2011" will be used as guidelines for addressing desert kit fox issues if more recent sign is detected on the study site prior to or during construction (USFWS, 2011).

Preconstruction surveys to determine the presence of any bumble bee species will be conducted. If bumble bees are observed a more focused survey will be conducted to identify the species. If Crotch's bumble bee (*Bombus crotchii*) is found to occur, an Incidental Take Permit will be obtained prior to ground disturbing activities.

Significance: With implementation of protection measures and given the adjacent land uses, and highly impacted condition of the study area this project would not result in a significant impact to biological resources.

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Appendix F: Monitoring Mitigation Reporting Plan (To Be Added after Review)

Appendix G: Cultural Resource Study



RT FACTFINDERS
Cultural Resources

REPORT

PHASE I CULTURAL RESOURCE INVESTIGATION FOR THE EXPANDED LEARNING OPPORTUNITIES PROGRAM CENTER (ELOP) 67.4 ACRES NEAR THE INTERSECTION OF 40TH STREET EAST AND EAST AVENUE Q PALMDALE, LOS ANGELES COUNTY, CALIFORNIA

Prepared For:

Palmdale School District
39139 N 10th Street East
Palmdale, California 93550

Prepared By:

Richard H. Norwood, Melinda Walton, Jack Sprague
Archaeologists

RT Factfinders
4933 Cloudcroft Lane
Florence, Oregon 97439

Job No. 704

December 2025

Assessor's Parcel Numbers (APN) 3025-026-001, -002, -007, -008 and -011

Performed under: Private contract
USGS Quadrangle: Palmdale, Calif. 7.5'
Area covered: 67.4 acres
Location: Township 6 North, Range 11 West, Section 21
Keywords: Antelope Valley, Palmdale

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IV	Record, Map and Sacred Lands File Search Results	4
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Attachments

1. Record Search Results (SCCIC)
2 Native American Heritage Commission response (NAHC)
3. Photos

SUMMARY

In accordance with the California Environmental Quality Act (CEQA) of 1970, as amended, and the requirements of the City of Palmdale, a phase I cultural resource investigation was completed for a 67.4-acre property in Palmdale, California. The property is located on the northeast corner of the intersection of 40th Street East and East Avenue Q. The property is listed with the Los Angeles Tax Assessor as APN 3025-026-001, -002, -007, -008, -011. This property is encompassed within a portion of the south ½ of the southwest quarter of Section 21, Township 6 North, Range 11 West (SBBM). The property is currently undeveloped but after construction it will be known as the Expanded Learning Opportunities Program Center (ELOP) under the Palmdale School District.

The purpose of this study was to identify and record cultural resources within the subject property and recommend further measures as warranted. As a result of the investigation, no Native American sites or artifacts were identified on the property. Two historic period sites were found consisting of the remnants of farming activity (Site 704-1) and a refuse deposit (Site 704-2). The sites were determined to be not significant. Since there are no significant cultural resources on the property, no adverse impacts to cultural resources are anticipated as a result of future development. No further cultural resource work is recommended.

I. INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) of 1970, as amended, and the requirements of the City of Palmdale, a phase I cultural resource investigation was completed for a 67.4-acre property in Palmdale, California. The property is located on the northeast corner of the intersection of 40th Street East and East Avenue Q. The property is listed with the Los Angeles Tax Assessor as APN 3025-026-001, -002, -007, -008, -011 (Figures 1, 2, 3). This property is encompassed within a portion of the south ½ of the southwest quarter of Section 21, Township 6 North, Range 11 West (SBBM). The property is currently undeveloped but after construction it will be known as the Expanded Learning Opportunities Program Center (ELOP) under the Palmdale School District.

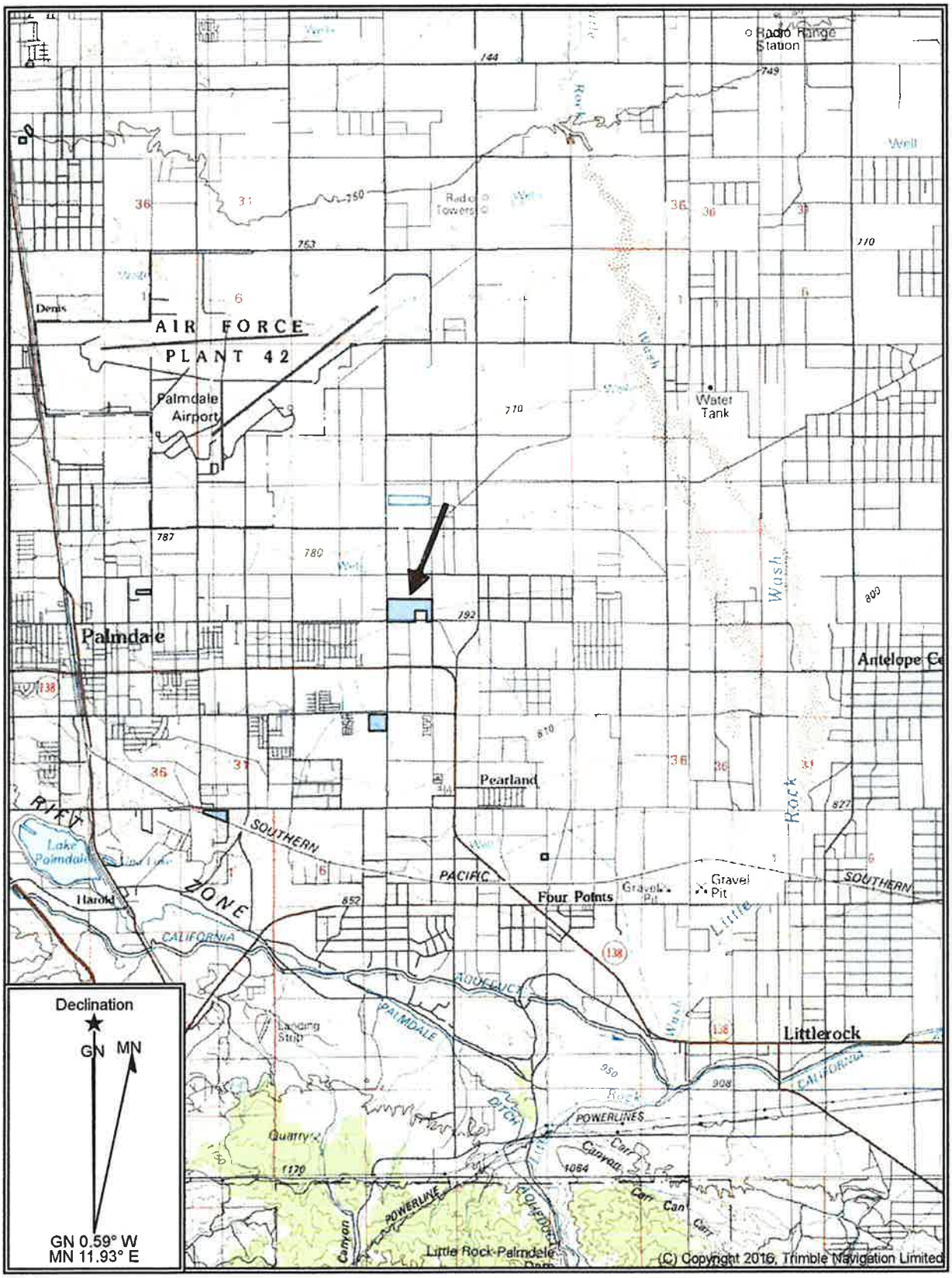
CEQA defines cultural resources as including archaeological sites, historic buildings, structures or objects, and properties of unique ethnic cultural value or religious/sacred uses. The City of Palmdale required this study because any future development would create a "substantial adverse change" to any significant cultural resources that might be present.

The purpose of the study was to identify and record cultural resources within the subject property and recommend further measures as warranted. The scope of the investigation included an on-foot inspection of the property, a record search at the South Central Coastal Information Center and review of literature and records, a search of the sacred lands file by the Native American Heritage Commission, preparation and filing of record forms as specified by the Office of Historic Preservation guidelines, and preparation of a phase I report.

II. ENVIRONMENTAL SETTING

The property is situated on the southern margin of the Antelope Valley on the east side of Palmdale. The Antelope Valley is a broad, flat V-shaped basin in the Western Mojave Desert. The Valley is bounded on the north by the Tehachapi Mountains and on the south by the San Gabriel Mountains and extends eastward to the Mojave River Valley. Low points in the Antelope Valley are Rogers and Rosamond Dry Lakes with elevations of approximately 2275' above mean sea level. The subject property lies south of Rosamond Dry Lake and its elevation is approximately 2580 feet above mean sea level.

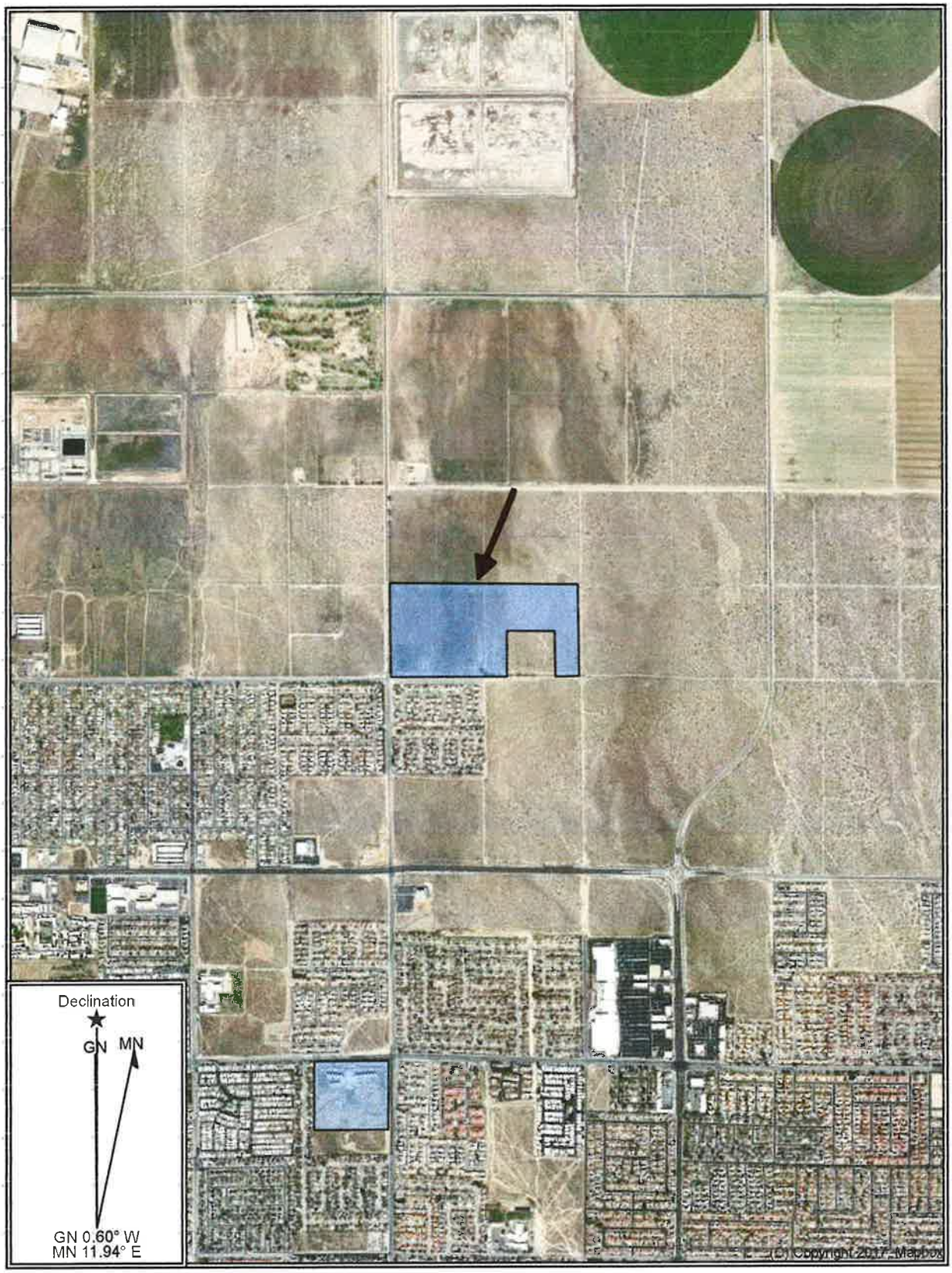
The western boundary of the property abuts 40th Street East. East Avenue Q lies to the south and 45th Street lies to the east. A development of single family homes lies to the southwest while undeveloped parcels lie to the immediate north and southeast. The property has been cleared of natural vegetation and farmed. All soil surfaces within the property have been previously affected by agricultural use and other human activity. Sparse vegetation is mostly invasive grasses and weeds. Soil on the property is predominantly fine grained compact silty sandy soil of quaternary age. Plow furrows trend in a north/south direction and are still prominent. There are no surface sources of water on, or immediately adjacent to, the property. Before removal of native vegetation, a Joshua tree woodland habitat may have been present.



SCALE 1:100000

0 10000 20000

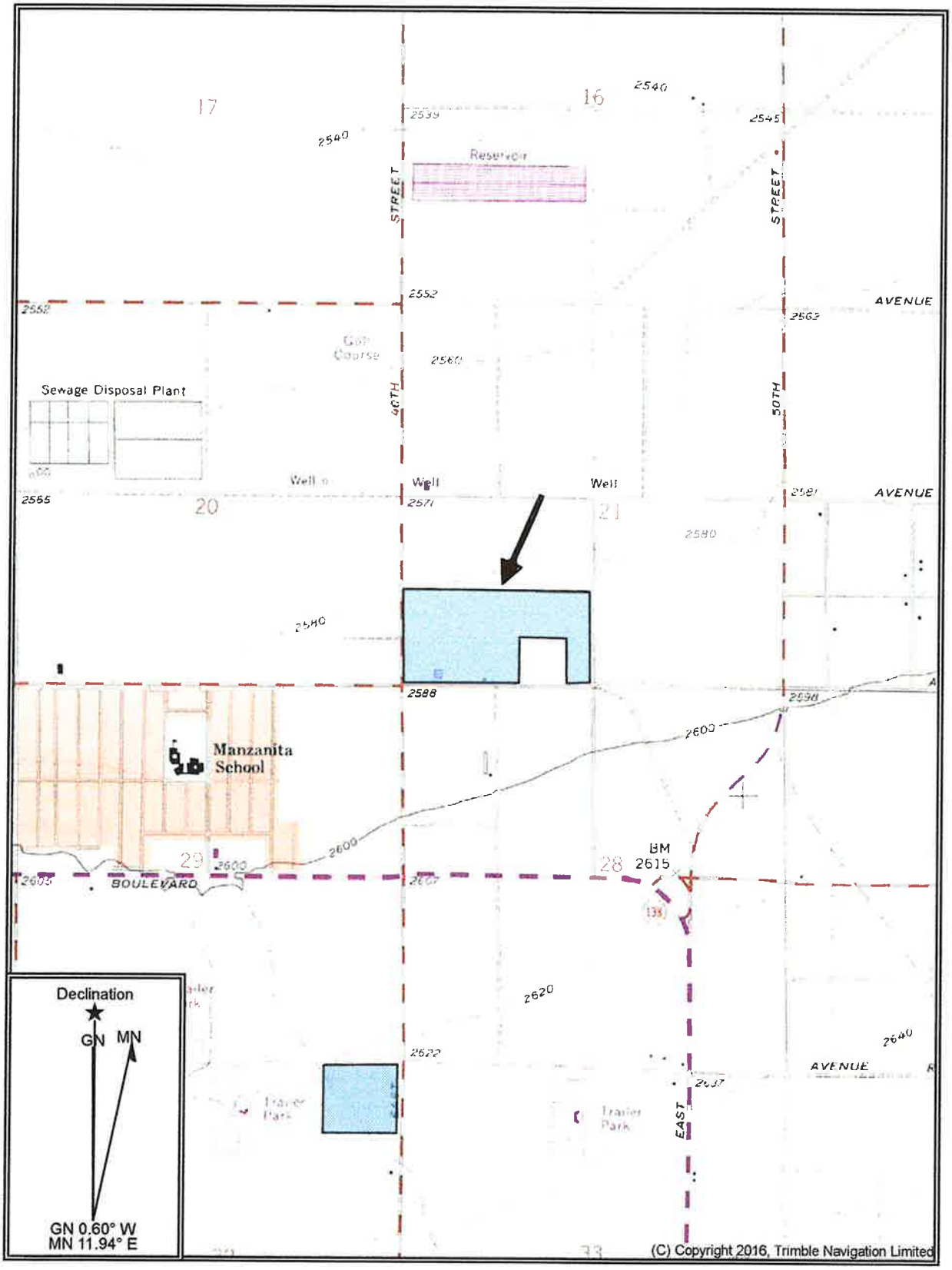
Feet



SCALE 1:24000

0 1000 2000 3000 4000 5000 6000

Feet



SCALE 1:24000

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Feet

Hundreds of dirt spoil piles surround parcels 3025-026-001 and -002 to the east, north and west. Some of the piles contain concrete chunks, bricks and other rubble. The piles may represent demolition of on site features and/or represent materials brought in from elsewhere. Other impacts include offroad vehicle trails.

III. CULTURAL SETTING

The Antelope Valley likely has a prehistoric cultural history extending back over 10,000 years assuming it is like other Mojave Desert basins. Most of the prehistoric periods are known only in general outline. As would be expected, the later periods are the best known. General temporal and cultural sequences have been developed by a number of researchers for other areas of the Mojave Desert including Wallace (1962), Bettinger and Taylor (1974), Stickle and Weinman-Roberts (1980), Warren and Crabtree (1986), and Earle, et. al. (1997).

Local prehistoric cultural history can be classified into four periods: Early, Middle, Late and Post-Contact (Norwood 1987). These periods were created to recognize changes in environmental variables, technological and stylistic change, and/or settlement pattern changes. The ethnography of the Antelope Valley floor is poorly known. Various Indian groups including the Kitanemuk, Kawaiisu and Serrano/Vanyume may have been present in the area. These people were hunters and gatherers with an intimate knowledge of local floral and faunal resources and were able to obtain and prepare them for food and other products. The ethnography of the Valley is discussed by Kroeber (1925), Bean and Smith (1978), Blackburn and Bean (1978), Sutton (1980), Zigmond (1986) and Earle (1996).

The historical context of the region is discussed in several publications including those by Starr (1988); Morris (1977); and Earle, et. al. (1998); and Earle (1998). Also, a series of publications by the Kern-Antelope Historical Society and the West Antelope Valley Historical Society contain historical essays and interviews that are valuable for understanding the development of local historical context.

Prior to the last part of the 19th century, the history of the Antelope Valley is characterized primarily by people's efforts to pass through it. Activity within the Valley was largely limited to cattle grazing, minor prospecting, and hunting expeditions. Historic development of the Valley really began after the 1876 establishment of the Southern Pacific Railroad linking Los Angeles with the San Joaquin Valley. The mid- 1880s brought the first actual land boom. This period saw establishment of a number of settlements in the Valley and many settlers began successful orchards and small farms. There was a great deal of speculation, and a variety of questionable schemes were used to entice people into the Valley.

By the late 1800s the fortunes of the Valley were greatly altered by natural causes. In 1894, a 10-year drought began that devastated many settlers who had little practical knowledge or appreciation of the desert environment. These people lost crop after crop and eventually their homes and land. At the turn of the century, much of the Valley was considered worthless and the ownership of many parcels reverted to the state. A reduced population of die-hards remained,

some of whom were blessed by high water tables and favorable and valuable agricultural soil. The history of the earlier periods of occupation are, as would be expected, less clear than later periods, because there was an exodus of people and records. There is still much to learn about the dynamics of local development prior to 1920-1925.

Worldwide during the same period many technological innovations were being introduced. In 1904, a gasoline engine was first used in the Valley to pump well water. By 1908-1914 there was an influx of people into the Valley due to the construction of the Los Angeles aqueduct. By 1904 improved conditions after the drought, improved irrigation techniques and increasing subsistence diversity enhanced the potential for economic success. The World War I period brought another influx of people as homesteading reached a peak of popularity and agricultural prices were relatively high.

In 1914, electricity was introduced to the Valley; and by 1917 the introduction of electric water pumps and improved dry farming techniques resulted in the substantial growth and success of agriculture. Increased prices for agricultural produce during World War I stimulated additional growth and agricultural expansion. Other economic endeavors, such as poultry ranching and, after 1919, moonshining, became important economic boosters. By the mid-1920s Palmdale and Lancaster had achieved the basic elements and social institutions and structure of a small American rural town. World War II brought growth and radical change to the Antelope Valley with the establishment of Edwards Air Force Base, Plant 42 and the aerospace industry.

IV. RECORD, MAP AND SACRED LANDS FILE SEARCH RESULTS

Record Search: A record search was requested from the South Central Coastal Information Center, CSUF (Attachment 1). Their search included everything within a half mile of the project boundaries. The record search shows that there are no previously recorded resources on the subject property. There are 7 reports on file that included all or part of the subject property but failed to record anything on the property. There are 4 previously recorded resources within the half mile radius record search area. None are immediately near the subject property. There are 13 reports recorded that address areas within the record search area.

Map Search: Historic period maps were reviewed to identify any potential historic sites or features on the property. Findings are discussed below:

The Bureau of Land Management General Land Office Records (GLO) were reviewed for the southwest ¼ of Section 21 which encompasses the property. The section was granted to the Southern Pacific Railroad on 8/4/1914. The Railroad later sold off parcels to private parties.

1915/17: The 1915/17 Lake Elizabeth 15' USGS quad map shows no buildings and one north/south trending dirt road crossing the property.

1930/1934: These Pearland USGS maps show two structures on the southern portion of property. No pond structures are depicted.

1958: This Palmdale USGS map shows that there had been considerable growth in Palmdale. This edition shows 5 structures along East Avenue Q. One is shown on the subject property. Four of the structures lie just outside the property boundary. No pond features are depicted.

1966: The Lancaster 1:62,500 USGS maps show 4 structures along East Avenue Q, three of which lie outside the property boundary. One is shown on the subject property. No pond feature is depicted.

1974: This edition of the Palmdale 7.5' USGS map shows one building on the subject property. The pond feature is shown for the first time.

Sacred Lands Search: A record search of the Native American Sacred Land file was requested from the Native American Heritage Commission (NAHC). No Native American sacred sites were identified on the property (Attachment 2). A letter indicating search results and a list of contacts who may provide additional information is included.

V. SURVEY METHODS AND CONDITIONS

Field survey of the property was completed on October 4 and 5, 2025 by Melinda Walton and Jack Sprague representing RTFactfinders. Fieldwork required 36 person hours. The property was examined by walking a series of transects across the property at 5-7 meter intervals. The property has very little vegetation coverage allowing for approximately 99% surface visibility. Vegetation included a sparse scattering of introduced grasses and weeds. Photos were taken to document property conditions and any notable finds made (Attachment 3).

Conditions for the survey were excellent, with clear skies, bright sunlight and a light breeze. In accordance with State Historic Preservation Office guidelines, any sites or artifacts greater than 50 years of age were to be noted and considered as potential cultural resources. No conditions inhibited the opportunity to find and identify significant cultural resources.

VI. SURVEY FINDINGS

As a result of the survey, no prehistoric Native American period sites or artifacts were identified on the property. Two historic period sites were identified and designated temporary numbers 704-1 and 704-2. The sites are described below:

Site 704-1: The site consists of an assortment of farm-related features. It also encompasses a location where a building once stood but is now demolished. There is no refuse deposit associated with any of the features. The features of the site are described below:

Feature A Stand Pipe: This feature is a concrete standpipe about 3 feet in diameter and about 10 feet tall. Standpipes are commonly associated with irrigation systems.

Feature B Well Head: The irrigation system was fed by a well. The 4-inch diameter well head is

set into a 5 foot square concrete pad. It has newer PVC pipe in association.

Feature C. Utility Pole: This feature is a wooden utility pole with a plywood backboard for mounting electrical boxes. Electrical boxes are no longer present.

Feature D Well Casing: A segment of an older well casing was noted beneath a tangle of fencing wire. It is not in-situ.

Feature E Pump Mount: There is a pump motor mount south of the well head. There is no longer a pump mounted on this feature. It has a concrete base and is topped by heavy-duty, but deteriorated, wooden planks with mounting bolts.

Feature F Gate Valve Mount: This is a rectangular concrete box that probably once held a steel gate valve. It is associated with what was once an irrigated farm field. It is north of the other features.

Feature G Utility Pole. This feature is a standing wooden utility pole. It is set apart from other features. Nothing but a dead tree is immediately nearby.

Feature H Holding Pond with Gate Valve: The most prominent feature at this site is a water holding pond which measures 200 feet north/south and 100 feet east/west with walls 2-3 feet tall. The walls are damaged by motorcycle tracks. There is a steel gate valve inside the southern end of the feature which would have controlled the flow of water into the irrigation system.

Feature I Building Location: The building location, as depicted on the 1974 Palmdale 7.5' USGS map, was carefully examined. There is no remaining evidence of a foundation or other features. There are no pipes protruding from the ground as evidence of a plumbing system. There is no evidence of a refuse deposit associated with the building location. There is no current evidence that a building was located here.

Feature J Tamarisk Treeline and Barbed Wire Fence: There are remnants of a line of Tamarisk trees along the southern property boundary and East Avenue Q. The barbed wire fence is mounted on T-bars.

There is no refuse deposit with datable artifacts associated with these features. Based on the 1930 Pearland USGS map we see two structures located in the vicinity of these features so some may date to that time. The holding pond feature does not appear on a historic period map until 1974, thus it may have been built sometime after 1966 and before 1974 so perhaps constitutes a later addition to the site.

Site 704-2: The site consists of a small 1950s era refuse deposit of household items including cans, glass, ceramics and 1 auto tire. The site may, or may not, be associated with site 704-1. The core of the site measures 20 feet north/south 15 feet east/west. A few cans have blown out to the northeast beyond the core area. Approximately 50 sanitary type cans are present. These include

18 church key opened beverage cans, 2 solder-dot milk cans, 7 small sauce cans, 15 fruit or vegetable cans and 1 auto oil can.

Approximately 60 fragments of green, brown, colorless and milk.glass are present. Retail glass finishes represent Purex bleach, cosmetics, beverages and condiments. Two bottle bases were found with maker's marks. One green bottle base has the O-over-diamond Owen-Illinois Glass Company mark that dates from 1929-1954 (Toulouse 1972: 403). A brown bleach bottle base has the MG mark of Maywood Glass Company dating from 1930-1961 (Toulouse 1972: 357). Other glassware includes a colorless pressed patterned goblet fragment, and a fragment of Pyrex type bakeware with an enameled green ivy leaf pattern.

Several fragments of earthenware were noted. These represent a cup, plates and a wide-rimmed bowl. The tan-glazed cup has a marker's mark "TEPCO/USA/CHINA for the American Terra Cotta and Ceramic Company dating between 1904-1923 (Lehner 1988: 23, 469). There are two plate fragments including one with green glaze and one with white. There is one wide-rimmed bowl fragment with a green plaid transfer pattern.

VII. MANAGEMENT CONCERNS

The California Environmental Quality Act (CEQA) has provisions to ensure that any cultural resources identified during the environmental review process need to be evaluated for significance, because unique or important resources require mitigation. To determine if mitigation is required, evaluation is required to assess a resource's significance in terms of National Register of Historic Places (NRHP) criteria. Eligible sites are those.

A. That are associated with events that have made a significant contribution to the broad patterns of our history.

B. That are associated with the lives of significant persons in our past.

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

D. That have yielded or may be likely to yield, information important in history or prehistory.

Sites 704-1, 704-2: These sites represent one example of many such sites in the Antelope Valley. In that sense, it is only weakly associated with broad patterns of our history. The features are not associated with significant persons in our past. The sites are not distinctive in any manner as there are many examples in the Antelope Valley. Further study is unlikely to yield information important in our history. Further, the sites are in poor condition and lack integrity. The sites are considered not eligible to the National Register so for the purposes of CEQA, they are considered not significant.

Since no prehistoric or significant historic period cultural resources were identified on the subject property, no impacts to significant cultural resources are anticipated when development occurs. No further cultural resource measures are recommended.

While unlikely, potentially significant buried deposits could exist buried beneath the property. Such sites cannot be detected during a phase I surface survey. Under CEQA "inadvertent finds" (unexpected buried sites found after completion of a phase I or II study as a result of construction exposure) are subject to evaluation and, if found significant, appropriate impact mitigation is required. In the event unanticipated cultural materials (arrowheads, grinding stones, etc.) or features (old foundations, cellars, privy pits, etc.) are encountered, even where potential occurrence has not previously been recognized, work must stop at the discovery site. A professional cultural resource consultant will need to evaluate the new find and present recommendations and options for further treatment. If the find is of prehistoric Native American origin consultation with Native American contacts will be required.

The inadvertent discovery of human remains is always a possibility during ground disturbance. This circumstance is addressed under the California Health and Safety Code, Section 7050.5. This code states that in the event possible human remains are discovered, no further disturbance shall occur until the County Coroner has made a determination regarding the origin and disposition of the remains pursuant to PRC Section 5097.98. The coroner must be notified immediately following such a find along with the City and property owner. If Native American remains are present tribal coordination will be necessary. Once an inadvertent find is made no further construction may occur until the stakeholders consult and devise a treatment plan for lead agency approval and implementation.

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ATTACHMENTS

ATTACHMENT 1

South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395 / FAX 657.278.5542
sccic@fullerton.edu
California Historical Resources Information System
Orange, Los Angeles, and Ventura Counties

12/4/2025 Records Search File No.: 27531.13620

Richard Norwood
RTFactfinders
4933 Cloudcroft Lane
Florence, OR 97439

Re: Record Search Results for the #704 Palmdale School District

The South Central Coastal Information Center received your records search request for the project area(s) referenced above, located on the Palmdale, CA USGS 7.5' quadrangle(s). The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ shape files ☐ hand-drawn maps

Resources within project area: 0	None
Resources within ½-mile radius: 4	SEE ATTACHED MAP or LIST
Reports within project area: 7	LA-00703, LA-06706, LA-12871, LA-12873, LA-12875, LA-12876, LA-12877
Reports within ½-mile radius: 13	SEE ATTACHED MAP or LIST

Resource Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Digital Database (spreadsheet): ☐ enclosed ☒ not requested ☐ nothing listed
Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed
Report Digital Database (spreadsheet): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Record Copies: ☐ enclosed ☒ not requested ☐ nothing listed
Report Copies: ☒ enclosed ☐ not requested ☐ nothing listed
OHP Built Environment Resources Directory (BERD) 2022: ☒ available online; please go to https://ohp.parks.ca.gov/?page_id=30338
Archaeo Determinations of Eligibility 2022: ☐ enclosed ☒ not requested ☐ nothing listed
Los Angeles Historic-Cultural Monuments ☐ enclosed ☒ not requested ☐ nothing listed
Historical Maps: ☐ enclosed ☒ not requested ☐ nothing listed
San Bernardino Historical Maps: ☒ not available at SCCIC; please go to https://ngmdb.usgs.gov/topoview/viewer/#4/39.98/-100.02
Ethnographic Information: ☒ not available at SCCIC

Historical Literature: ☒ not available at SCCIC
GLO and/or Rancho Plat Maps: ☒ not available at SCCIC
Caltrans Bridge Survey: ☒ not available at SCCIC; please go to http://www.dot.ca.gov/hq/structur/strmaint/historic.htm
Shipwreck Inventory: ☒ not available at SCCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
Soil Survey Maps: (see below) ☒ not available at SCCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Isabela Kott

Digitally signed by Isabela Kott
Date: 2025.12.04 17:22:49 -08'00'

Isabela Kott
Assistant Coordinator, GIS Program Specialist

Enclosures:

(X) Custom Maps – 3 pages
(X) Resource Database Printout (list) – 1 page
(X) Resource Database Printout (details) – 4 pages
(X) Report Database Printout (list) – 3 pages
(X) Report Database Printout (details) – 25 pages
(X) Report Digital Database (spreadsheet) – 20 lines
(X) Report Copies – (project area only) 679 pages

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-00703		1980	Dosh, Steven G. and Donald E. Weaver Jr.	Archaeological Survey of the Proposed Palmdale International Airport, Los Angeles County, California	Museum of Northern Arizona	19-001062, 19-100298, 19-100299, 19-100300, 19-100302, 19-100303, 19-100304, 19-100305, 19-100306, 19-100307, 19-100308, 19-120055
LA-02108		1990	Tartaglia, Louis J.	Cultural Resources Archaeological Survey Tentative Tract No. 48560 Palmdale, California	Tartaglia Archaeological Consulting	
LA-02425		1990	White, Robert S.	An Archaeological Assessment of the 258-acre Specific Plan Los Angeles County, California	Archaeological Associates, Ltd.	
LA-04141		1997	Love, Bruce	Cultural Resources Report Bakersfield-Rialto Fiberoptic Line Project Kern, Los Angeles, and San Bernardino Counties, California	CRM Tech	
LA-05653		2001	Sylvia, Barbara	Negative Archaeological Survey Report	Caltrans 7	19-001553
LA-05654	Caltrans -	2001	Sylvia, Barbara	Negative Archaeological Survey Report	Caltrans 7	19-001553
LA-06706		1980	Weaver, Donald E., Jr.	Archaeological Investigations Archaeological Survey of the Proposed Palmdale International Airport Los Angeles County, California	Museum of Northern AZ Dept.of Archaeology/Arthur D. Little, Inc.	19-001062
LA-08055		2006	Hudlow, Scott M.	An Archaeological Walk Through for Stats Group's Property at 50th Street East and Palmdale Boulevard, City of Palmdale, California	Hudlow Cultural Resource Associates	
LA-09012		2005	McKenna, Jeanette A.	A Phasei Cutlural Resources Survey of Assessor Parcels 3023-003-006, -025,-027, and -028, Approximately 15 Acres in the City of Palmdale in Los Angeles Co., Ca.	McKenna et al.	
LA-09014		2005	McKenna, Jeanette A.	A Phase I Cutural Resources Survey of Assessor Parcels 3023-003-006, -025, and -028, Approximately 15 Acres in the City of Palmdale, Los Angeles Co., California	McKenna et al.	
LA-09679	Paleo -	2008	Loftus, Shannon L. and Robin D. Turner	Cultural Resource And Paleontological Assessment, North Los Angeles / Kern County, Regional Recycled Water Master Plan, Los Angeles / East Kern Counties, California.	ArchaeoPaleo Resource Management, Inc.	19-003860, 19-003861, 19-100646, 19-100647, 19-100648, 19-100649, 19-100650, 19-100651, 19-100652
LA-09773		2009	Hatoff, Brian and Dean Martorana	Archaeological Survey Report, Verizon Cellular Communications Tower Location - Monaco, 40th At Avenue Q, Palmdale, Los Angeles County, CA 93550	URS	19-003941

Report List

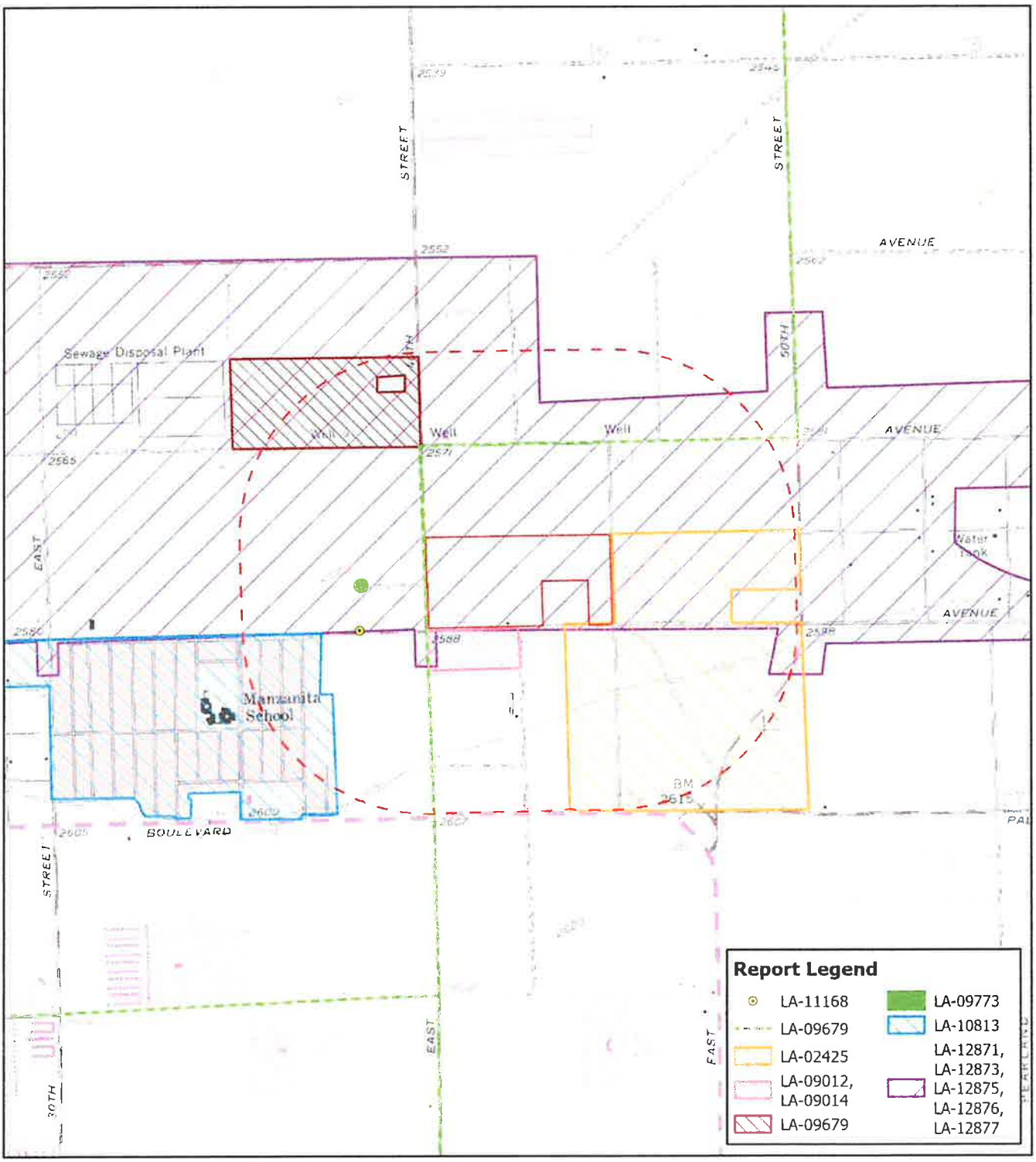
Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-10813		2011	Lajoie, Glenn and Starla Barker	Expansion Area Amendment to the Redevelopment Plans for the Merged Project Area	RBF Consulting	
LA-11168		2011	Parr, Robert E.	Cultural Resource Assessment for the Replacement of Twenty Southern California Edison Company Deteriorated Power Poles in Los Angeles and Kern Counties, California	Cal Heritage	
LA-12871	Caltrans - ; Paleo -	2014	Gust, Sherri M., Kim Scott, and Courtney Richards	COMBINED PALEONTOLOGICAL IDENTIFICATION AND EVALUATION REPORT WITHOUT SURVEY FOR THE HIGH DESERT CORRIDOR FREEWAY, LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA	Cogstone Resource Management Inc.	
LA-12872	Caltrans -	2014	Sikes, Nancy, Dustin Keeler, Molly Valasik, and Sherri M Gust	EXTENDED PHASE I TESTING REPORT, P-19-004366, P-36-000066 (CA-SBR-66), P-36-000182 (CA-SBR-182), AND P-36-012609 (CA-SBR-12336) HIGH DESERT CORRIDOR PROJECT FROM SR 14 TO SR 18 LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA, 07-LA/ 08-SBR EA No. 116720	Cogstone Resource Management Inc.	19-004366
LA-12872A		2014	Sikes, Nancy and Sherri M Gust	Extended Phase I Testing Proposal, P-19-004366, P-36-000066 (CA-SBR-66), P-36-000182 (CA-SBR-182) and P-36-012609 (CA-SBR-12336), High Desert Corridor/ SR 138 Widening Project From SR 14 to SR 18, Los Angeles and San Benrardino Counties, California, 07-LA/PM 48.0 to SR 138 EA No. 116720	Cogstone Resource Management Inc.	
LA-12873	Caltrans -	2014	Gust, Sherri, Victoria Harvey, Kim Scott, Dustin Keeler, Tadhg Kirwan, Nancy Sikes, David Earle, Karolina Chmiel, Mark C. Robinson, and Catharine M. Wood	ARCHAEOLOGICAL SURVEY REPORT FOR THE HIGH DESERT CORRIDOR, LOS ANGELES & SAN BERNARDINO COUNTIES, CALIFORNIA, 07-LA/ 08-SBD, SR-14 TO SR-18, EA 116720	Cogstone Resource Management / ICF International	19-004359, 19-004366
LA-12873A		2014	Earle, David D.	Historic Context and Potential National Register Eligibility of Archaeological Sites at Turner Springs, San Bernardino County.	Earle and Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-12875	Caltrans -	2015	Gust, Sherri M., Caprice "Kip" Harper, Lynn Furnis, Justin Lev Tov, Ian Sehardtta, and Desiree Martinez	PRELIMINARY HISTORIC PROPERTY TREATMENT PLAN FOR THE HIGH DESERT CORRIDOR PROJECT SR-14 TO SR-18 LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA, 07-LA/ 08-SBD EA 116720, EFIS 07-1200-0035	Cogstone Resource Management Inc.	19-004189, 19-004361, 19-004362, 19-004364, 19-004365
LA-12875A		2015		HDC Shell Bead Analysis	Cogstone Resource Management Inc.	
LA-12875B		2015	Martinez, Desiree	Lithic Analysis by Desiree Martinez	Cogstone Resource Management Inc.	
LA-12875C		2015		REFLECTANCE TRANSFORMATION IMAGERY (RTI) ANALYSIS	Cogstone Resource Management Inc.	
LA-12875D		2015		VARIABLE PRESSURE SCANNING ELECTRON MICROSCOPY	Cogstone Resource Management Inc.	
LA-12875E		2015	Riches, Mark	Geophysical Investigation for the High Desert Corridor SR-138 Widening Project in Victorville, California	GeoVision	
LA-12876	Caltrans -	2014	Sikes, Nancy	HISTORIC PROPERTY SURVEY REPORT FOR THE HIGH DESERT CORRIDOR, LOS ANGELES & SAN BERNARDINO COUNTIES, CALIFORNIA 07-LA/ 08-SBD, SR-14 TO SR-18, EA 116720 EFIS 07-1200-0035	Cogstone Resource Management	19-004189, 19-004359, 19-004361, 19-004362, 19-004364, 19-004365, 19-004366, 19-004367, 19-180638, 19-186613, 19-186614, 19-187071, 19-190800, 19-190802, 19-190803, 19-190804, 19-190805, 19-190806, 19-190807, 19-190808, 19-190809, 19-190811, 19-190812, 19-190813, 19-190814, 19-190815, 19-190816, 19-190817, 19-190818, 19-190819
LA-12877	Caltrans -	2014	Furnis, C. Lynn, Victoria Harvey, Tadhg Kirwan, Christina Peterson, Sherri Gust, Andrea Galvin, Jenna Kachour, and Amanda Yoder	Historical Resources Evaluation Report for the High Desert Corridor, Los Angeles & San Bernardino Counties, California	Cogstone Resource Management / GPA Consulting	19-004187, 19-004189, 19-004361, 19-004362, 19-004364, 19-004365, 19-004366, 19-004367, 19-186613, 19-186614, 19-187071, 19-190800, 19-190802, 19-190803, 19-190804, 19-190805, 19-190806, 19-190807, 19-190808, 19-190809, 19-190810, 19-190811, 19-190812, 19-190813, 19-190814, 19-190815, 19-190816, 19-190817, 19-190818, 19-190819

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-19-003661	CA-LAN-003661H	Resource Name - F-3	Site	Historic	AH04		
P-19-003662	CA-LAN-003662H	Resource Name - F-1	Site	Historic	AH04		
P-19-003663	CA-LAN-003663H	Resource Name - F-2	Site	Historic	AH04		
P-19-003941		Resource Name - Monaco Trash Scatter	Site	Historic	AH02; AH04		LA-09773



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0 0.25 0.5 Miles

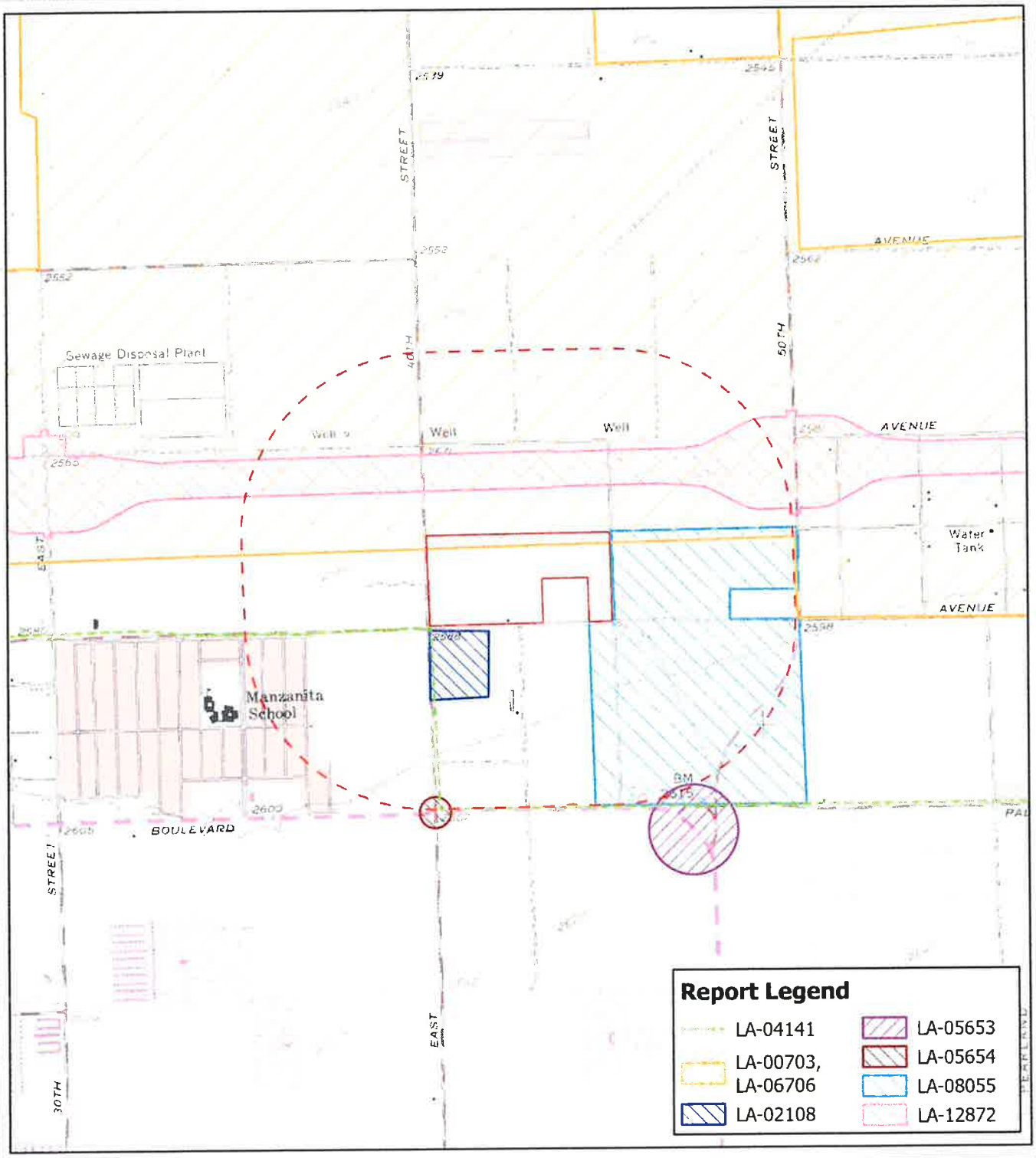
Reports within the project area: LA-12871, LA-12873, LA-12875, LA-12876, LA-12877
7 additional reports within a 1/2-mile radius

Palmdale, CA
PR: 1974 USGS 7.5'
1:24,000
SCCIC #27531
Dec 2025

Map 2 of 3 - See other maps for additional results.

South Central Coastal Information Center

May depict confidential cultural resource locations. Do not distribute.



N
W E
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0 0.25 0.5 Miles

Reports within the project area: LA-00703, LA-06706
6 additional reports within a 1/2-mile radius

Palmdale, CA
PR: 1974 USGS 7.5'
1:24,000
SCCIC #27531
Dec 2025

Map 3 of 3 - See other maps for additional results.

South Central Coastal Information Center

May depict confidential cultural resource locations. Do not distribute.

ATTACHMENT 2

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Isaac Bojorquez
Ohlone-Costanoan

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Sara Dutschke
Miwok

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

COMMISSIONER
Vacant

COMMISSIONER
Vacant

ACTING EXECUTIVE SECRETARY
Michelle Carr

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

September 30, 2025

Richard Norwood
RTFactfinders

Via Email to: artefct@gmail.com

Re: #704 Palmdale School District Project, Los Angeles County

To Whom It May Concern:

As requested, a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were negative. Be aware that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, an SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes that are traditionally and culturally affiliated with the project's geographic area. Please contact all of the listed tribes as they may have information about sacred sites within the project area that is not listed with the NAHC.

If within two weeks of notification, a response has not been received, the Commission requests that you follow up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please inform the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) information center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
9/30/2025

Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Fernandeno Tataviam Band of Mission Indians	N	Sarah Brunzell, CRM Manager	1019 Second Street San Fernando, CA, 91340	(818) 837-0794		CRM@tataviam-nsn us	Tataviam	Kern,Los Angeles,Ventura	5/25/2023
Morongo Band of Mission Indians	F	Charles Martin, MBMI Chairman	12700 Pumarra Road Banning, CA, 92220	(951) 755-5110		chairman@morongo-nsn gov	Cahuilla Serrano	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	8/25/2025
Morongo Band of Mission Indians	F	Bernadette Ann Brierty, Tribal Historic Preservation Officer	12700 Pumarra Road Banning, CA, 92220	(951) 663-2842		abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	8/25/2025
Morongo Band of Mission Indians	F	Lena Broderick, Executive Assistant to Tribal Chairman	12700 Pumarra Road Banning, CA, 92220	(951) 755-5110		lbroderick@morongo-nsn gov	Cahuilla Serrano	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	8/25/2025
Quechan Indian Tribe of the Fort Yuma Reservation	F	Jill McCormick, Historic Preservation Officer	P O Box 1899 Yuma, AZ, 85366-1899	(928) 261-0254		historicpreservation@quechantribe com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	1/31/2025
Quechan Indian Tribe of the Fort Yuma Reservation	F	Jonathan Koteen, President, Quechan Tribal Council	P O Box 1899 Yuma, AZ, 85366-1899	(760) 919-3600		executivesecretary@quechantribe com	Quechan	Imperial,Kern,Los Angeles,Riverside,San Bernardino,San Diego	6/4/2025
San Fernando Band of Mission Indians	N	Donna Yocum, Chairperson	P O Box 221838 Newhall, CA, 91322	(503) 539-0933	(503) 574-3308	dyocum@sfbmi org	Kitanemuk Venyume Tataviam	Kern,Los Angeles,San Bernardino,Ventura	5/8/2023
Serrano Nation of Mission Indians	N	Wayne Walker, Co-Chairperson	P. O Box 343 Patton, CA, 92369	(253) 370-0167		serranonation1@gmail com	Serrano	Kern,Los Angeles,Riverside,San Bernardino	10/10/2023
Serrano Nation of Mission Indians	N	Mark Cochrane, Co-Chairperson	P O Box 343 Patton, CA, 92369	(909) 578-2598		serranonation1@gmail com	Serrano	Kern,Los Angeles,Riverside,San Bernardino	10/10/2023
Yuhaaviatam of San Manuel Nation	F	Alexandra McCleary, Director of Cultural Resources	26569 Community Center Drive Highland, CA, 92346	(909) 633-0054		alexandra.mccleary@sanmanuel-nsn.gov	Serrano	Kern,Los Angeles,Riverside,San Bernardino	7/22/2025

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050 5 of the Health and Safety Code, Section 5097 94 of the Public Resources Code and Section 5097 98 of the Public Resources Code

Record: PROJ-2025-005460
Report Type: List of Tribes
Counties: Los Angeles
NAHC Group: All

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed #704 Palmdale School District Project, Los Angeles County

ATTACHMENT 3



PHOTO 1: View northeast from the southwest property corner.



PHOTO 2: Site 704-1, Feature H, holding pond walls, view north.



PHOTO 3: Site 704-1, Feature H, gate valve.



PHOTO 4: Site 704-1, Feature A, stand pipe.



PHOTO 5: Site 704-1, Feature B, well head.



PHOTO 6: Site 704-1, Feature E, pump mount.



PHOTO 7: Site 704-1, Feature F, valve gate box.



PHOTO 8: Site 704-2, 1950's refuse deposit, view northwest.

Appendix H: Geotechnical Engineering Report

Palmdale School District
39139 10th Street East
Palmdale, California 93550

Geotechnical Engineering and Geohazards Report, with Preliminary Percolation Testing
Proposed ELOP Center Project, Phase 1A
NEC of 40th Street East & East Avenue Q
APN 3025-026-001
Palmdale, Los Angeles County, California

December 3, 2025

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File No.: 307083-004
Doc. No.: 25-12-700

December 3, 2025

File No.: 307083-004
Doc. No.: 25-12-700

Palmdale School District
39139 10th Street East
Palmdale, California 93550

Attention: Al Tsai, Maintenance and Operations Administrator

Subject: **Geotechnical Engineering and Geohazards Report, with Preliminary Percolation Testing**

Projects: **Proposed ELOP Center Project, Phase 1A**
NEC of 40th Street East & East Avenue Q
APN 3025-026-001
Palmdale, Los Angeles County, California

Earth Systems Pacific (Earth Systems) is pleased to present this Geotechnical Engineering and Geohazards Report for the proposed Phase 1A Expanded Learning Opportunities Program (ELOP) Center project located at the northeast corner of 40th Street East and East Avenue Q (APN 3025-026-001), Palmdale, Los Angeles County, California. This report presents our findings and recommendations for site grading and foundation design, incorporating the information provided to our office. The site is suitable for the proposed development, provided the recommendations in this report are followed in design and construction. This report should stand as a whole, and no part of the report should be excerpted or used to the exclusion of any other part.

This report completes our expanded scope of services in accordance with our proposal PAL-25-8-001, dated August 19, 2025 and Palmdale School District authorization for further exploration and reporting to CGS Note 48 requirements and the 2022 CBC for school reporting. Unless requested in writing, the client is responsible for distributing this report to the appropriate governing agency or other members of the design team.

We appreciate the opportunity to provide our professional services. Please contact our office if there are any questions or comments concerning this report or its recommendations.

Respectfully submitted,
EARTH SYSTEMS PACIFIC



Rocio Carrillo
Project Engineer
CE 75721



Kevin L. Paul
Principal Engineer
CE 70084, GE 2930



Mark S. Spykerman
Principal Engineering Geologist
EG 1174

Distribution: 1/Palmdale SD, 1/PAL File

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Terms and Symbols Used on Boring Logs
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Logs of Geotechnical Borings (21)
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Dry Seismic Settlement (6 pages)
Spread Footing Static Load Settlement (3 pages)
Continuous Footing Static Load Settlement (3 pages)

APPENDIX B

Laboratory Test Results

Geotechnical Engineering and Geohazards Report, with Preliminary Percolation Testing
Porposed ELOP Center Project, Phase 1A
NEC of 40th Street Eats and East Avenue Q
APN 3025-026-001
Palmdale, Los Angeles County, California

Section 1
INTRODUCTION

1.1 Project Description

This Geotechnical Engineering and Geohazards Report has been prepared for the proposed Expanded Learning Opportunities Program (ELOP) Center project located at the northeast corner of 40th Street East and East Avenue Q (APN 3025-026-0001) in the city of Palmdale, Los Angeles County, California, see Plate 1 (Site Vicinity Map). This report has been expanded from our previous site geotechnical report to focus on the newly proposed Phase 1A area and amend the report to 2022 CBC and CGS Note 48 requirements for school geotechnical reporting. This expanded report includes new borings, laboratory testing, and analysis.

We understand that the proposed Phase 1A site improvements will consist of an Admin modular building (approximately 1,920 square feet), 5 flexible modular studios (approximately 1,920 square feet), 3 modular restrooms (approximately 450 square feet), modular electrical room (approximately 450 square feet), bus covered parking, 2 mini-pitch sports courts with covering, 2 mini-pitch sports court, playground with shade structure, fire access lane, interior fencing, site access aligned with 42nd Street, temporary bus drop off, staff parking, and off-site improvements of Avenue Q. In addition, appurtenant site work is assumed to include underground utilities, landscaping, reconfigurations and expansion of flatwork and access drives.

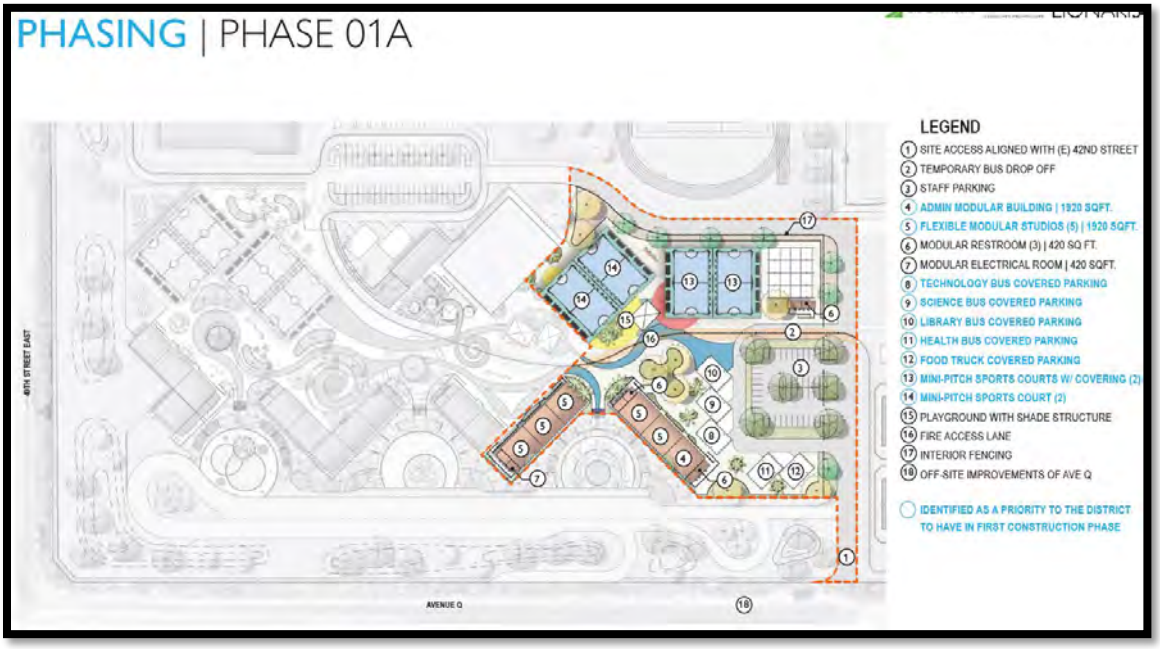


Figure 1 *ELOP Center Phase 01A Site Plan*

We have assumed the structures will be one to two stories in height made of masonry, concrete, wood-framed or metal construction founded on shallow permanent foundations, and that there will be no below grade basement levels. We have assumed the anticipated loads will be less than approximately 100 kips for isolated spread footings and 4 kip/lineal foot for continuous footings. As the basis for the foundation recommendations, all loading is assumed to be dead plus actual live load. Finished site grades are assumed to be within 5 feet of existing grades.

No preliminary design loading was provided by the structural engineer. If actual structural loading exceeds these assumed values, we will need to re-evaluate the recommendations given.

1.2 Site Description

The approximate 19-acre Phase IA property is located at the northeast corner of 40th Street East and East Avenue Q in the city of Palmdale, Los Angeles County, California. The approximate latitude and longitude near the closest buildings to the fault zone are 34.5880°N/118.0558°W. Plate 1 in Appendix A presents the approximate site location. The site is bounded on the west by 40th Street East, on the south by East Avenue Q, and on the north and east by vacant land. Topographically, based on current USGS quadrangle maps and Google Earth derived elevations, site elevations near the initially planned Phase IA buildings range from approximately 2,589 feet to 2,594 feet (Mean-Sea-Level (MSL)), with drainage downward to the north-northwest.

Earth Systems personnel also reviewed select historical aerial photographs of the project site area. The site appears to have been used for agricultural farming prior to 1948.

Site improvements related to the past agricultural aspects of the properties include, now removed structures about ¼ mile east of 40th Street East, just north of Avenue Q, an irrigation pond in the southwest portion of the property, and underground irrigation systems. Current improvements include about ¼ mile of Avenue Q that is paved, various dirt roads crossing the property, remnants of the agricultural irritation system, and probable underground utilities along Avenue Q and the paved 40th Street East. It appears the site buildings were demolished between 2008 and 2009. The site has remained relatively unchanged since 2009. A homeless encampment is located in the southern portion of the site just east of the previous structure locations.

Piles and deposits of artificial fill exist within the western two-thirds of the property. The fill appears end-dumped and consists of soils and construction debris. There is also fill associated with the northern margin of the paved Avenue Q, along the easterly extension of the Avenue Q alignment, and the berms for the irrigation pond. It is also likely that fill associated with the past structures and associated demolition exist in the vicinity of the noted historic structures.

Vegetation includes native plants in the eastern portion of the overall site, a tamarask windbreak along the east side of 40th Street East, and several trees along the southeastern site boundary. Former ag lands are fairly bare of native vegetation with a sparce cover of weeds.

1.3 Purpose and Scope of Services

The purpose for our services was to evaluate the site soil and geologic conditions at our exploration locations and to provide professional opinions and recommendations, from a geologic and geotechnical point of view, regarding the proposed development of the site. We

understand that these proposed additional school site improvements will be developed under the regulation of the Division of the State Architect (DSA), the current California Building Code (2022), and California Geological Survey (CGS) Note 48 requirements (2022), and with DSA IR A-4 and IR 4.13 for geotechnical reports submitted to DSA.

The conclusions and recommendations included in this report are based upon the data collected for this commission. The scope of services included:

Task 1 - Literature and Photograph Reviews

We began our services by reviewing select geologic and geotechnical literature pertaining to the project. This included a review of various hazard, fault, and geologic maps prepared by the California Geological Survey, the U.S. Geological Survey, the County of Los Angeles and other governmental agencies as they relate to the project area. Historical aerial photographs were reviewed using the Google Earth Pro website and Historical Aerials website.

Task 2 – Utility Clearance, USA Dig Alert

Each of our proposed field exploration locations was located and marked in the field and cleared with known utility lines as identified by Underground Service Alert (USA), "Dig Alert". Our exploration locations were located in the field by consumer grade Global Positioning System (GPS) accurate to ± 15 feet in conjunction with pacing based upon the control provided or sighting from landmarks identified on the project topographic map.

Task 3 – Field Exploration

We evaluated the general subsurface conditions within the southwest portion of the site by drilling twenty one small diameter borings, from approximately 6½ feet to 51½ feet in depth. Boring locations were designated by School District representatives. The field exploration also included a geologic site reconnaissance of the project area. Plate 2 shows the general surface geology and the approximate location of each boring. Additionally, a geologic site visit was performed by an Earth Systems engineering geologist to visually observe surface geology (September 2025).

Task 4 – Percolation Testing for Basin Infiltration

One test hole was drilled to a maximum depth of 15 feet below the existing ground surface for the proposed infiltration location, as chosen by School District representatives. This hole was drilled on November 4, 2025 with the same drill rig as the exploration borings. Plate 3 shows the approximate location of the test. The test was run in general conformance with the small diameter boring infiltration test according to the Administrative Manual County of Los Angeles Department of Public Works Geotechnical and Material Engineering Division, Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, June 2021.

Task 5 - Laboratory Testing

Laboratory tests were performed on selected samples to evaluate the physical characteristics of the materials encountered during our field exploration. Laboratory testing included moisture

content, dry unit weight, maximum density/optimum moisture content, sieve analysis, consolidation/collapse potential, Expansion Index, R-value, and direct shear. The testing was performed in general accordance with American Society for Testing and Materials (ASTM) or appropriate test procedures. Selected samples were also tested for a preliminary screening level of corrosion potential (pH, electrical resistivity, water-soluble sulfates and water-soluble chlorides). Earth Systems does not practice corrosion engineering; however, these test results may be used by a qualified engineer in designing an appropriate corrosion plan for the project.

Task 6 – Analysis and Report

Earth Systems analyzed the field data obtained, performed engineering analyses, and provided recommended design parameters for earthwork and foundations for the structures as described within. Our report includes:

- A description of the proposed project including a site plan showing the approximate boring locations;
- A description of the surface and subsurface site conditions including groundwater conditions, as encountered in our field exploration;
- A description of the site geologic setting and possible associated geology-related hazards, including liquefaction, subsidence, and seismic settlement analysis;
- A site-specific geologic map and geologic cross section in accordance with CGS requirements;
- A discussion of regional geology and site seismicity, including a regional geology map;
- A description of local and regional active faults, their distances from the site, their potential for future earthquakes, and a regional fault map;
- A discussion of other geologic hazards such as ground shaking, landslides, flooding, and tsunamis;
- A General Procedure seismic analysis including recommendations for geotechnical seismic design coefficients in accordance with the 2022 CBC.
- A discussion of site conditions, including the geotechnical suitability of the site for the general type of construction proposed;
- Recommendations for imported fill for use in compacted fills;
- Recommendations for foundation design including parameters for shallow foundations and subgrade preparation;
- Anticipated total and differential settlements for the recommended foundation system;
- Preliminary recommendations for the mitigation of liquefaction (if applicable);
- Recommendations for lateral load resistance (earth pressures and drainage) for below grade structures including drainage requirements and seismic earth pressures;
- Recommendations for site preparation, earthwork, and fill compaction specifications, including remedial grading to address cut/fill and fill/bedrock transition conditions;
- Discussion of anticipated excavation conditions;
- Recommendations for underground utility trench backfill;

- Recommendations for stability of temporary trench excavations;
- Recommendations for slabs-on-grade, including recommendations for reducing the potential for moisture transmission through interior slabs;
- Recommendations for collapsible or expansive soils (if applicable);
- Recommendations for fire lanes and pavements;
- A discussion of the corrosion potential of the near-surface soils encountered during our field exploration; and
- An appendix, which includes a summary of the field exploration (computer generated boring logs) and laboratory testing program (computer generated plots).

Not Contained in This Report: Although available through Earth Systems, the current geotechnical scope of our services does not include:

- An environmental Phase 1 assessment.

An investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

Section 2
METHODS OF EXPLORATION AND TESTING

2.1 Field Exploration

The current subsurface exploration program included advancing twenty one exploratory borings. The borings were drilled to depths ranging from approximately 6½ to 51½ feet below existing grades using a Mobile B-61 truck-mounted drill rig equipped with 8-inch hollow-stem augers provided by Calpac Drilling of Calimesa, California. The borings were advanced to observe soil profiles and obtain samples for laboratory testing. The approximate boring locations are shown on Plate 3, in Appendix A. The locations shown are approximate, established by consumer grade Global Positioning System (GPS) accurate to ± 15 feet in conjunction with pacing based upon the control provided.

Staff from Earth Systems maintained a log of the subsurface conditions encountered and obtained samples for logging, classification and laboratory testing. Subsurface conditions encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System (USCS) and ASTM D 2487 and 2488 (current edition). Our typical sampling interval within the borings was approximately every 2½ or 5 feet to the full depth explored; however, sampling intervals were adjusted depending on the materials encountered onsite. Current samples were obtained within the test borings using a Modified California (MC) ring sampler (ASTM D 3550 with those similar to ASTM D 1586). The MC sampler has an approximate 3-inch outside diameter and 2.4-inch inside diameter. The sampler was mounted on a drill rod and driven using a rig-mounted 140-pound automatic hammer falling for a height of 30 inches. The number of blows necessary to drive the sampler within the borings was recorded.

Design parameters provided by Earth Systems in this report have considered an estimated 78% hammer efficiency based on data provided by the drilling subcontractor, past report information, and limits per SP117A. The N-values (blow count) using the California sampler can be roughly correlated to SPT N-values using a conversion factor that may vary from about 0.5 to 0.7. In general, a conversion factor of approximately 0.63 from a study at the Port of Los Angeles (Zueger and McNeilan, 1998 per SP 117A) is considered satisfactory. A value of 0.63 was applied in our calculations for this project.

Bulk samples of the soil materials were obtained from the drill auger cuttings, representing a mixture of soils encountered at the depths noted. The depth to groundwater, if any, was measured in the boreholes. Following drilling, sampling, and logging, the borings were backfilled with the cuttings and tamped upon completion. Our field exploration was provided under the direction of a State of California Registered Engineer from our firm.

The logs of the borings represent our interpretation of the contents of the field data and the results of laboratory testing performed on the samples obtained during the subsurface exploration. The final logs are included in Appendix A of this report. The stratification lines represent the approximate boundaries between soil types, although the transitions may be gradual. In reviewing the logs and legend, the reader should recognize the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics

observed during drilling. These include, but are not limited to cementation, variations in soil moisture, presence of groundwater, and other factors.

The boring logs present field blow counts per 6 inches of driven embedment (or portion thereof) for a total driven depth attempted of 18 inches. Where gravel was observed in sufficient quantity, blows were recorded in 1-inch increments. The blow counts on the logs are uncorrected (i.e. not corrected for overburden, sampling, etc.). Consequently, the user must correct the blow counts per standard methodology if they are to be used for design and exercise judgment in interpreting soil characteristics, possibly resulting in soil descriptions that vary somewhat from the legend.

2.2 Laboratory Testing

Samples were reviewed along with field logs to select those that would be analyzed further. Those selected for laboratory testing include, but were not limited to, soils that would be exposed and those deemed to be within the influence of the proposed structures. Test results from 2015 and current are presented in graphic and tabular form in Appendix B of this report. Testing was performed in general accordance with American Society for Testing and Materials (ASTM) or other appropriate test procedure. Selected samples were also tested for a screening level of corrosion potential (pH, electrical resistivity, water-soluble sulfates, and water-soluble chlorides). Earth Systems does not practice corrosion engineering; however, these test results may be used by a qualified corrosion engineer in designing an appropriate corrosion control plan for the project.

Our testing program consisted of the following:

- Density and Moisture Content of select samples of the site soils (ASTM D 2937 & 2216).
- Maximum Dry Density/Optimum Moisture Content tests to evaluate the moisture-density relationship of typical soils encountered (ASTM D 1557).
- Particle Size Analysis to classify and evaluate soil composition. The gradation characteristics of selected samples were made by sieve analysis procedures (ASTM D 6913 and D1140).
- Consolidation and Collapse Potential to evaluate the compressibility and hydroconsolidation (collapse) potential of the soil upon wetting (ASTM D 5333).
- Direct Shear to evaluate the relative frictional strength of the surficial slope soils. Specimens were in a saturated condition prior to and during testing and were sheared under normal loads ranging from 1.0 to 4.0 kips per square foot (ASTM D 3080).
- Expansion Index tests to evaluate the expansive nature of the soil. The samples were surcharged under 144 pounds per square foot at moisture contents of near 50% saturation. Samples were then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator (ASTM D 4829).
- Screening Level Chemical Analyses (Soluble Sulfates and Chlorides (ASTM D 4327), pH (APHA 2320-B), and Electrical Resistivity/Conductivity (ASTM G 187) to evaluate the potential for adverse effects of the soil on concrete and steel.

Section 3
DISCUSSION

3.1 Soil Conditions

The field exploration indicates that site soils consist predominantly of poorly graded sand, Poorly graded sand with silt, well graded sand, silty sand, clayey sand, and sandy silt (Unified Soils Classification System symbols of SP, SP-SM, SW, SM, SC, and ML) to the maximum depth of exploration of 51½ feet below the ground surface. The western two thirds of the site appears to have been used for agricultural farming prior to 1948. Piles and deposits of artificial fill exist within the western two-thirds of the property. The fill appears end-dumped and consists of soils and construction debris. There is also fill associated with the northern margin of the paved Avenue Q, along the easterly extension of the Avenue Q alignment, and the berms for the irrigation pond. It is also likely that fill associated with the past structures and associated demolition exist in the vicinity of the noted historic structures. Where agricultural use occurred, there appears to be surficial disturbance (±0-3 feet) and undocumented fill. Soils were generally dry. The underlying coarse-grained soils encountered were found to be medium dense to very dense. The localized silty soils were generally hard. The boring logs provided in Appendix A include more detailed descriptions of the soils encountered. Site soils are classified as Type C in accordance with Cal OSHA.

3.2 Groundwater

Groundwater or perched water was not encountered during our field exploration to the maximum depth of exploration of 51½ feet. Saturated layers were not observed or tested. One isolated layer of increased moisture was observed; however, it was not continuous to our other deep boring. Nearby State monitoring wells were researched for their recent and historic well readings. The following is a summary of our findings for the two wells closest to the site.

- Well No. 06N11W21N001S is located on site. The surface elevation of the well is approximately 2,591 feet and groundwater elevation reading as measured from 1917 to 1963 varied from 2,268 to 2,426 feet, or about 150 feet below site grades.
- Well No. 06N11W20R001S located approximately 0.2 miles to the west of the site. The surface elevation of the well is approximately 2,584 feet and groundwater elevation readings as measured from 1941 to 1943 varied from 2,359 to 2,372 feet, or about 210 feet below site grades.

Based on the above data, groundwater is not anticipated to be encountered during construction and is expected to be deeper than 50 feet at the site such that liquefaction is not a concern. Fluctuations of the groundwater level, and localized zones of increased soil moisture content may be anticipated during and following the rainy season or from irrigation.

3.3 Collapse and Consolidation Potential

Collapsible soil deposits generally exist in regions of moisture deficiency. Collapsible soils are generally defined as soils that have potential to suddenly decrease in volume upon increase in moisture content even without increase in external loads. Soils susceptible to collapse include loose or weakly cemented sands and silts where the cementing agent is soluble (e.g. soluble

gypsum, halite), valley alluvial deposits within semi-arid to arid climate, and certain granite derived residual soils. Soils such as these exist on-site.

The degree of collapse of a soil can be defined by the Collapse Potential (CP) value, which is expressed as a percent of collapse of the total sample using the Collapse Potential Test (ASTM Standard Test Method D 5333). Based on the Naval Facilities Engineering Command (Department of Navy, 1986) Design Manual 7.1, the severity of collapse potential is commonly evaluated by the following Table, Collapse Potential Values.

Table 1
Collapse Potential Values

Collapse Potential Value	Severity of Problem
0-1%	No Problem
1-5%	Moderate Problem
5-10%	Trouble
10-20%	Severe Trouble
> 20%	Very Severe Trouble

Table 2 can be combined with other factors such as the probability of ground wetting to occur on-site and the extent or depth of potential collapsible soil zone to evaluate the potential hazard by collapsible soil at a specific site. A hazard ranking system associated with collapsible soil as developed by Hunt (1984) is presented in Table 2, Collapsible Soil Hazard Ranking System.

Table 2
Collapsible Soil Hazard Ranking System

Degree of Hazard	Definition of Hazard
No Hazard	No hazard exists where the potential collapse magnitudes are non-existent under any condition of ground wetting.
Low Hazard	Low hazards exist where the potential collapse magnitudes are small and tolerable, or the probability of significant ground wetting is low.
Moderate Hazard	Moderate hazards exist where the potential collapse magnitudes are undesirable or the probability of substantial ground wetting is low, or the occurrence of the collapsible unit is limited.
High Hazard	High hazard exist where potential collapse magnitudes are undesirably high and the probability of occurrence is high.

The results of collapse potential tests performed on ten selected individual ring samples from depths ranging from 2.5 to 15 feet below the ground surface indicated a collapse potential ranging from 1.4 to 2.3 percent. Typically, the initial 1% is estimated to be from sampler disturbance as demonstrated by Table 1. Based on the above criteria and our field and laboratory findings, and assuming the grading is accomplished according to Section 5.1 of this report, we estimate the collapse potential is low. Based on that, collapse settlement is estimated to be negligible if the site grading is performed as recommended within to remove loose upper soils,

and provide a compacted fill mat below structures and foundations, and structures are designed for the settlement estimates presented within Section 5.1.

3.4 Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors, and may cause unacceptable settlement or heave of structures, concrete slabs supported-on-grade, or pavements supported over these materials. Depending on the extent and location below finished subgrade, expansive soils can have a detrimental effect on structures. Based on our visual observations, and laboratory testing, the Expansion Index of the onsite soils is "very low" as defined by ASTM D 4829 and the 2022 California Building Code. Samples of building pad soils should be tested during grading to confirm or modify these findings.

3.5 Corrosivity

Two samples of the near-surface soils within the site were currently tested for potential corrosion of concrete and ferrous metals. Soils were tested as blended (composite) samples. The tests were conducted in general accordance with the ASTM Standard Test Methods to evaluate pH, resistivity, and water-soluble sulfate and chloride content. The test results are presented in Appendix B. These tests should be considered as only an indicator of corrosivity for the samples tested. Other earth materials found on site may be more, less, or of a similar corrosive nature.

Water-soluble sulfates in soil can react adversely with concrete. ACI 318 provides the relationship between corrosivity to concrete and sulfate concentration, presented in the table below:

Table 3

Water-Soluble Sulfate in Soil (ppm)	Corrosivity to Concrete
0-1,000	Negligible
1,000 – 2,000	Moderate
2,000 – 20,000	Severe
Over 20,000	Very Severe

In general, the lower the pH (the more acidic the environment), the higher the soil corrosivity will be with respect to ferrous structures and utilities. As soil pH increases above 7 (the neutral value), the soil is increasingly more alkaline and less corrosive to buried steel structures, due to protective surface films, which form on steel in high pH environments. A pH between 5 and 8.5 is generally considered relatively passive from a corrosion standpoint. High chloride levels tend to reduce soil resistivity and break down otherwise protective surface deposits, which can result in corrosion of buried steel or reinforced concrete structures. Soil resistivity is a measure of how easily electrical current flows through soils and is the most influential factor. Based on the findings of studies presented in ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (ASTM, 1989), the approximate relationship between soil resistivity and soil corrosivity was developed as shown in Table 4.

Table 4

Soil Resistivity (Ohm-cm)	Corrosivity to Ferrous Metals
0 to 900	Very Severely Corrosive
900 to 2,300	Severely Corrosive
2,300 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
10,000 to >100,000	Very Mildly Corrosive

Test results show pH values of 6.7 to 7.3, chloride contents of 4 to 5 ppm, sulfate contents of 12 to 13 ppm and minimum resistivity's of 3,960 to 4,000 Ohm-cm. Although Earth Systems does not practice corrosion engineering, the corrosion values from the soils tested are normally considered as being moderately corrosive to buried metals and as possessing a "negligible" sulfate exposure to sulfate attack for concrete as defined in American Concrete Institute (ACI, 2011) 318, Section 4.3. The results of current chemical testing have been provided in Appendix B. The above values can potentially change based on several factors, such as importing soil from another job site and the quality of construction water used during grading and subsequent landscape irrigation.

3.6 Stormwater Percolation Testing

One percolation exploratory hole was excavated on November 4, 2025 and reached a depth of approximately 15 feet bgs. The test location represents the soils at the assumed bottom of the proposed infiltration systems. The percolation boring location is shown on the Exploration Location Map, in Appendix A.

Gravel and perforated pipe was added to the test hole to minimize caving. The presence of gravel and the PVC pipe (inserted in the boring) were accounted for in the percolation-converted-to-infiltration rate calculation. The boring was pre-saturated with potable water immediately prior to testing. The percolation results consider percolation of the wetted borehole sidewalls. The empirical correlation is based on the Porchet Method as modified by LA County. Test results were taken at depths between 13 to 15 feet below existing grade at the test location, using a falling head method.

Test procedures followed the procedures for small diameter boring infiltration test according to the Administrative Manual for the Los Angeles County Guidelines for Geotechnical Investigations and Reporting Low Impact Development Stormwater Infiltration (GS200.1). Single boring test procedures simulate the low water head conditions typically present during shallow infiltration into basins.

Potable water was used to evaluate the basic percolation rate. The test was performed for a period of at least 8 readings (10-minute intervals) or the highest and lowest readings are within 10 percent of each other from three consecutive readings. The soils encountered at the test location and the results of the percolation rate are presented in Table 5 below. Los Angeles County adjusted infiltration rates for the subsurface materials were reduced using the recommended reduction factors per the County of Los Angeles Administrative Manual for Low

Impact Development Stormwater Infiltration, June 30, 2021. A total reduction factor of 7 (RF_t=2, RF_v=2, RF_s=3) was used to determine adjusted infiltration rates.

Table 5
Infiltration Rate Results

Test	Soil Condition	USCS Soil Description in Test Zone	Test Zone Below Existing Surface (feet)	Percolation Rate (min/in)	Pre-Adjusted Infiltration Rate (in/hr)*	LA County Adjusted Infiltration Rate (in/hr)
P-1	(Native)	Sand (SP)	13 to 15	0.2	9.5 in/hr	1.4 in/hr

*Field Values, No factor of safety applied. Typical factors of safety range from 3 to 10 depending on the type of system which will be designed using the field values and depending on the level of pre-treatment and influent which will be discharged into the infiltration trenches. Consideration for Infiltration Rate Correction Factors should be performed by the Civil Engineer.

3.7 Geologic Setting

Regional Geology: The project site is located at the southwestern margin of the Mojave Desert Geomorphic Province, a broad interior region of isolated mountain ranges separated by desert plains and basins (Plate 4). The Western Mojave Desert is a wedge-shaped structural block bounded on the north by the Garlock fault and along the southwest by the San Andreas rift zone. North of the Garlock fault are the Sierra Nevada and Tehachapi Mountains. Southwest of the San Andreas fault are the Transverse Ranges and coastal basins. Regional features of the western Mojave Desert include the alluvial-filled Antelope Valley, San Gabriel and San Bernardino Mountains, the Rosamond Hills, Rosamond Lake, Little Rock Wash and Big Rock Creek (Plate 5). Palmdale is within the Antelope Valley portion of the Western Mojave Desert with the project site within the south-central portion of the Antelope Valley. Lithologic units exposed in this area consist predominantly of Quaternary sediments, including both lacustrine and alluvial deposits.

Local active faults are typically located along the margins of the Antelope Valley. The San Andreas rift zone, which is several miles wide, dominates the geology of the southern Antelope Valley. The rift zone is an extensive zone of active and potentially active faults that extends from the Gulf of California to Cape Mendocino in northern California. The San Andreas fault, and associated subsidiary faults, are the closest active faults to the site. The primary and historically active trace of the San Andreas fault, at its nearest point, is approximately 3.6 miles southwest of the site. The subsidiary Cemetery fault is located about 2.7 miles southwest of the property. No known active faults exist in the immediate proximity of or within the project site boundaries.

Locally, the site is underlain by native Holocene alluvial fan deposits composed of interbedded sands and silty sands. Fill deposits associated with past structures, farming, road construction, the irrigation pond, and fill pile storage exist within the project limits. With the exception of the Avenue Q paved road construction, most of the fill areas are assumed to be uncompacted.

Local Geology: The project site is located upon the generally flat alluvial fan surfaces, largely the result of past meandering and deposition by Littlerock Creek, which is currently located about three miles easterly of the property (Plate 6). Locally, thick sequences of interbedded alluvium underlie the site. No active faults have been mapped across the site, with the nearest active fault

zone being the San Andreas rift zone, located about three miles southwest of the project. The sediments within the valley consist of fine- to coarse-grained sands with interbedded clays, silts, gravels, and cobbles of lacustrine (lakebed), and alluvial (water-laid) origin. Frost depth is typically considered 6 inches for the Palmdale area.

Regional Faulting: No active faults have been mapped within the project limits based upon local and regional select published geologic maps by the California Geological Survey (2010) or United States Geological Survey fault database (2006). The site is not located within a currently designated Alquist-Priolo Earthquake fault zone (Plate 7). The nearest mapped fault is the main and historically active trace of the Mojave segment of the San Andreas rift zone (CGS Fault Type A) located approximately 3.6 miles southwest of the site. The Cemetery fault, a subsidiary fault within the San Andreas rift zone, is located approximately 2.7 miles southwest of the project (see Plates 5, 6, and 8). The site is not with a City of Palmdale fault zone (Palmdale 2045).

Aerial Subsidence: Regional historical groundwater withdrawal has resulted in substantial aerial subsidence within the Antelope Valley with much of the subsidence near and north of Lancaster. The project site is several miles south of the predominant documented subsidence areas and is not in an area where significant subsidence has been recorded (see also page 18).

3.8 Geologic Hazards

Geologic hazards that may affect the region include seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), slope instability, flooding, ground subsidence, and erosion. A discussion follows on the specific hazards to this site.

3.8.1 Seismic Hazards

Seismic Sources: Approximately 40 active faults or seismic zones lie within 44 miles of the project site (see Table A-1). The primary seismic hazard to the site is strong ground shaking from earthquakes along regional faults including the San Andreas fault, Garlock fault, Eastern California shear zone, and the many faults within the Los Angeles basin and Inland Empire. The Mojave segment of the San Andreas fault is located approximately three miles southwest of the site.

Surface Fault Rupture: The project site does not lie within a currently delineated State of California, Alquist-Priolo Earthquake Fault Zone (CGS, 2018). Well-delineated fault lines cross through this region as shown on California Geological Survey (CGS) maps (Jennings, 2010). Therefore, active fault rupture is unlikely to occur at the project site. While fault rupture would most likely occur along previously established fault traces, future fault rupture could occur at other locations.

Historic Seismicity: The site is located within an active seismic area in southern California where large numbers of earthquakes are recorded each year. Magnitudes that are above 6 and prior to accurate instrumental measurements (after 1933) are based on moment magnitudes (M_W). Magnitudes that are below 6 or earthquakes prior to 1933 are based on local magnitudes (M_L).

Approximately 40 earthquakes of magnitude 5.5 or greater have occurred within 65 miles of the site. Significant regional earthquakes include the 1812 Wrightwood, 1857 Fort Tejon, 1872 Owens Valley, 1952 Arvin-Tehachapi, 1971 San Fernando, 1992 Landers, 1994 Northridge, and 1999 Hector Mine earthquakes. Strong ground motions were experienced with magnitudes ranging from approximately 5.9 to 7.8. Major historic earthquakes felt in the vicinity of Palmdale have usually originated from faults located outside the area. With the exception of the 1812 Wrightwood and 1857 Fort Tejon earthquakes, these include the 1872 Owens Valley, 1952 Kern County, 1971 San Fernando, 1987 Whittier Narrows, 1992 Landers, 1994 Northridge, and 1999 Hector Mine earthquakes. Of recent note, the July 6, 2019 7.1 Ridgecrest earthquake was about 82 miles north-northeast of Palmdale.

Historically, the San Andreas fault is responsible for two of the three great earthquakes experienced in California. These are the 1857 Fort Tejon and 1906 San Francisco earthquakes. Each event is credited with approximately 200 miles of surface rupture and horizontal displacements as great as 30 feet. Ground shaking was very intense and damage to man-made structures widespread. The 1857 rupture extended along the San Andreas fault from Parkfield to Cajon Pass and was felt throughout most of California. No significant earthquakes or fault movements have been attributed to this segment of the San Andreas fault since 1857. Prior to 1857, a strong earthquake that occurred in 1812 near Wrightwood, a small community in the eastern San Gabriel Mountains, originated on the San Andreas fault.

On March 26, 1872, the greatest recorded earthquake in the western United States, excluding Alaska, occurred along the Owens Valley fault near Lone Pine. The earthquake is estimated to have had a Richter magnitude of about 8.3 and significantly shook most of California.

In 1952, the White Wolf fault, located approximately 61 miles northwest of the site, was responsible for the Kern County earthquake. The earthquake registered 7.5 on the Richter Scale and did significant damage to the Bakersfield and Tehachapi areas. Considerable damage occurred to unreinforced masonry structures and to railroad tunnels located nearby.

The 1971 San Fernando earthquake resulted in extensive damage to structures in parts of San Fernando and the Santa Clarita Valley. The epicenter of the earthquake was located near Soledad Junction approximately 21 miles southwest of the site. Strong motion accelerographs recorded ground accelerations as high as 1.25 g at Pacoima Dam near the epicenter of the earthquake. Some structures designed in accordance with the Building Code in effect at the time were extensively damaged. Freeways, hospitals, schools, electrical facilities, water projects, and some residential structures sustained light to major damage because of severe ground shaking.

The 1987 Whittier Narrows earthquake shook Antelope Valley for several seconds. The epicenter of this 5.9 magnitude earthquake, located near Monterey Park, was approximately 37 miles south of the project. This earthquake occurred on an unsuspected seismogenic feature known as a buried, or blind, thrust fault that underlies the Elysian Park-Montebello Hills area.

The major 1992 Landers/Big Bear earthquakes also shook the Palmdale area. Damage in the western Antelope Valley was minimal. This earthquake was generated by a system of strike-slip faults in the mountain and desert areas about 96 miles east of Palmdale. Structural damage and loss of life was limited primarily because of the remote area of occurrence.

The 1994 Northridge earthquake and related aftershocks significantly shook the Lancaster area for 10 to 20 seconds. Like the Whittier Narrows earthquake, this event was produced by a buried thrust fault that underlies portions of the San Fernando Valley and the Santa Susana Mountains. The epicenter of the Northridge earthquake was approximately 38 miles southwest of the project site.

Another major earthquake affecting the Palmdale area was the 1999 Hector Mine earthquake. The epicenter of this magnitude 7.1 earthquake was approximately 102 miles east of Palmdale. Approximately 26 miles of surface rupture occurred along the Lavic Lake fault and the central section of the Bullion fault.

The last major earthquake to affect the Palmdale area was the July 2019 Ridgecrest earthquake. The epicenter of this magnitude 7.1 earthquake was approximately 80 miles north-northeast of Plant 42. Surface rupture occurred near segments of the Little Lake fault zone near Ridgecrest.

Table A-2 in Appendix A lists select significant recorded earthquakes felt in the Palmdale area and the estimated Magnitude. Table 6 lists select significant recorded earthquakes felt in the Palmdale area and the estimated intensity of ground shaking near the site based on the Modified Mercalli Scale. A description of damage based on the Modified Mercalli Scale is included as Table 7.

Table 6
Significant Historical Earthquakes

Earthquake	~ Distance to Epicenter Miles	Earthquake Magnitude*	Estimated Intensity**	Date
Sylmar	23	6.5	VI	1971
Whitter	36	5.9	IV	1987
Northridge	38	6.7	V-VI	1994
Kern County	61	7.5	VI	1952
Big Bear	76	6.4	V	1992
Ridgecrest	85	7.1	IV	2019
Landers	96	7.3	V	1992
Hector Mine	102	7.1	V	1999
Fort Tejon	110	7.8	VIII-IX	1857
Owens Valley	146	7.6	VI	1872

* Moment Magnitude after 1933 or above 6, or Local Magnitude prior to 1933 or below 6 (S.C.E.C.)
** Modified Mercalli Scale

From this analysis, it appears that the past maximum intensity in the project area from historical earthquakes due to regional faults is on the order of VIII-IX on the Modified Mercalli Scale. Anticipated intensities from a local 7+ magnitude earthquake along the nearby San Andreas fault is VIII-IX. Refer to Table A-1 in Appendix A for a list of active faults and their approximate distances from the site.

Table 7
Modified Mercalli Intensity Scale of 1931[1], (1956 version)[2]

Masonry A, B, C, D. To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering.

Masonry A Good workmanship, mortar, and design; reinforced, especially laterally and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B Good workmanship and mortar; reinforced, but no designed in detail to resist lateral forces.

Masonry C Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

Masonry D Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

I.	**Not felt. Marginal and long-period effects of large earthquakes.**
II.	**Felt by persons at rest, on upper floors, or favorably placed.**
III.	**Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.**
IV.	**Hanging objects swing. Vibrations like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frame creak.**
V	**Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.**
VI.	**Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken visibly, or heard to rustle.**
VII.	**Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices also unbraced parapets and architectural ornaments. Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.**
VII.	**Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.**
IX.	**General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. General damage to foundations. Frame structures, if not bolted, shifted off foundations Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake fountains, sand craters.**
X.	**Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.**
XI.	**Rails bent greatly. Underground pipelines completely out of service.**
XII.	**Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.**

[1]Original 1931 version in Wood, H.O., and Neumann, F., 1931, Modified Mercalli intensity scale of 1931: Seismological Society of America Bulletin, v. 53, no. 5, p. 979-987.

[2]1956 version prepared by Charles F. Richter, in Elementary Seismology, 1958, p. 137-138, W. H. Freeman & Co.

Seismic Risk: While accurate earthquake predictions are not possible, various agencies have conducted statistical risk analyses. In 2013, the California Geological Survey (CGS) and the United States Geological Survey (USGS) presented new earthquake forecasts for California (USGS

UCERF3). We have used these maps in our evaluation of the seismic risk at the site. The recent Working Group of California Earthquake Probabilities (WGCEP, 2014) estimated a 42% conditional probability that a magnitude 6.7 or greater earthquake may occur in 30 years (2014 as base year) along the nearby Mojave segment of the San Andreas fault. The revised estimate for an 8+ magnitude earthquake along the local San Andreas fault is about 17%.

The primary seismic risk at the site is a potential earthquake along the San Andreas fault that is about 6.5 miles southwest from the site and is considered as fault Type A per the CGS. Geologists believe that the San Andreas fault has characteristic earthquakes that result from rupture of each fault segment. The estimated mean characteristic earthquake is magnitude 7.92 for the Mojave segment of the fault, which is being used for analysis and based on 2020 research of Paleo-seismic events (Scharer, 2020). Historically, the San Andreas fault is responsible for two of the three great earthquakes experienced in the Southern California area. These are the 1812 Wrightwood and the 1857 Fort Tejon earthquakes. The 1857 rupture extended along the San Andreas fault from Parkfield to Cajon Pass and was felt throughout most of California. While the epicenter of this earthquake is assumed to be located near Parkfield, California, the fault rupture extended southeastward to the vicinity of Cajon Pass. No significant earthquakes or fault movements have been attributed to this segment of the San Andreas fault since 1857. A great earthquake that occurred in 1812 near Wrightwood in the eastern San Gabriel Mountains also originated on the San Andreas fault.

Soil Liquefaction and Lateral Spreading: Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. Liquefaction describes a phenomenon in which saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. Dissipation of the excess pore pressures will produce volume changes within the liquefied soil layer, which can cause settlement. Shear strength reduction combined with inertial forces from the ground motion may also result in lateral migration (lateral spreading). Factors known to influence liquefaction include soil type, structure, grain size, relative density, confining pressure, depth to groundwater, and the intensity and duration of ground shaking. Soils most susceptible to liquefaction are saturated, loose sandy soils and low plasticity clay and silt.

In general, for the effects of liquefaction to be manifested, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. Our exploration did not reveal a shallow groundwater table or a perched water table. Our research of nearby water well data and historic groundwater levels indicate both current and historic groundwater tables are greater than 50 feet below the ground surface. Since groundwater tables are greater than 50 feet bgs, and no perched layers were encountered, Earth Systems estimates the potential for liquefaction at the site is low. The site is not with a CGS or City of Palmdale liquefaction hazard zone.

Dry Seismic Settlement: The amount of dry seismic settlement is dependent on relative density of the soil, ground motion, and earthquake duration. In accordance with current CGS policy (Earth Systems discussion with Jennifer Thornburg, CGS May 2014), we used a site peak ground acceleration of ⅔ PGA_M. The reasoning for using ⅔ PGA_M has stemmed from the limitations of the Pradel (modified Tokimatsu and Seed) method of calculating dry seismic settlement. This issue manifested during the code change from ASCE 7-05 to ASCE 7-10 (2013) and has been

continued into the ASCE 7-16 document, where it was no longer codified to evaluate liquefaction and seismic settlement as a design value (S_{DS}/2.5) but to evaluate it at full PGA. PGA_M equated to a maximum considered value and the design spectral response, $S_{DS,}$ is equal to ⅔ S_{MS}, where S_{MS} is the Site Class adjusted maximum considered earthquake value. When using the full PGA_M in Pradel's method, (Pradel's method is the Standard of Care methodology of calculating dry sand settlement), the potential settlements increased dramatically resulting in unreasonable amounts of assumed settlement (stress/strain curves defaulted to 10 percent vertical strain as high acceleration) which did not correlate with field observations of earthquake events. Given these unreasonably high potential settlements and after much discussion with agencies and CGS, the PGA used for dry seismic analysis was returned to a "design" value in practice. This is on the basis that since dry seismic shaking will typically not cause bearing failure (like liquefaction will) but is only settlement related deformation. Earth Systems is in concurrence with this methodology and thus the method utilized for our analysis and that ⅔ PGA_M may be used as an appropriate acceleration in the analysis of seismic settlement of unsaturated soils.

In accordance with the above discussion, we used a site peak ground acceleration of ⅔ PGA_M (where PGA_M = 0.89) and an earthquake magnitude of 7.9 to evaluate dry seismic settlement potential. The design peak ground acceleration values were obtained from the SEAOC/OSHPD online application (https://seismicmaps.org/). Based upon methods presented by Tokimatsu and Seed (1987), the potential for seismically induced dry settlement of soils above the groundwater table for the full soil column height (51 ½ feet) was calculated in our deeper borings at the site and estimated to be 0.5, 0.6 and 1.0 inches (boring B-1, B-2, and B-4a respectively). As such, the conservatively estimated dry seismic settlement is less than 1 inch total, with a differential of 0.5 inches. Seismic settlement is based on post grading recommendations stated in Section 5.1

Fissuring and Ground Subsidence: Subsidence is the gradual settling or sudden sinking of the Earth's surface due to subsurface movement of earth materials. It can result in the loss of aquifer storage, increased flooding, cracks and fissures at the land surface, damage to man-made structures, and associated economic costs. According to the Scientific Investigations Report 2014-5166 "Groundwater-Flow and Land-Subsidence Model of Antelope Valley, California" (Siade et al. 2014) the project site lies within an area of measurable land subsidence. Significant dewatering of the Antelope Valley groundwater basin has resulted in groundwater level declines of more than 270 feet in some areas of the basin and by at least 100 ft in most of the Antelope Valley between 1915 and 1996. As a result, as much as 6.6 ft of subsidence has occurred in the Antelope Valley between 1930 and 1992. Earth Systems estimates less than one foot of subsidence has occurred near the site between 1930 and 1992. No obvious evidence of surface fissuring was noted during the geologic site reconnaissance (September 2025).

In areas of fairly uniform thickness of alluvium, fissures are thought to be the result of tensional stress near the ground surface and generally occur near the margins of the areas of maximum subsidence. Surface runoff and erosion of the incipient fissures augment the appearance and size of the fissures.

Changes in pumping regimes can affect localized groundwater depths, related cones of depression, and associated subsidence such that the prediction of where fissures might occur in the future is difficult. In the project area, groundwater depths remain fairly deep, and we consider the current subsidence potential low. However, in the event of future nearby aggressive

groundwater pumping and utilization, the occurrence of deep subsidence cannot be ruled out. Changes in regional groundwater pumping could result in areal subsidence. The risk of areal subsidence in the future is more a function of whether groundwater recharge continues and/or over-drafting stops, than geologic processes, and therefore the future risk cannot be predicted or quantified from a geotechnical perspective. The Antelope Valley – East Kern Water Agency (2015) is aware of the subsidence that has occurred as documented in USGS studies (2003), and as part of their Urban Water Management Plan is addressing their means of sustaining water demand.

Seismic Hazard Zones: This portion of Los Angeles County has been mapped for the California Seismic Hazard Mapping Act (Ca. PRC 2690 to 2699), as well as the Palmdale Safety Element for earthquake faults, liquefaction, and slope instability (CGS, 2005). These maps indicate the site is not within these designated hazard zones.

Site Acceleration and Seismic Coefficients: In developing site seismic design criteria, the characteristics of the earth units underlying the site are an important input to evaluate the site response at a given site. Based on the results of our evaluation at the site, the project site is underlain by minor amounts of artificial fill overlying Holocene alluvial fan deposits. Based on the average field (B-1, B-2, & B-4a) blowcount of 24 for the interpolated upper 100 feet of site soils (see Appendix A for output), the site classification for site response is Site Class D according to Table 20.3-1 of ASCE7-16. The D characterization is defined as a soil profile consisting of stiff soil with blowcounts between 15 to 50 blows per foot.

General Procedure: The Code seismic parameter S_1 is 0.779 g (> 0.75 g). The site is not within a designated Alquist-Priolo Earthquake Fault Zone or subject to bearing failure: Estimated shear wave velocities indicate a Site Class D. Seismic Design Category is E. Please see Section 5.8 for further discussion on the method to use for structural evaluation.

The Maximum Considered Earthquake acceleration (MCE) which has a 2% probability of being exceeded in 50 years is estimated to be approximately 1.4g. Preliminary General Procedure Seismic Design values are included in Appendix A. The primary seismic risks are from earthquakes generated primarily by the local San Andreas fault.

Acceleration values provided are estimates only. Actual spectral acceleration values may be more or less than those provided and could exceed 1 g assuming a maximum considered earthquake event occurs on the nearby San Andreas fault. Vertical accelerations are typically 1/3 to 2/3 of the horizontal accelerations but can equal or exceed the horizontal accelerations depending upon the local site effects and amplification. General procedures are included and are discussed is Section 5.8.

3.8.2 Other Hazards

Landslides and Slope Instability: The site is relatively flat and proposed new slopes are anticipated to be less than 5 feet high. The site is not within a current Earthquake Induced Landslide Hazard Zones designated by the California Geological Survey. Therefore, potential hazards from slope instability, landslides, or debris flows are considered very low.

Flooding: The project site lies in an area designated as Zone X: “Areas of 0.2 % annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.” (Area No. 06037C0700F, Effective 9/26/2008). The project site may be in an area where sheet flooding and erosion could occur. Appropriate project design by the project civil engineer, construction, and maintenance can minimize the site flooding potential.

Seiches and Dam Inundation: Seiching is defined as a periodic oscillation of liquid within a container or reservoir. Its period is determined by the resonant characteristics of the container, as controlled by its physical dimensions. Water storage tanks are located about three to four miles southerly of the project site. Earth Systems anticipates that local water storage tanks have been designed to withstand anticipated earthquake loads. If the tanks were to release fluid, it is anticipated that existing or planned stormwater control facilities and paving and diversion improvements (curbs, gutters, etc.) would minimize the impact on this project site. The site is within a dam inundation zone for the Littlerock Reservoir with noted possible flooding along the southern and western limits of the site (Plate 10). The dam inundation area for Palmdale (Harold) Reservoir is located about ½ mile west of the property. Both scenarios are per the Department of Water Resources, Division of Safety of Dam (DSOD) “California Dam Breach Inundation Maps”.

Section 4
CONCLUSIONS

The following is a summary of our conclusions and professional opinions based on the data obtained from a review of selected technical literature and field explorations.

General: Based on our field exploration, laboratory testing, and geotechnical analyses conducted for this study, it is our professional opinion that the site is suitable, from a geotechnical standpoint, for construction of the school improvements as proposed, provided the recommendations presented in this report are incorporated into project design and construction.

This Geotechnical Engineering and Geohazards Report has been prepared for the proposed Phase 1A Expanded Learning Opportunities Program (ELOP) Center project located at the northeast corner of 40th Street East and East Avenue Q in the city of Palmdale, Los Angeles County, California, see Plate 1 (Site Vicinity Map). Drilling only occurred on APN 3025-026-001 and percolation testing only occurred on APN 3025-026-002, as designated by the School District. This report can be considered design level for only the Phase 1A structures as described within for APN 3025-026-001 shown on Plate 2. No drilling and exploration occurred on APN 3025-026-002, 007, 008, and 011 and further design level report including field exploration, laboratory testing, and analysis will be required for any development on those parcels.

The recommendations presented in this report may change pending a review of final grading plans and foundation plans. Recommendations presented in this report should not be extrapolated to other areas or be used for other projects (beyond those expressly identified within) without our prior review and comment.

Geotechnical Constraints and Mitigation:

- The primary geologic hazard is moderate to severe ground shaking from earthquakes originating on regional faults. A major earthquake originating on the nearby segments of the San Andreas fault, San Jacinto fault zone, Eastern California shear zone, and other regional faults would be the critical seismic event that may affect the site within the design life of the campus. Engineered design and earthquake-resistant construction increase safety and allow development of seismic areas.
- The underlying geologic condition for seismic design is Site Class D. The site is about 3 miles from a Holocene-active fault/seismic source as defined by the California Geological Survey. A qualified professional should design any permanent structure constructed on the site. The *minimum* seismic design should comply with the 2022 edition of the California Building Code.
- The site is not within the County of Los Angeles designated fault zone, nor a currently designated Alquist-Priolo Earthquake Fault Zone. In our professional opinion, no known Holocene-Active faults or fault related lineaments cross the site. Therefore, the potential for surface fault rupture at the site is considered nil.
- The potential for seismic settlement hazards are considered low for this project. The site is not within an area of significant documented areal subsidence.
- The soils are susceptible to wind and water erosion. Preventative measures to reduce seasonal flooding and erosion should be incorporated into site grading plans. Dust control

should also be implemented during construction. Site grading should be in strict compliance with the requirements of the South Coast Air Quality Management District (SCAQMD).

- Other geologic hazards, including landslides, are considered a nil potential on this site.
- Based on current conditions, groundwater is not anticipated to be encountered during construction; however, landscaped or watered areas may encounter moist to wet soils in the upper shallow profile.
- Based on our laboratory testing and experience with the project, the Expansion Index of the onsite soil is “very low” as defined by ASTM D 4829. Samples of pad soils should be evaluated to confirm or modify these findings.
- Laboratory testing of two samples showed potentially “moderate” corrosivity to buried metallic elements and “negligible” for sulfate exposure to concrete. See Section 3.5 for further information. Site soils should be reviewed by an engineer competent in corrosion evaluation and protection for all elements embedded or founded upon site soils.
- In our professional opinion, structure foundations can be supported on shallow foundations bearing on a zone of properly prepared and compacted soils placed as recommended in Section 5.1. The recommendations that follow are based on “very low” expansion category soils.

Section 5
RECOMMENDATIONS

5.1 Site Development and Grading

A representative of Earth Systems should observe site clearing, grading, and the bottoms of excavations before placing fill. Local variations in soil conditions may warrant increasing or decreasing the depth of recompaction and over-excavation. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process, to verify that our geotechnical recommendations have been properly interpreted and implemented during construction and is required by the 2022 California Building Code.

Observation of fill placement by the Geotechnical Engineer of Record should be in conformance with Section 17 of the 2022 California Building Code. California Building Code requires full time observation by the geotechnical consultant during site grading (fill placement). Therefore, we recommend that Earth Systems be retained during the construction of the proposed improvements to provide testing and observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing this study. Additionally, the California Building Code requires the testing agency to be employed by the project owner or representative (i.e. architect) to avoid a conflict of interest if employed by the contractor. Unless noted otherwise, grading should be performed in general accordance with Appendix J of the 2022 CBC.

Clearing and Grubbing: At the start of site grading, existing vegetation, trees (including the entire rootball from current or past trees), large roots, overly wet and/or soft soil, undocumented fill, demolition disturbance, pavements, foundations (including pole foundations), construction debris, septic tanks, leach fields, deleterious material, trash, and abandoned underground utilities should be removed from the proposed building, structural, pavement and engineered fill areas. Organic growth should be stripped off the surface and removed from the construction area. Areas disturbed during demolition and clearing should be properly backfilled and compacted as described below. Any existing utilities that extend into the limits of the proposed development and are to be abandoned should be entirely removed.

Undocumented fill and buried utilities may be located in the vicinity of the planned structures and within other areas of the project site. All buried structures which are removed should have the resultant excavation backfilled with soil compacted as engineered fill described herein or with a minimum 2-sack cement-sand slurry approved by the project geotechnical engineer. Abandoned utilities should be removed entirely, or pressure-filled with concrete or grout and be capped. Abandoned buried utilities structures, or foundations should not extend under building limits.

Dust control should also be implemented during construction. Site grading should be in strict compliance with the requirements of the local Air Quality Management District (AQMD).

After stripping and grubbing operations, areas to receive fill should be stripped of loose or soft earth materials until a firm subgrade is exposed, as evaluated by the geotechnical engineer or

geologist. Before the placement of fill or after cut, the existing surface soils within the building pads and improvement areas should be over-excavated as follows:

Building Pad and Play (Sports) Court Preparation: Subsequent to clearing and grubbing operations, the entire building pad and other structural areas (such as areas of fill (including all fill slopes), shade structures, canopies, overhead awnings, or any areas with shallow foundations, etc.), should be over-excavated to remove existing undocumented fill, demolition disturbance, and the upper compressible portion of the native soils. The existing soils within the building pad and foundation areas should be over-excavated to a level bottom a minimum of 5 feet below existing grade or finished grade, or 3 feet below the bottom of the deepest foundation, whichever is lower.

The exposed undisturbed subgrade bottom should be observed and tested by the geotechnical engineer or their representative to verify an in-place density of the subgrade is at or greater than 85% relative compaction per ASTM D 1557, or soils are firm (as determined by the geotechnical engineer or his representative). Deeper over-excavation may be recommended if the required in-place density is not achieved, or soils are not firm. The over-excavation should extend horizontally for at least 5 feet beyond the outer edge of the building pad where possible (as determined by the project geotechnical engineer) and include all exterior footings or slabs and include any overhead canopy/or covered walkway and patio areas.

The approved bottom of the sub-excavation should then be scarified 12 inches; moisture conditioned to near over optimum moisture content, and recompacted to at least 90% relative compaction (ASTM D 1557) prior to fill placement. Moisture conditioned and compacted engineered fill should then be placed to finish subgrade elevation. Compaction should be to at least 90% relative compaction. Compaction should be verified by testing.

Auxiliary Structures and Utility Subgrade Preparation: Auxiliary structures such as retaining walls, equipment pads, etc., should have the foundation subgrade prepared similar to the building pad recommendations given above. The over-excavation should extend horizontally for 2 feet beyond the outer edge of the foundation or slab. The exposed soils should then be moisture conditioned to near optimum moisture content, and recompacted to at least 90-percent relative compaction (ASTM D 1557). Moisture conditioned, engineered fill may then be placed to finished subgrade. Compaction should be verified by testing.

Retention Basin and Infiltrator Bottom Preparation: Compaction effort should be kept to a minimum at retention basin bottom areas and bottom areas used for any infiltrators (except under foundations). The subgrade below the bottom of basins and infiltrator bottoms should be compacted to approximately 85% relative compaction. Side slopes and any other fill or foundation subgrade should be compacted to at least 90% relative compaction. Slope construction should be per report. Loose rock, such as pea gravel placed in the basin bottoms does not require compaction testing, but should be observed by the geotechnical consultant or their representative and placed in lifts no greater than 2 feet (less for hand or small consolidation equipment) and consolidated by thoroughly wetting and consolidating by passes with heavy equipment (such as a loader with full bucket or full water truck) until firm such that zero to minimal deformation (less than 1 inch) occurs under the weight of passing of equipment. Infiltrator bottoms are recommended to be at least 10 feet deep below existing grades into

competent soil. Competent soil is defined as soil meeting the compaction or density criteria as described for *Building Pads*.

Slope Construction: Please see Section 5.5 for detailed slope preparation recommendations.

Pavement, Hardscape Area, and Fence Wall Preparation: In street, drive, permanent parking, and exterior hardscape areas, and fence walls with continuous foundations, the subgrade should be over-excavated a minimum depth of two feet below existing grade or finish grade, or 2 feet below the bottom of foundation or slab (whichever is deeper) for the applicable item described above. The excavation bottom should be scarified 8 inches, moisture conditioned to near or over optimum moisture content and be recompacted to at least 90% relative compaction. Engineered fill should then be moisture conditioned, placed in suitable lifts, and compacted to a minimum of 90% relative compaction prior to the placement of subsequent lifts, with the upper 1 foot compacted to at least 95% relative compaction in parking and drive areas. Compacted fill should be placed to finish subgrade elevation.

Engineered Fill Soils: The native soil is suitable for use as engineered fill and utility trench backfill provided it is free of significant organic or deleterious matter (less than 1%), debris, concrete, and oversize rock and is “very low” in Expansion Index. Construction debris, concrete, asphalt, etc. is not suitable for placement within fill. These materials should be hauled offsite.

Within areas to receive foundations and slabs-on-grade the fill should be “very low” in Expansion Index. Expansive soils which are identified should be blended or removed and replaced with low permeability soils which are “very low” in expansion potential under the observation of the Geotechnical Engineer or his representative.

Engineered fill (and any import) should be placed in maximum 8-inch lifts (loose) and compacted to at least 90 percent relative compaction (ASTM D 1557) at near optimum moisture content, prior to the placement of subsequent lifts. Fill shall be removed of oversize material and blended/mixed to create a uniform mix prior to compaction and prior to placement of subsequent lifts. Within pavement areas, the upper 12 inches of subgrade should be compacted to at least 95 percent relative compaction (ASTM D 1557). Compaction should be verified by testing.

The upper 3 feet of fill shall be limited to 3-inch minus material. 6-inch minus material within the building pad is allowed at a depth of at least three feet below footings and approximately 5 feet below the finished subgrade in slab areas. Utility corridors shall be 3-inch minus.

Imported fill soils should be “very low” Expansion Index granular soils meeting the USCS classifications of SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and 15 to 50-percent passing the No. 200 sieve (unless otherwise approved by the geotechnical engineer). The geotechnical engineer should evaluate the import fill soils before hauling to the site. However, because of the potential variations within the borrow source, import soil will not be prequalified by Earth Systems. At the approval of the geotechnical engineer, a 1 or 2 sack cement-sand slurry may be used as non-structural, or structural backfill, respectively, upon geotechnical approval.

A program of compaction testing and expansion testing, including frequency and method of test, should be developed by the project geotechnical engineer at the time of grading. Acceptable

methods of test may include Nuclear methods such as those outlined in ASTM D 6938 (Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods), and ASTM D 4829, (Standard Method for Expansion Index of Soils). Additionally, a minimum of 5% of the in-place density evaluation should be performed using an alternative method for quality assurance of compaction levels. Alternative methods may include methods outlined in ASTM D 1556 (Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method) or correlation probing with a hand probe.

All soils should be moisture conditioned prior to application of compactive effort and prior to foundation, slab-on-grade and pavement placement. Moisture conditioning of soils refers to adjusting the soil moisture to or just above optimum moisture content. If the soils are overly moist so that instability occurs, or if the minimum recommended compaction cannot be readily achieved, it may be necessary to aerate to dry the soil to optimum moisture content or use other means such as dry material import to address soft soils (as approved by the geotechnical engineer prior to use). Site soils will require conditioning due to very moist conditions.

Sand-Cement Slurry Backfill (Controlled Low Strength Material, CLSM) : Where approved by the geotechnical engineer for use, sand-cement "slurry" (controlled low strength material (CLSM)), shall comply with the provisions of this report for the following:

1. Specifications for the preparation of the site prior to placement of the CLSM.
    - Remove any spoils, uncertified fill, loose material, debris and standing water from the existing excavations to a firm subgrade as approved by the geotechnical engineer or his representative.
    - A representative of Earth Systems should observe bottoms of excavations before placing CLSM.
    - CLSM shall not be placed on a sloping surface with a gradient steeper than 5:1 (H:V).
2. Specifications for the CLSM.
    - CLSM shall be ready-mixed by an ACI approved batch plant.
    - Use minimum 2-sack sand-cement CLSM complying, in general, with Caltrans Standard Specification (2015) Section 19-3.02F Controlled Low-Strength Material. CLSM should have a low or non-shrinkage.
    - CLSM must have a 28-day compressive strength of at least 100 psi; however, it is cautioned that increased strength may not be excavatable.
3. Placement of CLSM After Item 1 above is Completed
        i. Place CLSM to the bottom of the foundation area or, in maximum 3-foot lifts if the structural engineer has verified that no "blowouts" will occur, (the minimum placement of CLSM should be 12 inches thickness under foundations and 2 inches when used for "rat" slabs), and allow the CLSM to cure at least for 24 hours or initial set, whichever is longer before placing a subsequent lift. Vibration and rodding of the entire lift should be accomplished during placement. Repeat as needed until the CLSM is to the bottom of the footing grade or finished slab grade.

4. Laboratory or field test method(s) to be used to determine the compressive strength or bearing capacity of the CLSM.

    - Sample CLSM and fabricate test cylinder in accordance with ASTM D4832. Test for density in accordance with ASTM D6023 at the discretion of the Geotechnical engineer. Test for compressive strength at 28 days in accordance with ASTM D4832.

5. Test methods for determining the acceptance of the CLSM in the field.

    - ASTM D4832, Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
    - ASTM D6023, Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM).

6. Number and frequency of field tests required to determine compliance with item 5.

    - Fabricate one set of 5 cylinders and test for density for each 50 cubic yards or fraction thereof or as directed by the geotechnical engineer (GE) of record or the GE's representative.

Shrinkage and Bulking: The shrinkage factor for earthwork for the alluvial and fill materials is expected to range from 1 to 17 percent for the upper excavated or scarified site soils. Negative shrinkage is bulking. This estimate is based on compactive effort to achieve an average relative compaction of about 92 percent. Shrinkage is highly dependent on and may vary with contractor methods for compaction. Losses from site clearing, oversize rock removal, and removal of existing site improvements may significantly affect earthwork quantity calculations and should be considered.

Dust Control: The proposed site lies within an area of high potential for wind erosion. The site soils have a fine-grained component of their composition. As such, exposed soil surfaces may be subject to disturbed fine particulate matter (PM_{10}) which can create airborne dust if the soil surface or roadways are not maintained. During construction, watering the soil surface can reduce airborne dust. Alternatively, a dust control palliative may be spray applied to the soil surface to act as a tackifier which contains loose soil particles. Palliatives must be reapplied periodically as they weather and degrade. Further guidance for dust palliatives can be found in reviewing the United States Department of Agriculture publication *Dust Palliative Selection and Application Guide*, Document No. 9977-1207-SDTDC. The recommended soil input parameters are Plasticity Index <3, and fines content <10-15 percent.

5.2 Excavations and Shoring

Excavations should be made in accordance with Cal/OSHA requirements. Using the Cal/OSHA standards and general soil information obtained from the field exploration, classification of the near surface on-site soils will likely be characterized as Types: A, B, and C. Earth Systems recommends safety values be based on the worse case, typically Type C. Actual classification of site specific soil type per Cal/OSHA specifications as they pertain to trench safety should be based on real-time observations and determinations of exposed soils by the contractors *Competent Person* (as defined by OSHA) during grading and trenching operations.

Our site exploration and knowledge of the general area indicate there is a moderate potential for caving and sloughing of site excavations (over excavation areas, utilities, footings, etc.) due to dry and also overly moist/wet conditions. Where excavations in soils over 4 feet deep are planned, lateral bracing or appropriate cut slopes of 1.5:1 (horizontal/vertical) should be provided. No surcharge loads from stockpiled soils or construction materials should be allowed within a horizontal distance measured from the top of the excavation slope and equal to the depth of the excavation.

The borings were advanced with minimal effort within the existing on-site soils. Conventional equipment should be capable of performing shallow on-site excavations.

Localized perched groundwater or overly moist soils could be encountered during remedial grading in landscape or watered areas. Techniques to stabilize the bottom of the excavation may be required (such as placing gravel and punching it into the soft soil, blending with dry material, or other techniques chosen by the contractor), and reviewed by the geotechnical engineer.

Excavations which parallel structures, pavements, or other flatwork, should be planned so that they do not extend into a plane having a downward slope of 1:1 (horizontal: vertical) from the bottom edge of the footings, pavements, or flatwork. Shoring or other excavation techniques may be required where these recommendations cannot be satisfied due to space limitations or foundation layout. Where overexcavation will be performed adjacent to existing structures, ABC slot cutting techniques may be used.

Slot-Cutting Procedures: For proposed cuts adjacent to existing structures or property lines, slot-cutting methods may need to be employed to maintain the integrity of existing foundations and slabs. ***Whether this is needed will have to be determined after the final elevations and horizontal boundaries of the over-excavated area are determined.*** In the event the over-excavation cuts into the soil near existing buildings and are within the zone of influence of the existing footing, slot cutting methods will need to be employed to maintain the integrity of the existing foundations.

Therefore, we recommend that excavations along existing footing lines be performed with the ABC slot-cutting procedure with a maximum slot width of 5 feet.

An “ABC slot cutting method” as described below should be performed during the grading operation (over-excavation and recompaction). The excavation and backfill of all the designated “A” slots should be performed first with the “B” slots either unopened or cut at a 1.5:1 (horizontal: vertical) slope from the face of the existing building grade to the bottom of excavation. Once the A-slots are completed, work may progress on the B-slots, then after the B slots, C slots may be opened.

Excavation and Backfill Sequence for A-slots:

1. Excavate all the A-slots for the entire excavation depth of 5 feet. The slots may be at most 5 feet wide.
2. In maximum 8-inch loose lifts, moisture condition and backfill with minimum 90% compacted fill using the excavated soils for the entire width and height of the A-

slot. Compact to at least 90% relative compaction prior to the placement of subsequent lifts.

Excavation and Backfill Sequence for B-slots:

3. Excavate all the B-slots for the entire excavation depth of 5 feet. The slots may be at most 5 feet wide.
4. In maximum 8-inch loose lifts, moisture condition and backfill with minimum 90% compacted fill using the excavated soils for the entire width and height of the B-slot. Compact to at least 90% relative compaction prior to the placement of subsequent lifts.

Excavation and Backfill Sequence for C-slots:

5. Excavate all the C-slots for the entire excavation depth of 5 feet. The slots may be at most 5 feet wide.
6. In maximum 8-inch loose lifts, moisture condition and backfill with minimum 90% compacted fill using the excavated soils for the entire width and height of the C-slot.

The excavation sequence should be approved by the geotechnical engineer. The bottom of the over-excavation slot should be scarified 8 inches, moisture-conditioned to near optimum and compacted to 90% relative compaction (ASTM D 1557) prior to the placement of subsequent lifts. Prior to fill placement compaction should be verified by testing.

Shoring: Shoring may be required where soil conditions, space, or other restrictions do not allow a sloped excavation or slotting cutting is not an option. A braced or cantilevered shoring system may be used. Trench boxes should not be placed below or within the pipe zone elevation as their removal may loosen compacted backfill. Positive trench shoring may be required (jacks and plates).

A temporary cantilevered shoring system should be designed to resist an active earth pressure equivalent to a fluid weighing as shown in the table below. Cantilevered (Active, some movement) or restrained excavations above the groundwater table should be designed to resist a uniform horizontal equivalent soil pressure as presented in the table below.

Table 8
Temporary Cantilevered and Braced Shoring System Parameters

Equivalent Fluid Pressure pounds per cubic foot (pcf)	
Cantilevered	**Braced**
41	63

The values provided above assume a level ground surface adjacent to the top of the shoring and do not include a factor of safety. Fifty percent of an areal surcharge placed adjacent to the shoring may be assumed to act as an additional uniform horizontal pressure against the shoring.

Special cases such as combinations of slopes and shoring or other surcharge loads may require an increase in the design values recommended above. These conditions should be evaluated by the project geotechnical or shoring engineer on a case-by-case basis. Retaining walls subjected to traffic loads should include a uniform surcharge load equivalent to at least 240 psf for auto or delivery truck (2 axle) traffic at least 3 feet from the back of the wall. Retaining walls with closer traffic or heavier traffic loads should be designed for a 450 psf surcharge load. Retaining walls should be designed with a minimum factor of safety of 1.5.

The wall pressures above the groundwater do not include hydrostatic pressures; it is assumed that drainage will be provided. If drainage is not provided, shoring extending below the groundwater level should be evaluated on a case-by-case basis.

Cantilevered shoring must extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. We recommend required embedment depths be determined using methods for evaluating sheet pile walls and based on the principles of force and moment equilibrium. For this method, the allowable passive pressure against shoring, which extends below the level of excavation, may be assumed to be equivalent to a fluid weighing 250 pcf. Additionally, we recommend a factor of safety of at least 1.2 be applied to the calculated embedment depth and that passive pressure be limited to 2,000 psf.

The contractor should be responsible for the structural design and safety of all temporary shoring systems. The contractor should carefully review the boring logs in this report, and perform their own assessment of potential construction difficulties, and methods should be selected accordingly. Shoring should be sealed to prevent the piping of soil material and potential soil loss conditions which can cause settlement. The method of excavation and support is ultimately left to the contractor with guidance and restrictions provided by the designer and owner. We recommend that existing structures be monitored for both vertical and horizontal movement.

The contractor should carefully review the boring logs in this report, and perform their own assessment of potential construction difficulties, and methods should be selected accordingly. The method of excavation and support is ultimately left to the contractor. A representative from our firm should be present during grading operations to monitor site conditions; substantiate proper use of materials; evaluate compaction operations; and verify that the recommendations contained herein are met.

5.3 Utility Trenches

Backfill of utilities within roads or public rights-of-way should be placed in conformance with the requirements of the governing agency (water district, public works department, etc.). Utility trench backfill within private property should be placed in conformance with the provisions of this report. Backfill operations should be observed and tested to monitor compliance with these recommendations.

Due to the need to test pipeline subgrade, where excavations require trench entry, the contractor should make allowance and provide proper shoring or stabilize the excavation in accordance with Cal-OSHA for safe entry by the testing lab and workers.

Trench Width and Vertical Loads on Pipelines: Vertical loads to the pipeline are highly dependent upon the geometry of the trench. In general, the narrower the trench is at the top of the pipe/conduit with respect to the diameter of the conduit, the less vertical load is applied to the conduit. This is because as the trench backfill and bedding compress or consolidate over time, the weight of the soil mass is partially offset by the frictional resistance along the trench sidewalls. In addition, the type of bedding supporting the pipeline affects the bearing strength of the conduit. This is accounted by a load factor that is multiplied to the design strength of the conduit. The pipe manufacturer recommendations for trench installation and maximum width should be followed to reduce the potential for overloading the pipe due to excess backfill load.

Pipe Subgrade and Bedding: Native soil is silty and may not be suitable to support pipe haunches, thereby requiring a sandy import, as below for bedding. Pipeline subgrade should be compacted to a minimum of 90% relative compaction (ASTM D 1557) or be in a firm condition as evaluated by the geotechnical engineer or his representative for a depth of 6 inches below any bedding. Bedding material shall consist of sand 100 percent passing a No. 4 sieve and less than 5 percent fines (passing a No. 200 sieve) with a sand equivalent of 30, or if mechanically compacted 15 percent fines, or as approved by the project inspector and geotechnical engineer. The unprocessed native soils are not typical of that used for bedding and import will be required if needed. Bedding should be compacted to at least 90% relative compaction or firm (less than 2" insertion of a ½" probe under typical 200 pound user weight). Jetting is not recommended.

Pipe-Zone, Trench–Zone, Trench Backfill and Compaction: Backfill of utilities should be placed in conformance with the requirements of the specifications. Backfill of utilities within roads or public rights-of-way should be placed in conformance with the requirements of the governing agency (water district, public works department, etc.).

Pipe zone backfill material (defined as the pipe area from the top of the bedding to 12 inches above the top of pipe) placed as import sand (as described above for bedding) as dictated by the pipe designer or manufacturer. The pipe zone backfill material should be placed in maximum 8-inch lifts (loose) and compacted near its optimum moisture content prior to the placement of subsequent lifts. Pipe zone backfill should be compacted to a minimum of 90% relative compaction (ASTM D 1557) or to a firm condition as evaluated by the geotechnical engineer or his representative. Compaction should be assured in the pipe haunches.

The native soil is suitable for use as trench zone and street zone (and manholes) backfill (from the top of pipe zone up to finished grade), provided it is free of significant organic or deleterious matter and oversize materials. This backfill shall contain no particles larger than 3 inches in greatest dimension. The final backfill material should be placed in maximum 8-inch lifts (loose) and compacted to at least 90% relative compaction (ASTM D 1557) near its optimum moisture content prior to the placement of subsequent lifts for the trench zone and 95% for the street zone (upper 12 inches) where below pavement. Compaction should be verified by testing.

Backfill materials should be brought up at substantially the same rate on both sides of the pipe or conduit and be worked into the haunches. Reduction of the lift thickness may be necessary to achieve the above recommended compaction. Care should be taken to not overstress the piping during compaction operations. Mechanical compaction is recommended; ponding or jetting is not recommended.

Alternatively, if the utility cannot accommodate the increased stress, or if compaction is difficult, we recommend the pipe be encased by at least 1 foot of 1-sack cement-sand slurry (at least 1 foot as measured from the top of pipe), 2-sack cement-sand below structural areas. Backfill operations should be observed and tested to monitor compliance with these recommendations.

In general, coarse-grained sand and/or gap graded gravel (i.e. ¾-inch rock or pea-gravel, etc.) should not be used for pipe or trench zone backfill due to the potential for soil migration into the relatively large void spaces present in this type of material and water seepage along trenches backfilled with coarse-grained sand and/or gravel. Water seepage or soil migration will cause settlement of the overlying soils. Rock backfill, where permitted, should be wrapped in filter fabric such as Mirafi 140N where there is contact with native or other fill soils.

Compaction should be verified by testing. Backfill operations should be observed and tested to monitor compliance with these recommendations. Trench backfill compacted per these requirements can be expected to settle 0.1 to 0.3 percent of the trench depth. This can cause an elevation difference between backfilled trenches and the surrounding soil or pavement. Increased relative compaction can reduce settlement if the potentials presented are not acceptable. The geotechnical engineer should be consulted on a case-by-case basis to provide further recommendations to reduce the settlement potential. Utilities which are not traffic rated under drive areas should be founded at least 3 feet below the drive surface to minimize traffic loading on the utility.

STRUCTURES

In our professional opinion, structure foundations can be supported on shallow foundations bearing on a zone of properly prepared and compacted soils placed as recommended in Section 5.1. The recommendations that follow are based on “very low” expansion category soils.

5.4 Foundations

Footing design of widths, depths, and reinforcing are the responsibility of the Structural Engineer, considering the structural loading and the geotechnical parameters given in this report. A minimum footing depth of 12 to 18 inches (below lowest adjacent grade) should be maintained and considers a “very low” Expansion Index soil as described in Section 5.1. Lowest adjacent grade is the lowest grade within 3 feet laterally of the footing edge. A representative of Earth Systems should observe foundation excavations to verify compaction (minimum 90% per ASTM D 1557) before placement of reinforcing steel or concrete. Loose soil or construction debris should be removed from footing excavations before placement of concrete. *All footing excavations should be probed for uniformity. Soft or loose zones should be excavated and recompacted to finish foundation bottom subgrade. The bottom of all foundations should be compacted, and tested to confirm compaction effort and moisture contents as stated in Section 5.1 of this report are met.* The moisture contents should be at least the indicated moisture content 24 hours prior to and immediately prior to placing concrete for a depth of at least 12 inches below the foundation subgrade. If the moisture condition is less than indicated, it shall be brought up to or above the indicated moisture content.

Minimum Slope Setback for Foundations: Earth Systems recommends a minimum setback distance of 5 feet. The 2022 California Building Code provides setback distances for foundations

along slopes. Setback distances are measured differently for foundations located above the slope and those located below the slope. For foundations located at the top of the slope, the measurement is taken horizontally from the outside face of the foundation footing to the face of the slope. For foundations located below the slope, the horizontal distance is measured from the face of the structure foundation to the toe of the slope. For pools and slopes steeper than 1(H):1(V), please contact Earth System for these setbacks with submittal of detailed information using plan form.

Conventional Spread Foundations: Allowable soil bearing pressures are given below for foundations bearing on recompacted soils as described in Section 5.1. Allowable bearing pressures are net (weight of footing and soil surcharge may be neglected).

- Continuous wall foundations, 12-inch minimum and 36-inch maximum width and 12-inch minimum depth below grade:

  1,500 psf for dead plus design live loads

  An additional 250 psf may be used for each additional 6 inches of footing width or depth, up to a maximum of 2,500 psf.

- Pad foundations, 2 x 2-foot minimum and 7 x 7-foot maximum in plan and 18 inches below grade:

  1,800 psf for dead plus design live loads

  An additional 200 psf may be used for each additional 6 inches of width or depth, up to a maximum of 2,600 psf.

A one-third (⅓) increase in the allowable bearing pressure may be used when calculating resistance to wind or seismic loads as allowable bearing pressure is governed by settlement and not ultimate soil failure. The indicated 1/3 increases to allowable bearing pressures for wind or seismic loads are applicable to ASD calculation methods as presented in ASCE7-16, Section 2.4 for ASD design.

If the anticipated loads exceed the estimated values stated in Section 1.1 (100 kips for Isolated Footings and 4 kip/linear-ft for continuous footings), the geotechnical engineer must reevaluate the allowable bearing values as the allowable bearing was controlled by the allowable settlement from dry seismic, collapse, and static loads. Underground utilities should be designed for an anticipated settlement within the building areas.

The spacing between any large spread footings should be evaluated by the geotechnical engineer during the plan review stage to confirm or modify the settlement estimates and bearing capacity due to large footings and the influences from adjacent footings. A preliminary analysis suggests spacing the footings (adjacent edge to adjacent edge) a lateral distance from one another of the width of the largest footing from any adjacent footing, such that influence effects are minor.

Maximum foundation sizes given above are based on settlement due to Dead + Live loads. Transient loads such as earthquake or wind loads are not subject to the stated size limitations;

however, the allowable bearing pressure (including ⅓ increase) should be followed considering the relevant foundation sizes given above.

A 1:1 (h:v) influence zone may be considered for footing design which extends downward and outward from the footing outside edges. Other structures or footings within this 1:1 projection should include surcharge loading and vice versa if other footings or structures project onto new footings.

An average modulus of subgrade reaction, k, of 200 pounds per cubic inch (pci) can be used to design lightly loaded footings and slabs founded upon compacted fill. Other foundations such as mat slabs, will require the use of differing modulus of subgrade reaction values than used for lightly loaded slabs. Please contact Earth Systems for k values used for mat foundations.

The table below is based upon the above presented allowable, short term, and ultimate bearing pressures. Values may be increased by the provisions given above. Short Term allowable bearing may use the values presented below (based on Allowable Stress Design) or be based on Code mandated structural reductions, whichever is less. Ultimate bearing capacities consider a factor of safety of 3 (ASD design) to control settlement (4,500 to 5,400 psf ultimate) and a safety factor of 2.25 on transient loads. Ultimate bearing to soil failure depends on foundation size and could be much greater than 5,400 psf.

Table 9

	Maximum Allowable Bearing Capacity (psf) (FS = 3)	**Short Term (Wind/Seismic) (FS = 2.25)**	**Ultimate Bearing Capacity (FS = 1)**
Continuous Foundations	1,500	2,000	4,500
Isolated Pad Foundations	1,800	2,400	5,400

FS = Factor of Safety

Footings should be designed and reinforced by the structural engineer for the specific loading, settlement, or expansive soil conditions. A minimum of two, #4 reinforcing bars should be placed. One near the top of the footing and one near the bottom (3 inches above and below). This reinforcing is not intended to supersede any structural requirements provided by the structural engineer.

An average modulus of subgrade reaction, k, of 200 pounds per cubic inch (pci) can be used to design footings founded upon compacted fill. Stepped foundations should be designed in accordance with the 2022 CBC. CBC 2022 and ACI Section 4.3, Table 4.3.1 should be followed for recommended cement type, water cement ratio, and compressive strength. Seismic Design Category for compressive strength determination is ‘E’. Concrete should be proportioned in accordance with ACI recommendations considering the time of year for placement. Hot weather proportions should be used during high ambient heat days during placement and curing.

Expected Foundation and Fill Settlement: Based on the recommendation for compacted fill, the estimated static settlement (static, collapse) should be on the order of 1 inch, based on footings founded on compacted soils as recommended and the loads presented in Section 1.1. Differential

static settlement is estimated to be less than ½ inch over 40 feet. Within the building area, seismic settlement is estimated to be less than 1 inch, with differential seismic settlement less than ½ inch over 40 feet. Settlement of compacted trench backfill is calculated to be on the order of 0.2% of the total fill height. Differential total settlement between similarly loaded bearing members should be less than 1 inch over a distance of approximately 40 feet, expressed in a post-construction angular distortion ratio of 1:480 or better which includes seismic settlement estimates. At a minimum, foundations should be designed by the structural engineer for the specific static and seismic settlement conditions presented. Settlement calculations are presented in Appendix A.

Minor Deep Foundations: Although no specific elements were identified by the architect, for miscellaneous structural components such as light poles, gate posts, shade structures, temporary retaining walls, and flag poles, may be supported on cast-in-place piles, or direct embed in drilled holes filled with concrete, and the design be based on parameters presented in the subsequent sections of this report assuming 1 inch of settlement. Construction employing poles or posts may utilize design methods presented in Sections 1806A and 1807A with Table 1806A.2 of the CBC Silty Sand (SM) material class. For designs utilizing allowable frictional resistance, Earth Systems recommends the use of Section 1810A.3.3.1.4 and .5 of the CBC. Skin friction and bearing should not act together (not additive) to determine capacity. For piles with an axial load, these design methods apply for piles spaced at least 3 pile diameters center to center for axial loads and 6 pile diameters (in the direction of (and)) for lateral loads. Piers should be a minimum of 6 feet in length. Piles spaced closer than these limits could have soil strength reduction and should be evaluated on a case-by-case basis by geotechnical engineer. A minimum factor of safety of 3 should be considered. Piles which are laterally loaded and located laterally within a distance of ½ the pile length from the retaining wall, should contact Earth Systems for applied wall pressures. Piles located further from the wall do not require application of pressure to the wall.

For piers founded in areas with native soil at the surface, an additional 1.5 feet should be added to the calculated and minimum pile embedment due to the potential effects of long-term surficial disturbance and erosion. Additionally, where piers are constructed adjacent to the tops of slopes, there should be a minimum distance between the top of the slope and the closest edge of the pier of H/3, where 'H' is the height of the slope, otherwise a lateral resistance reduction must be applied. For piers founded closer than a distance H/3 to the crest or within the slope area itself, the calculated lateral resistance of the soil should be reduced by 30 percent. The above recommendations have considered slopes no steeper than 2:1 (horizontal:vertical). Steeper slopes will require additional analysis and may change the recommendations presented.

The on-site soils are expected to be excavatable with conventional drilling, however, soils are sandy and will have a potential for caving. Drilled piers should have a minimum 3 inches of clearance between the embedded post and the soil side wall to allow for adequate placement and flow of concrete.

Drill holes may end up oversize. Casing or other means may be required in a drilled hole. Any "slough" or loose soils at the bottom of the shaft must be removed or tamped prior to setting rebar cages and placing concrete. Extreme care must be exercised to carefully position reinforcing steel cages and place concrete without disturbing the sidewalls of the drilled shafts. We recommend centralizers be used to positively locate rebar cages within the pier shaft. It is

recommended that pier excavations that have not received concrete, not be left open overnight and concrete should be placed the same day.

Normally, drilled pier excavations should be made without the use of water. If necessary, water may be used to facilitate removal of cuttings unless it aggravates caving problems. Added water that may accumulate at the bottom of the hole should be removed from the drilled hole prior to placing the concrete. Sidewalls which have softened from the addition of water should be cleaned of the soft/loose material. Each excavation should be completed in a continuous operation and the concrete should be placed without undue delay. The contractor should use appropriate means to clean the bottom of the excavation so that no loose material is present at the base of the pier. We do not recommend overdrilling beyond specified pier tip elevations to eliminate the need for bottom cleaning in order to account for slough or loose materials at the excavation bottom. To reduce the potential for caving and sidewall sloughing which may contaminate concrete during placement, and segregation, concrete should be placed by tremie methods and not directly chute-dumped into the hole.

Where casing is used with drilled holes and cannot be withdrawn, the skin friction capacity is theoretically reduced, as are passive resistance and stiffness. The amount of reduction is subject to assessment by the geotechnical consultant. The use of casing with drilled holes should be approved prior to use by the geotechnical engineer.

If casing is required, it should be withdrawn as the concrete is being placed, maintaining a 3-foot minimum head of concrete within the casing. This is to prevent reduction in the diameter of the drilled shaft due to earth pressure on the fresh concrete and to prevent extraneous material from falling in from the sides and mixing with the concrete. Concrete placement should continue in this manner until suitable concrete extends to the top of the excavation or forms. The upper eight feet of the pier should be consolidated by vibratory means.

Pier capacity is greatly dependent on the soil conditions at the location of the pier and upon contractor means and methods of placement. It is recommended that drilling operations and concrete placement be performed in the continuous presence of the geotechnical consultant or his representative to confirm that suitable materials for pier support are penetrated, that the dimensions of the installed piers meet the design dimensions, and that the installation has been performed as specified by the 2022 California Building Code. Observation during drilling is required by the 2022 California Building Code on a full-time basis by the geotechnical engineer or his representative. If subsurface conditions noted during drilled pier installation are significantly different than those encountered in our borings, it may be necessary to adjust the overall length of the pier.

Prior to the placement of steel, and again prior to and during the placement of concrete, the excavation must be examined by the geotechnical consultant before proceeding with construction. The contractor should provide all aid and assistance required by the geotechnical and geologic consultants for field monitoring of the drilled pier operations.

Piers are accepted or rejected based on visual observation and testing during construction. The contractor should not allow nor cause any of this work to be permanently enclosed or covered up until it has been observed, tested, and accepted by the geotechnical engineer and all legally constituted authorities having jurisdiction.

5.5 Slope Construction

Slopes are not generally proposed for this project; however, minor slopes (less than 10 feet in height) may be constructed. Site soils are highly susceptible to erosion. Compacted fill slopes protected against erosion (per approved methods such as significant planting, facing, or erosion blankets, etc.) should be constructed at 2:1 (horizontal: vertical) or flatter inclinations. Unprotected slopes with exposed native soils at the surface should be expected to require repair after heavy nuisance or storm runoff occurs due to significant erosion. Slope recommendations may change pending a more in-depth geotechnical evaluation once design plans are developed. Slopes used as nuisance or storm drainage channel slopes, or where erosion will not be maintained should be no steeper than 3:1, or shallower.

Compacted fill should be placed at near optimum moisture content and compacted to a minimum 90 percent of the maximum dry unit weight, as measured in relation to ASTM D 1557 test procedures. The exposed face of any cut or fill slope (upper 12 inches) should have a minimum relative compaction of 90 percent, as measured in relation to ASTM D 1557 test procedures and be compacted at near optimum moisture content for sandy soils. Due to erodible site soils, slope faces should be protected with facing or densely spaced vegetation to reduce the erosion potential.

Surficial Slope Failures: Site soils are highly susceptible to erosion from wind and water sources. All slopes will be exposed to weathering, resulting in decomposition of surficial earth materials, thus potentially reducing shear strength properties of the surficial soils. In addition, these slopes become increasingly susceptible to rodent burrowing. As these slopes deteriorate, they can be expected to become susceptible to surficial instability such as soil slumps, erosion, soil creep, and debris flows. Development areas immediately adjacent to ascending or descending slopes should address future surficial sloughing of soil material and erosion. Such measures may include debris fences, slope facing, catchment areas or walls, freeboard, diversion ditches or berms, soil planting, velocity reducers or other techniques to contain soil material away from developed areas and reduce erosion. Additionally, foundations should be set back at least 5 feet from the edge of slope or as per the 2022 CBC, whichever is greater.

Operation and maintenance inspections should be done after a significant rainfall event and on a time-based criteria (annually or less) to evaluate distress such as erosion, slope condition, rodent infestation burrows, etc. Inspections should be recorded and photographs taken to document current conditions. The repair procedure should outline a plan for fixing and maintaining surficial slope failures, erosional areas, gullies, animal burrows, etc. Repair methods could consist of excavating and infilling with compacted soil erosional features, track walking the slope faces with heavy equipment, as determined by the type and size of repair. These repairs should be performed in a prompt manner after their occurrence. Slope inclinations should be maintained and a maintenance program should include identifying areas where slopes begin to steepen. Where future maintenance is not possible, slopes should be faced to reduce the erosion and degradation potential.

Slope faces are highly erodible even if compacted and will gradually erode and move down slope presenting maintenance issues and debris deposited in drainage devices and flatwork areas. The

minimum material necessary to support landscaping should be specified by the landscape consultant (typically less than 6 inches).

5.6 Slabs-on-Grade

Subgrade: Concrete slabs-on-grade and flatwork may be supported on compacted and moisture conditioned soil placed in accordance with Section 5.1 of this report. The moisture content should be at least the indicated moisture content 24 hours prior to and immediately prior to placing concrete for a depth 12 inches. If the moisture condition is less than indicated, it shall be brought up to or above the indicated moisture content. Compaction should be to at least 90% at near optimum moisture content. Play (Sports) courts are recommended to be placed on at least 4 inches of Class 2 aggregate base, compacted to at least 95% relative compaction (ASTMD 1557).

Vapor Retarder: In areas of moisture-sensitive floor coverings, coatings, adhesives, underlayment, goods or equipment stored in direct contact with the top of the slab, bare slabs, humidity controlled environments, or climate-controlled cooled environments, an appropriate vapor retarder that maintains a permeance of 0.01 perms or less after ASTM E1745's mandatory conditioning tests should be installed to reduce moisture transmission from the subgrade soil to the slab. For these areas, a vapor retarder (Stego wrap 15-mil thickness or equal) should underlie the floor slabs. If a Class A vapor retarder (ASTM E 1745) is specified, the retarder can be placed directly on compacted soil, and be covered with a minimum 2 inches of clean sand.

Clean sand is defined as well or poorly-graded sand (ASTM D 2488) of which less than 5 percent passes the No. 200 sieve and all the material passes a No. 4 sieve. The site soils do not fulfill the criteria to be considered clean sand. Alternatively, the slab designer may consider the use of other vapor retarder systems that are recommended by the American Concrete Institute.

Low-slump concrete should be used to help reduce the potential for concrete shrinkage. The effectiveness of the membrane is dependent upon its quality, the method of overlapping, its protection during construction, the successful sealing of the membrane around utility lines, and sealing the membrane at perimeter terminations and of all penetrations. Capillary breaks beneath slabs should consist of a minimum of at least four inches of permeable aggregate base (Caltrans) material with the following specified gradation;

Table 10
Percent Passing Sieve Size

Sieve Size	Percent Passing
1 inch	100
¾ Inch	90-100
3/8 Inch	40-100
#4	25-40
#8	18-33
#30	5-15
#50	0-7
#200	0-3

Where vapor retarders are placed directly on a gravel capillary break, they should be a minimum of 15 mil thickness.

Where concrete is placed directly on the vapor retarder "plastic", proper curing techniques are essential to minimizing the potential of slab edge curl and shrinkage cracking. The edges of slabs can curl upward because of differential shrinkage when the top of the slab dries to lower moisture content than the bottom of the slab. Curling and cracking are caused by the difference in drying shrinkage between the top and bottom of the slab. Curling and cracking can be exacerbated by hot weather, or dry condition concrete placement, even with proper curing techniques.

The following minimum slab recommendations are intended to address geotechnical concerns such as potential variations of the subgrade and are not to be construed as superseding any structural design. A design engineer should be retained to provide building specific systems to handle subgrade moisture to ensure compliance with SB800 with regards to moisture and moisture vapor.

Slab Thickness and Reinforcement: Structural slabs should be a minimum of 4 inches in actual thickness and be reinforced with # 3 bars at 18 inches on center both ways. Flatwork slabs should be a minimum of 4 inches thick and be jointed to reduce cracking potential. Drive slabs should per as per Section 5.9. Slabs in contact with earth should use closer joints to control cracking or be thickened to allow adequate earth to rebar clearance as per the structural engineer. Reinforcing bars should extend at least 40 bar diameters into the footings and slabs. If slabs are structural, they should be designed for the specific loading conditions.

Slab thickness and reinforcement of slabs-on-grade are contingent on the recommendations of the structural engineer or architect and the Expansion Index of the supporting soil. Based upon our findings, a modulus of subgrade reaction of approximately 200 pounds per cubic inch can be used in concrete lightly loaded (not mat) slab design for the expected compacted subgrade. Mat slab design will require differing modulus values. ACI Section 4.3, Table 4.3.1 should be followed for recommended cement type, water cement ratio, and compressive strength.

If heavily loaded flatwork is proposed (forklift drive areas, heavy racking, non-rubber tires, etc.), the actual thickness should be designed by the structural engineer utilizing techniques of the American Concrete Institute (ACI) and may be greater than 4 inches in thickness. Concrete floor slabs may either be monolithically placed with the foundations or doweled (No. 4 bar embedded at least 40 bar diameters) after footing placement. The thickness and reinforcing given are not intended to supersede any structural requirements provided by the structural engineer. The project architect or concrete inspector should continually observe all reinforcing steel in slabs during placement of concrete to check for proper location within the slab. The minimum concrete rebar cover should be as per the project architect or structural engineer.

Slab-On-Grade Control Joints: Control joints should be provided in all regular concrete slabs-on-grade at a maximum spacing of 26 to 36 times the slab thickness (12 feet maximum on-center each way, 4 to 6 feet for sidewalks) as recommended by American Concrete Institute [ACI] guidelines. All joints should form approximately square patterns to reduce the potential for randomly oriented shrinkage cracks. Control joints in the slabs should be tooled at the time of the concrete placement or saw cut (¼ of slab depth) as soon as the concrete reaches initial set

based on placement observations, workability, and weather conditions but not more than recommended by the ACI. Longer wait times after initial set can lead to increased cracking potential. We recommend a concrete joint location plan be included with the project plans by the architect.

Construction (cold) joints, especially at door threshold exterior to interior slab transitions, should be reinforced with thickened butt joints with ¾-inch dowels at 12 inches on center embedded per ACI or a thickened keyed-joint to resist vertical deflection at the joint. All control joints in exterior flatwork should be sealed to reduce the potential of moisture or foreign material intrusion. These procedures will reduce the potential for randomly oriented cracks, but may not prevent them from occurring.

Curing and Quality Control: The contractor should take precautions to reduce the potential of curling and cracking of slabs in this arid desert region using proper batching, placement, and curing methods. Curing is highly affected by temperature, wind, and humidity.

Quality control procedures should be used, including trial batch mix designs, batch plant inspection, and on-site special inspection and testing. Curing should be in accordance with ACI recommendations contained in ACI 211, 304, 305, 308, 309, and 318. Additionally, the concrete should be vibrated during placement. Concrete should be wet cured for at least 7 days with burlap or plastic and not allowed to dry out to minimize surface cracking.

5.7 Retaining Walls and Lateral Earth Pressures

Retaining Walls: Walls which are restrained at the top such as retaining wall returns, below-grade walls and top of walls tied to floor slabs should be designed with “at rest” earth pressures. Retaining walls, free to tilt at the top 0.1 (dense sand) percent of the wall height, should be designed for “active” earth pressures.

The following list presents lateral earth pressures for use in wall design. The values are given as equivalent fluid pressures ***without*** surcharge loads or hydrostatic pressure. Clay or silt, non-free draining soils are not suitable for wall backfill. Sand or silty sand material may be used for backfill or free draining material should be imported as wall backfill within the zone of 45 degrees projected up from the wall bottom. For free draining material, active and restrained walls equivalent fluid pressures are as follows:

- Retaining walls should be designed for an active soil pressure equivalent to a fluid density of 41 pcf. The active lateral earth pressures are for slope conditions similar to those on-site and backfills using the on-site soils on walls that are free to rotate at least 0.1 percent of the wall height. Walls, which are restrained against movement or rotation at the top, should be designed for an at-rest equivalent fluid pressure of 63 pcf. Walls retaining sloped backfill of 3:1 or 2:1 should increase the presented fluid pressures by 6 pcf and 10 pcf, respectively. Earth Pressures for walls retaining other sloping backfill above the wall can be provided on a case-by-case basis by the geotechnical engineer. The lateral earth pressure values for level backfill are provided for walls backfilled with drainage materials and “very low” expansive soils.
- In addition to the active or at rest soil pressure, the proposed wall structures should be designed (where not excepted) to include forces from dynamic (seismic) earth pressure.

Dynamic pressures are additive to active and at-rest earth pressures (and utilize their respective standard load distribution) and should be considered as an additional 59 pcf for flexible walls, and 76 pcf for rigid walls (Al Atik and Sitar, 2010, Mikola and Sitar, 2013). Seismic pressures are based on PGA_M of 0.89 g (ASCE7-16), Friction Soil Angle of 31°, and a maximum total moist fill density of 127 pcf.

- Where continuous or isolated foundations (building or otherwise) are loaded within 2 feet laterally of a retaining wall, a surcharge pressure from those foundations should be applied to the wall. In these instances, a surcharge of 600 psf should be applied as a horizontal pressure acting on the wall. The pressure distribution should be triangular with 600 psf applied at the top of the retained portion of wall decreasing to zero at the top of wall footing. This surcharge is for footing design as described within. For other footings or pressures, as well as foundations closer than 2 feet, please contact Earth Systems. For footings located at or greater than 7 feet from the top of wall, no foundation surcharge is required to be applied.
- The above recommended values do not include compaction or truck-induced wall pressures. Care must be taken during the compaction operation not to overstress the wall. Heavy construction equipment should be maintained a distance of at least 3 feet away from the walls while the backfill soils are placed. Upward sloping backfill or rock, or surcharge loads from nearby footings can create larger lateral pressures. Should any walls be considered for retaining sloped backfill (or rock) or placed next to foundations, our office should be contacted for recommended design parameters. Where not explicitly defined as above for building foundation surcharge, surcharge loads should be considered if they exist within a zone between the face of the wall and a plane projected 45 degrees upward from the base of the wall. The increase in lateral earth pressure should be taken as 50% of the surcharge load within this zone. Retaining walls subjected to traffic loads should include a uniform surcharge load equivalent to at least 240 psf for auto or delivery truck (2 axle) traffic at least 3 feet from the back of the wall. Retaining walls with closer traffic or heavier traffic loads should be designed for a 450 psf surcharge load. Retaining walls should be designed with a minimum factor of safety of 1.5.
- A backdrain or an equivalent system of backfill drainage should be incorporated into the retaining wall design, whereby the collected water is conveyed to an approved point of discharge. Design should be in accordance with the 2022 California Building Code. Drain rock should be wrapped in filter fabric such as Mirafi 140N as a minimum. Backfill immediately behind the retaining structure should be a free-draining granular material or commercial drainage panels behind the wall which lead to an approved outlet system. Waterproofing should be according to the designer's specifications. Water should not be allowed to pond or infiltrate near the top of the wall. To accomplish this, the final backfill grade should be such that water is diverted away from the retaining wall.
- Compaction on the retained side of the wall within a horizontal distance equal to one wall height (to a maximum of 6 feet) should be performed by hand-operated or other lightweight compaction equipment (90% compaction relative to ASTM D 1557 at near optimum moisture content). This is intended to reduce potential locked-in lateral pressures caused by compaction with heavy grading equipment. Foundation subgrade preparation should be as specified in Section 5.1.

Frictional and Lateral Coefficients:

- Resistance to lateral loads (including those due to wind or seismic forces) may be provided by frictional resistance between the bottom of concrete foundations and the underlying soil/slurry, and by ½ the passive soil pressure against the foundations if friction and passive resistance are utilized together. An allowable coefficient of friction of 0.35 may be used between cast-in-place concrete foundations and slabs and the underlying soil. An allowable coefficient of friction of 0.30 may be used between pre-cast or formed concrete foundations and slabs and the underlying soil
- Allowable passive pressure may be taken as equivalent to the pressure exerted by a fluid weighing 300 pounds per cubic foot (pcf). The upper 1 foot of soil should not be considered when calculating passive pressure unless confined by overlying asphalt concrete pavement or Portland cement concrete slab. The soils pressures presented have considered onsite fill soils. Testing or observation should be performed during grading by the soils engineer or his representative to confirm or revise the presented values.
- Passive resistance for thrust blocks bearing against firm natural soil or properly compacted backfill can be calculated using an equivalent fluid pressure of 300 pcf. The maximum passive resistance should not exceed 2,000 psf.
- Friction and soil pressure values (resistance) presented above are considered to have a factor of safety of 1.5 in relation to ultimate values (factor of safety = 1) and may be combined. The above values are not permitted to be increased by 1/3 due to short term loads such as wind or seismic forces.
- Construction employing poles or posts (i.e. lamp posts) may utilize design methods presented in Section 1807A of the CBC for silty sand (SM) material class, using the lateral bearing pressure values (psf/ft) given in Table 1806A.2.
- The passive resistance of the subsurface soils will diminish or be non-existent if trench sidewalls slough, cave, or are over-widened during or following excavations. If this condition is encountered, our firm should be notified to review the condition and provide remedial recommendations, if warranted.

5.8 Seismic Design Criteria

This site is subject to strong ground shaking due to potential fault movements along regional faults including San Andreas, Garlock, Eastern California Shear zone, and other southern California faults. Engineered design and earthquake-resistant construction increase safety and allow development of seismic areas. The minimum seismic design should comply with the 2022 edition of the California Building Code and ASCE 7-16 (including Supplement 3) using the seismic coefficients given in the table below, which assume the Exception of 11.4.8 in ASCE7-16 applies. The site is not liquefiable. Based on this section, the site is classified as Site Class D. If these exceptions do not apply, the structural engineer should contact Earth Systems for a Site-Specific Ground Motion Analysis, as the values below would no longer be valid.

Note to the Structural Engineer: the seismic coefficients in the Table, below, apply to the general procedure for determining seismic coefficients. In other words, the seismic coefficients were not determined by a Site-Specific Ground Motion Analysis, which is allowed if ASCE 7-16's Section 11.4.8 Supplement 3 Exceptions are accepted by the structural engineer.

According to the current procedure as outlined in ASCE 7-16, Supplement 3, a ground motion hazard analysis shall be performed in accordance with Section 21.2 for structures:

1) On Site Class D sites with S_1 greater than or equal to 0.2.

> EXCEPTION Item 1: A ground motion hazard analysis is not required where the value of the parameter S_{M1} determined by Eq. (11.4-2) is increased by 50% for all applications of S_{M1} in this Standard. The resulting value of the parameter S_{D1} determined by Eq. (11.4-4) shall be used for all applications of S_{D1} in this Standard.

During plan review of the foundation, **Earth Systems will request a letter from the structural engineer** stating ASCE 7-16's Section 11.4.8 Exception 1 applies to the structures applicable to this report's Table below, which contains the modified S_{M1} and resultant modified S_{D1} values. The structural engineer and client should contact Earth Systems if ASCE 7-16's Exceptions do not apply to the structure/s and request Earth Systems to perform a Site-Specific Ground Motion Hazard Analysis.

General Procedure for seismic parameters is presented below considering a Site Class D shear wave velocity. Values were obtained from a web site (https://seismicmaps.org/) using a coordinate location of Latitude 34.5885°N and Longitude 118.0549°W for that portion of the site where the designated borings were located. The structural design engineer should use the most conservative results based on the specific building design and spectral response.

Table 11
2022 CBC (ASCE 7-16) Seismic Parameters

Site Class:	D
Risk Category:	III
Seismic Design Category	E
Maximum Considered Earthquake [MCE] Ground Motion	
Short Period Spectral Response S_s:	1.868 g
1 second Spectral Response, S_1:	0.779 g
Code Design Earthquake Ground Motion*	
F_a	1.0
F_v	1.70
F_{PGA}	1.1
S_{MS}	1.868 g
S_{M1} (unmodified)	1.324 g
S_{M1} (ASCE 7-16 Supplement 3 Modified)	1.986 g
Short Period Spectral Response, S_{DS}	1.245 g
1 second Spectral Response, S_{D1} (unmodified)	0.883 g
1 second Spectral Response, S_{D1} (ASCE 7-16 Supplement 3 Modified)	1.324 g
Peak Ground Acceleration (PGA_M) Eq 11.8-1	0.89 g

*Only if Exception applies, see Section 5.8 text.

The intent of the CBC lateral force requirements is to provide a structural design that will resist collapse to provide reasonable life safety from a major earthquake but may experience some structural and nonstructural damage. A fundamental tenet of seismic design is that inelastic yielding is allowed to adapt to the seismic demand on the structure. In other words, *damage is allowed*. The CBC lateral force requirements should be considered a *minimum* design. The owner and the designer may evaluate the level of risk and performance that is acceptable. Performance based criteria could be set in the design. The design engineer should exercise special care so that all components of the design are fully met with attention to providing a continuous load path. An adequate quality assurance and control program is urged during project construction to verify that the design plans and good construction practices are followed. This is especially important for sites lying close to the major seismic sources.

Actual accelerations may be more or less than estimated and spectral accelerations will exceed 1 g for the assumed near-field San Andreas fault earthquake. Vertical accelerations are typically ⅓ to ⅔ of the horizontal accelerations, but can equal or exceed the horizontal accelerations, depending upon the local site effects and amplification.

Earthquake Performance Statement: Depending upon the extent of structural and geotechnical design of exterior flatwork, walls, utilities, roadways, and other similar site improvements, some damage due to seismic events will occur. Note that all of southern California in general is in earthquake country. Site developments in southern California are typically not designed to mitigate anticipated seismic events without some damage. In fact, the Building Code is intended to provide Life-Safety performance, not complete damage-free design. In other words, some damage from earthquakes in the form of structural damage, settlement, cracking, and disruption of utilities is expected and that repair after an earthquake event will likely be required. It is not the standard of practice for site developers to fully mitigate all anticipated earthquake induced hazards. This report is based on that understanding and Standard of Care.

According to literature form Robert W. Day, doors and windows may stick at distortion angles between 1:240 and 1:175. In this situation, a human being could be put in a life-threatening situation. Therefore, Earth Systems recommends the maximum distortion angle using all the settlement conditions including seismic settlements be 1:240 or better. For all settlement conditions excluding seismic settlement, the structure's maximum distortion angle should be 1:480 unless greater structural design is provided to accommodate the anticipated distortion.

5.9 Driveways and Parking Areas

Pavement structural sections for associated drive areas including recommendations for standard asphalt concrete, and Portland cement concrete are provided below and are based upon blended on-site soils as described in Section 5.1. Soils differing from those described will require differing pavement sections. The appropriate pavement section depends primarily on the shear strength of the subgrade soil exposed after grading in the near finished subgrade elevation and the anticipated traffic over the useful life of the pavement. R-value testing or observation of subgrade soils should be performed of near finished subgrade elevation soils to verify and/or modify the preliminary pavement sections presented within this report.

Pavement Area Preparation: In street, drive, and parking areas, the exposed subgrade should be overexcavated as recommended in Section 5.1, moisture conditioned and compacted.

Compaction should be verified by testing. Aggregate base should be compacted to a minimum 95% relative compaction (ASTM D 1557).

Automobile Traffic and Parking Areas: Pavement sections presented in Table 12 for automobile type traffic areas and are based on an assumed R-value and current Caltrans design procedures. Traffic Indices (TI) of 5 and 7 were used to facilitate the design of asphalt concrete pavements for parking and main drives, including fire lanes. The fire lane calculation assumed a conservative traffic flow of one fire truck per day entering and exiting the site on the same path (20 year life cycle), and a maximum loading of an 88,000 lb Tandem Axle apparatus (approximate 20,000 lb front axle load and two 34,000 lb rear axles loads) which is based upon the *Emergency Vehicle Size and Weight Regulation Guideline*, dated November 22, 2011, prepared by the Fire Apparatus Manufacturers' Association.

Based on the above stated traffic pattern and apparatus loads, a Traffic Index of 4.6 is calculated for fire lanes. For comparison, a 40-year fire lane life cycle analysis results in a Traffic Index of 5. The TI's assumed below should be reviewed by the project Civil Engineer to evaluate the suitability for this project. All design should be based upon an appropriately selected traffic index. Changes in the traffic indices will affect the corresponding pavement section.

Table 12
Preliminary Flexible Pavement Section Recommendations
On-site/Interior Automobile Drive Areas

R-Value of Subgrade Soils - 50 (Assumed) Design Method – CALTRANS

Traffic Index (Assumed)*	Pavement Use	Flexible Pavements**	
		Asphaltic Concrete Thickness (inches)	Aggregate Base Thickness (inches)
5	Parking Areas & Fire Lanes***	3	4
7	Main Drive Areas	4	4.5

*The presented Traffic Indices should be confirmed by the project civil engineer. Changes to the Traffic Index will result in a differing pavement section required.

**Pavement Sections were calculated using Caltrans methods.

***Where fire lanes will be a part of a main drive use with other traffic, buses, or trucks, the Main Drive Area pavement section should be used.

Conventional, rigid pavements, i.e. Portland cement concrete (PCC) pavements, are recommended in areas that will be subject to relatively high static wheel loads and/or heavy vehicle loading and unloading and turning areas (i.e. truck/bus lanes). This is due to rutting and shoving that can occur due to the heavy vehicle loads and the repetitious set path which is followed at the bus/delivery trucks areas where the same wheel track and stopping occurs generally in the same spot each time. The vehicle load combined with hot summer asphalt (AC) concrete causes the upper surface of the AC to creep forming ruts in conjunction with the braking and accelerating forces which shove the AC. Turning forces also do the same.

The pavement section below is based upon the American Concrete Institute (ACI) *Guide for Construction of Concrete Parking Lots, ACI 330R*, utilizing a Jointed Plain Concrete Pavement (no rebar) with load resistance based upon PCC thickness, and the assumptions outlined below. The civil engineer and client may elect to incorporate reinforcing bar into PCC to control the opening of typical fracture faces should it be desired; however rebar is not needed for load support. ACI 330R provides reinforcement options.

Table 13
Preliminary Portland Cement Concrete Pavement Sections

Area	Minimum Pavement PCC Thickness (inches)	Minimum Class 2 Aggregate Base Thickness* (inches)	Minimum 28 Day Flexural Strength (psi)	Concrete Compressive Strength (psi)
Fire Lane (Traffic Category A-1, ADTT =1)	4.5	4	550	3,650
Truck/Bus Access or Loading/Unloading Areas (Traffic Category C, ADTT =100)	6.5	4	550	3,650

*See Section 5.6 for other slab on grade thickness recommendations

Should the actual traffic category vary from those assumed and listed above, these sections should be modified. All above recommended preliminary pavement sections are contingent on the following recommendations being implemented during construction:

- Pavement should be placed upon compacted fill processed as described in Section 5.1. The upper 12 inches of subgrade soils beneath the asphalt concrete and conventional PCC pavement section should be compacted to a minimum of 95% relative compaction (ASTM D 1557).
- Subsequent to utility installation, the entire pavement (including PCC) final subgrade should be scarified 12 inches, moisture conditioned to near optimum moisture content, and compacted to a minimum 95% relative compaction immediately prior (within a few days) to the placement and compaction of aggregate base.
- Subgrade soils and aggregate base should be in a stable, non-pumping condition at the time of placement and compaction. Exposed subgrades should be proof-rolled to verify the absence of soft or unstable zones.
- Aggregate base materials should be compacted at near optimum moisture content to at least 95 percent relative compaction (ASTM D 1557) and should conform to Caltrans Class

II criteria. Standard Specifications for Public Works Construction “Greenbook” standards (Crushed Aggregate Base class) may be used in lieu of Caltrans. Compaction efforts should include rubber tire proof-rolling of the aggregate base with heavy compaction-specific equipment (i.e. fully loaded water trucks).

- All concrete curbs separating pavement from landscaped areas should extend at least 6 inches into the subgrade soils to reduce the potential for movement of moisture into the aggregate base layer (this reduces the risk of pavement failures due to subsurface water originating from landscaped areas).
- Asphaltic concrete should be Caltrans 70-10, ½-in. or ¾-in. grading and compacted to a minimum of 95% of the 75-blow Marshall density (ASTM D 1559) or equivalent.
- Portland cement concrete pavements should be constructed with transverse joints at maximum spacing of 12 feet. A thickened edge should be used where possible and, as a minimum, where concrete pavements abut asphalt pavements. The thickened edge should be 1.2 times the thickness of the pavement (e.g. 5.4 inches for a 4.5-inch pavement), and should taper back to the PCC thickness over a horizontal distance on the order of 3 feet.
- All longitudinal or transverse control joints should be constructed by hand forming or placing pre-molded filler such as "zip strips." Expansion joints should be used to isolate fixed objects abutting or within the pavement area.
- The expansion joint should extend the full depth of the PCC pavement. Joints should run continuously and extend through integral curbs and thickened edges. We recommend that joint layout be adjusted to coincide with the corners of objects and structures. In addition, the following is recommended for concrete pavements:

    1. Slope pavement at least ½ percent to provide drainage;
    2. Provide rough surface texture for traction;
    3. Cure PCC concrete with curing compound or keep continuously moist for a minimum of seven days;
    4. Keep all traffic off concrete until PCC compressive strength exceeds 2,000 pounds per square inch (truck traffic should be limited until the concrete meets the design strength (3,650 psi); and
    5. Consideration should be given to having PCC construction joints keyed or using slip dowels on 24-inch centers to strengthen control and construction joints. Dowels placed within dowel baskets should be incorporated into the concrete at each saw-cut control joint (i.e. dowel baskets and dowels are set in place prior to placement of concrete).

- Portland cement concrete placement and curing should, at a minimum, be in accordance with the American Concrete Institute [ACI] recommendations contained in ACI 211, 304, 305, 308, 309, and 318.
- Within the structural pavement section areas, positive drainage (both surface and subsurface) should be provided. In no instance should water be allowed to pond on the

pavement. Roadway performance depends greatly on how well runoff water drains from the site. This drainage should be maintained both during construction and over the entire life of the project.

- Proper methods, such as hot-sealing or caulking, should be employed to limit water infiltration into the pavement base course and/or subgrade at construction/expansion joints and/or between existing and reconstructed asphalt concrete sections (if any). Water infiltration could lead to premature pavement failure.
- To reduce the potential for detrimental settlement, excess soil material, and/or fill material removed during any footing or utility trench excavation, should not be spread or placed over compacted finished grade soils unless subsequently compacted to at least 90% of the maximum dry unit weight, as evaluated by ASTM D 1557 test procedure, at near optimum moisture content, or 95% if placed under areas designated for pavement.
- Where new roadways will be installed against existing roadways, the repaired asphalt concrete pavement section should be designed and constructed to have at least the pavement and aggregate base section as the original pavement section thickness (for both AC and base) or upon the newly calculated pavement sections presented within, whichever is greater.
- **Pavement designs assume that heavy construction traffic will not be allowed on base cap or finished pavement sections. Construction equipment will cause premature cracking of AC pavement.**

5.10 Surface and Subsurface Site Drainage and Maintenance

- Water control and conveyance is a critical aspect of project design. It is highly recommended that landscape irrigation or other sources of water be collected and conducted to an approved drainage device. Landscaping grades should be lowered and sloped such that water drains to appropriate collection and disposal areas. All runoff water should be controlled, collected, and drained into proper drain outlets. Control methods may include curbing, ribbon gutters, landscape vertical barriers in planters, 'V' ditches, or other suitable containment and redirection devices.
- It is highly recommended that landscape irrigation or other sources of water be collected and conducted to an approved drainage device. Site drainage should be devised such that runoff should be directed away from the tops of all graded slopes. Water should not freely flow over slopes or retaining wall faces. Diversion and conveyance structures which can accommodate water and eroded soil should be constructed at the tops and toes of all slopes. Lined swales at the top and bottom of slopes, and at the top of retaining walls are recommended.
- Positive drainage should be maintained away from the structure foundations (5 percent for 10 feet minimum) to prevent ponding, water intrusion, and subsequent saturation of the foundation soils. Gutters and downspouts in conjunction with a 2 percent (%) hardscape grade sloped away from structures draining to area drains can be considered as a means to convey water away from foundations if increased fall is not provided. A

minimum 2% fall is required by the 2022 CBC. There is an exception where less than 2 % grade is allowable if the area is for a door landing or ramp per ADA regulations.

- In no instance should water be allowed to flow or pond against structures, slabs or foundations or flow over unprotected slope faces. Adequate provisions should be employed to control and limit moisture changes in the subgrade beneath foundations or structures to reduce the potential for soil saturation. Landscape borders should not act as traps for water within landscape areas. Potential sources of water such as piping, drains, over-spray broken sprinklers, etc., should be frequently examined. Any such leakage, over-spray, or plugging should be immediately repaired.
- Drainage should be maintained for paved areas. Water should not pond on or near paved areas, slabs, or foundations. Ponded water can saturate subgrade soils and lead to pavement, slab, flooring, and foundation failure. The following additional recommendations are provided in regard to site drainage and structure performance. These recommendations are in addition to those in the 2022 project soils report.
- The above recommendations are recommended to be available as part of the maintenance documents such that end user improvements can be designed and maintained to allow proper drainage. End user improvements which do not follow these recommendations are at increased risk of causing moisture intrusion and water damage.
- When grades of 5 percent for 10 feet away from foundations are not possible, the CBC allows for alternative drainage systems (Section 1804A.3). Earth Systems experience has found that alternative methods may include impervious surface material (such as concrete and asphalt), area drains, and horizontal moisture barriers. Please contact Earth Systems for additional information or if the project has difficulty making grades.
- Applied irrigation to maintain landscaping should be controlled to the minimum volume and frequency necessary to sustain plant material. Excess and frequent watering could lead to saturation and standing water which increase the potential for soil expansion. The irrigation system designer should consider these conditions in their design and control irrigation accordingly.
- Maintenance of drainage systems and infiltration structures can be the most critical element in determining the success of a design. They must be protected and maintained from sediment-laden water both during and after construction to prevent clogging of the surficial soils any filter medium. The potential for clogging can be reduced by pre-treating structure inflow through the installation of maintainable forebays, biofilters, or sedimentation chambers. In addition, sediment, leaves, and debris must be removed from inlets and traps on a regular basis. Since these and other factors (such as varying soil conditions) may affect the rate of water infiltration, it is imperative to apply a conservative factor of safety [FOS] to unfactored Basic Percolation/Infiltration Rates to provide a reliable basis for design. In order to account not only for the unknown factors above but also for changes of conditions during the use of the structures such as potential clogging effects due to washing in of soil fines, a FOS between 3 and 10 should be applied to lower infiltration rates.

- The factor of safety should be selected by the project drainage engineer and may be dependent on agency guidelines and the presence of testing, filters, and sedimentation structures. If these measures are provided, the factor of safety can be reduced.
- The drainage pattern should be established at the time of final grading and maintained throughout the life of the project. Additionally, drainage structures should be maintained (including the de-clogging of piping, basin bottom scarification, soil crust removal, etc.) throughout their design life. Maintenance of these structures should be incorporated into the facility operation and maintenance manual. Structural performance is dependent on many drainage-related factors such as landscaping, irrigation, lateral drainage patterns and other improvements.
- Drywells and any gravel fill should be separated from the native soils with filter fabric such as Mirafi 140N or directly similar (similarly approved by the geotechnical engineer).
- Drywells and infiltration underground chambers should be located at least 20 feet from any structure or be setback outside a projection of 1:1 (h:v) from the projection upward from the bottom of any foundation, whichever is greater.
- Water should not pond within 10 feet of building foundations (Nelson, 2015). The civil engineer producing the grading plan is notified that a gap made of clean sand is typically found between the vapor barrier and bottom of slabs or foundations. If water intrusion into this gap is possible the civil engineer shall either provide for no ponding or an impervious material to prevent water intrusion into the sand gap.

Section 6
LIMITATIONS AND ADDITIONAL SERVICES

6.1 Uniformity of Conditions and Limitations

Our findings and recommendations in this report are based on selected points of field exploration, laboratory testing, and our understanding of the proposed project. Furthermore, our findings and recommendations are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil or groundwater conditions could exist between and beyond the exploration points. The nature and extent of these variations may not become evident until construction. Variations in soil or groundwater may require additional studies, consultation, and possible revisions to our recommendations.

The planning and construction process is an integral design component with respect to the geotechnical aspects of this project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soil and material affecting the performance of the proposed structure, unanticipated or changed conditions can be disclosed during demolition and construction. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process and to verify that our geotechnical recommendations have been properly interpreted and implemented during construction. Therefore, we recommend that Earth Systems be retained during the construction of the proposed improvements to observe compliance with the design concepts and geotechnical recommendations, and to allow design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing this investigation. If we are not accorded the privilege of performing this review, we can assume no responsibility for misinterpretation or the applicability of our recommendations. The above services can be provided in accordance with our current Fee Schedule.

Our evaluation of subsurface conditions at the site has considered subgrade soil and groundwater conditions present at the time of our study. The influence(s) of post-construction changes to these conditions such as introduction or removal of water into or from the subsurface will likely influence future performance of the proposed project. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions due to the limitation of data from field studies. The availability and broadening of knowledge and professional standards applicable to engineering services are continually evolving. As such, our services are intended to provide the Client with a source of professional advice, opinions and recommendations based on the information available as applicable to the project location and scope. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing by Earth Systems.

Findings of this report are valid as of the issued date of the report. However, changes in conditions of a property can occur with passage of time, whether they are from natural processes or works of man, on this or adjoining properties. In addition, changes in applicable standards

occur, whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of one year.

This report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the information and recommendations contained herein to the attention of the architect and engineers for the project so that they are incorporated into the plans and specifications for the project. The owner or the owner's representative also has the responsibility to verify that the general contractor and all subcontractors follow such recommendations. It is further understood that the owner or the owner's representative is responsible for submittal of this report to the appropriate governing agencies.

Earth Systems has striven to provide our services in accordance with generally accepted geotechnical engineering practices in this locality at this time. No warranty or guarantee, express or implied, is made. This report was prepared for the exclusive use of the Client and the Client's authorized agents. Earth Systems does not practice architectural, civil, structural, or similar professional services and takes no responsibility for calculations, design methods, or any portion of others design.

Earth Systems should be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation of our recommendations. The owner or the owner's representative has the responsibility to provide the final plans requiring review to Earth Systems' attention so that we may perform our review.

Any party other than the client who wishes to use this report shall notify Earth Systems of such intended use. Based on the intended use of the report, Earth Systems may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Earth Systems from any liability resulting from the use of this report by any unauthorized party.

In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Earth Systems' engineer that such changes do not affect our recommendations. Failure to do so will vitiate Earth Systems' recommendations.

Although available through Earth Systems, the current scope of our services does not include an environmental assessment or an investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

6.2 Additional Services

This report is based on the assumption that an adequate program of client consultation, construction monitoring, and testing will be performed during the final design and construction phases to check compliance with these recommendations. Maintaining Earth Systems as the geotechnical consultant from beginning to end of the project will provide continuity of services.

The geotechnical engineering firm providing tests and observations shall assume the responsibility of Geotechnical Engineer of Record.

Construction monitoring and testing would be additional services provided by our firm. The costs of these services are not included in our present fee arrangements but can be obtained from our office. The recommended review, tests, and observations include, but are not necessarily limited to, the following:

- Consultation during the final design stages of the project;
- A review of the building and grading plans to observe that recommendations of our report have been properly implemented into the design;
- Observation and testing during site preparation, grading, and placement of engineered fill as required by CBC Sections 17 and Appendix J or local grading ordinances;
- Consultation as needed during construction;
- Special Inspection and materials testing of concrete, steel, welding, etc.

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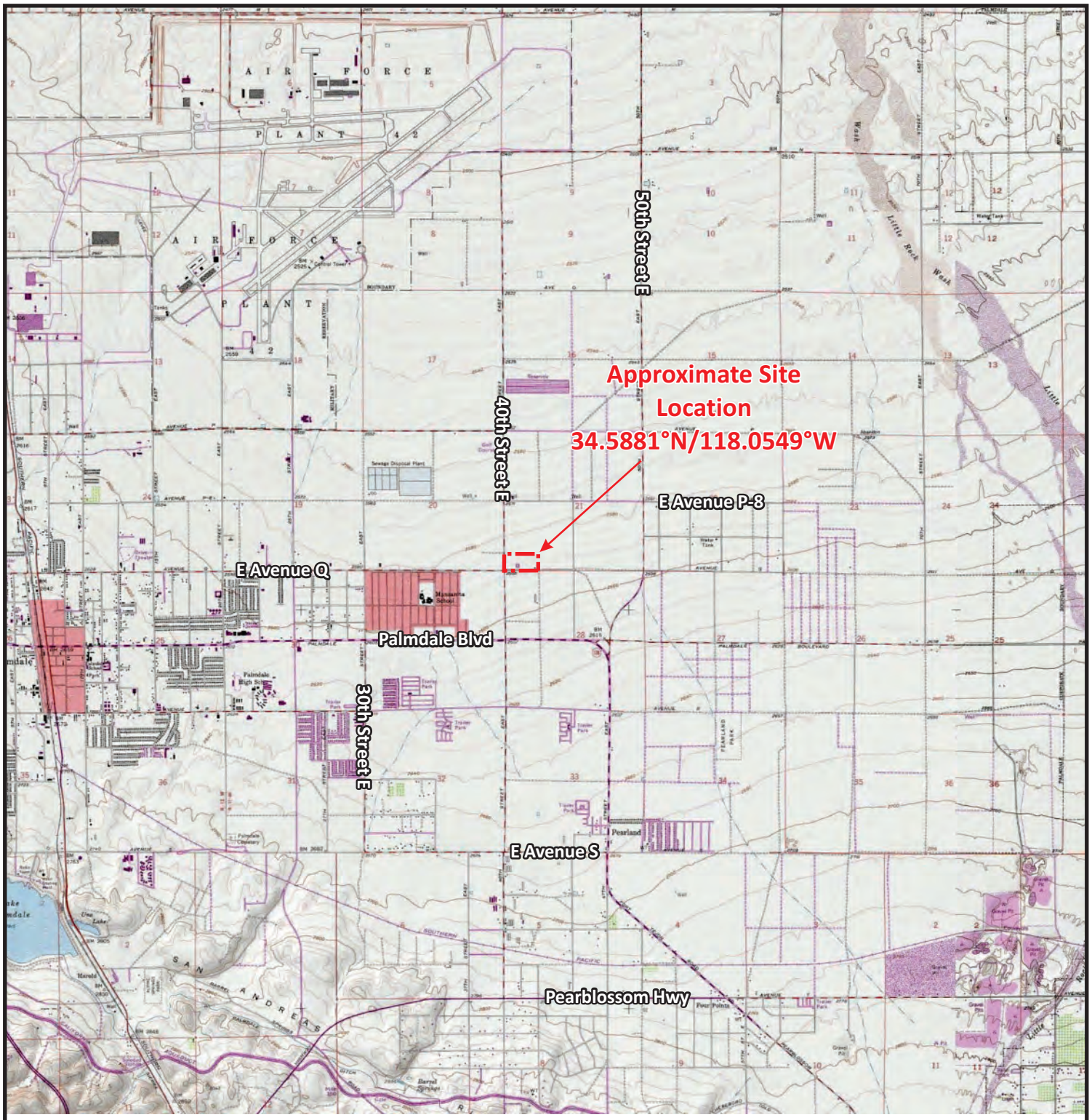
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APPENDIX A

Plate 1 – Site Vicinity Map
Plate 2 – Proposed Site Improvements
Plate 2a – Proposed Site Improvements
Plate 3 – Boring Location Map & Site Geology
Plate 3a – Geologic Cross Section A-A'
Plate 4 – State of California Geomorphic Map
Plate 5 – Regional Geologic Map
Plate 6 – Local Geologic Map
Plate 7 – Alquist-Priolo Earthquake Faults Zones
Plate 8 – Regional Fault Map
Plate 9 – Earthquake Epicenter Map
Plate 10 – Little Rock Dam Inundation Map
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Table A-2 - Historic Earthquakes
Table A-3 2022 - CBC Seismic Design Parameters
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Soil Classification System
Logs of Geotechnical Borings (21)
Site Class Estimator (3 pages)
Dry Seismic Settlement (6 pages)
Spread Footing Static Load Settlement (3 pages)
Continuous Footing Static Load Settlement (3 pages)



Base Map: USGS 7-1/2' Quadrangle, *La Liebre Ranch, CA,* 1995, *Neenach School, CA*, 1995.

LEGEND

Approximate Site Boundary

Approximate Scale: 1" = 1 Mile

0 1 Mile 2 Miles

N

Plate 1
Site Vicinity Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

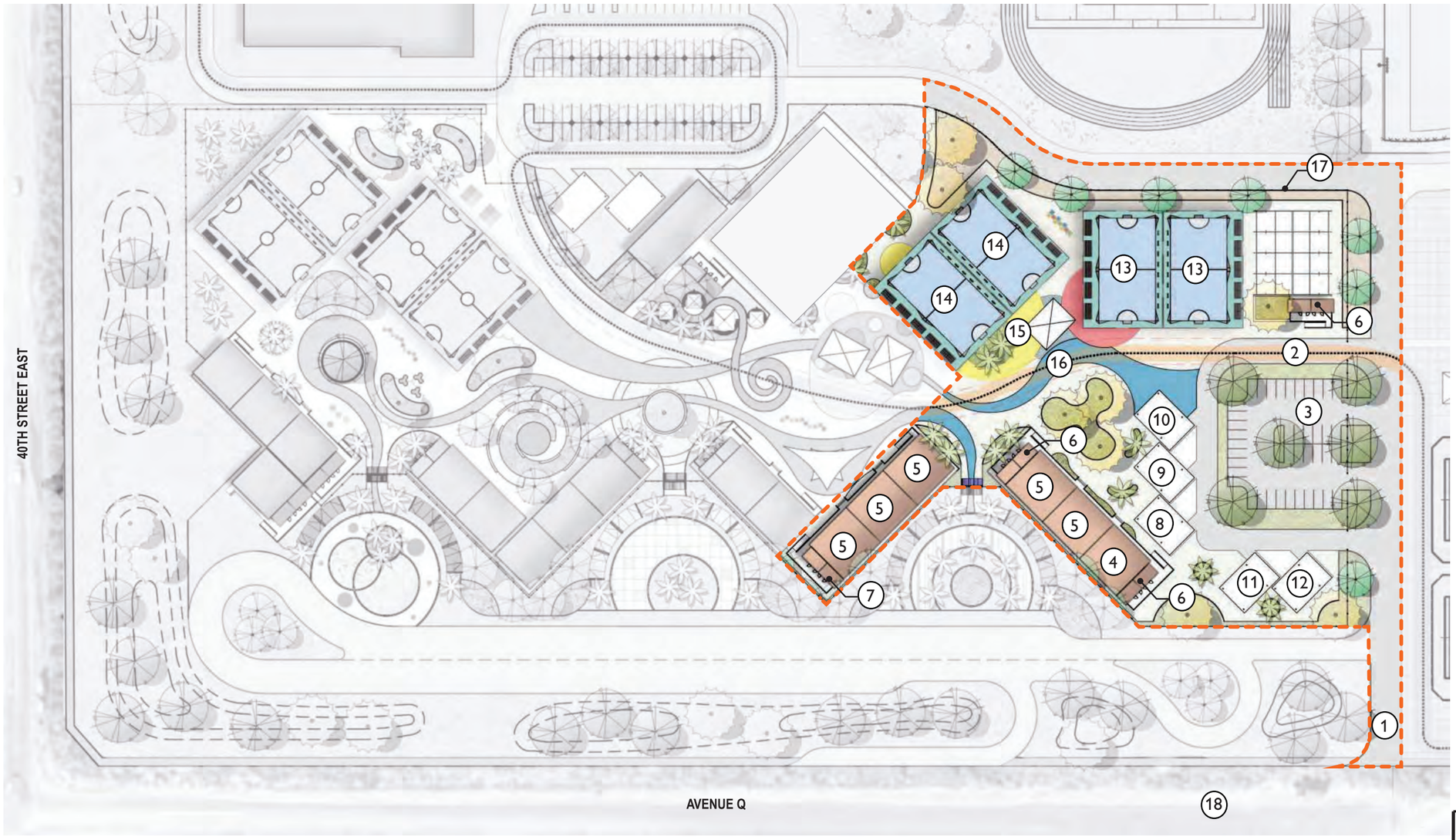
Earth Systems

12/3/2025

File No.: 307083-004

PHASING | PHASE 01A

BKF ENGINEERS | nuvis LANDSCAPE ARCHITECTURE | LIONAKIS



LEGEND

1. SITE ACCESS ALIGNED WITH (E) 42ND STREET
2. TEMPORARY BUS DROP OFF
3. STAFF PARKING
4. **ADMIN MODULAR BUILDING | 1920 SQFT.**
5. **FLEXIBLE MODULAR STUDIOS (5) | 1920 SQFT.**
6. MODULAR RESTROOM (3) | 420 SQ FT.
7. MODULAR ELECTRICAL ROOM | 420 SQFT.
8. **TECHNOLOGY BUS COVERED PARKING**
9. **SCIENCE BUS COVERED PARKING**
10. **LIBRARY BUS COVERED PARKING**
11. **HEALTH BUS COVERED PARKING**
12. **FOOD TRUCK COVERED PARKING**
13. **MINI-PITCH SPORTS COURTS W/ COVERING (2)**
14. **MINI-PITCH SPORTS COURT (2)**
15. PLAYGROUND WITH SHADE STRUCTURE
16. FIRE ACCESS LANE
17. INTERIOR FENCING
18. OFF-SITE IMPROVEMENTS OF AVE Q

◯ **IDENTIFIED AS A PRIORITY TO THE DISTRICT TO HAVE IN FIRST CONSTRUCTION PHASE**

Reference: Phase 01A ELOP Center Master Plan dated 10/7/2025

Plate 2
Proposed Site Improvements

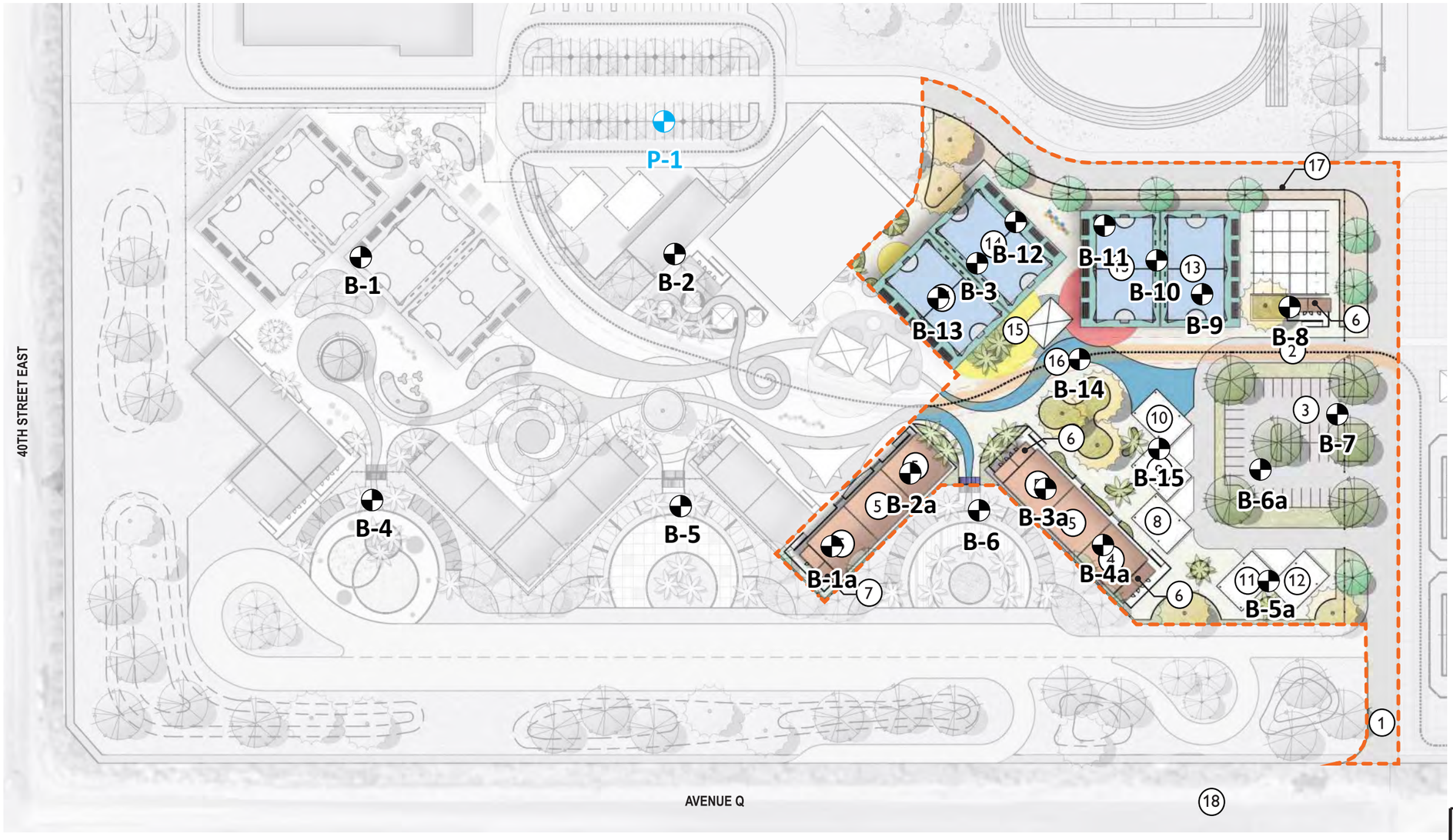
Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

12/3/2025 | File No.: 307083-004

PHASING | PHASE 01A

BKF ENGINEERS | NUVIS LANDSCAPE ARCHITECTURE | LIONAKIS



LEGEND

1. SITE ACCESS ALIGNED WITH (E) 42ND STREET
2. TEMPORARY BUS DROP OFF
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5. FLEXIBLE MODULAR STUDIOS (5) | 1920 SQFT.
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IDENTIFIED AS A PRIORITY TO THE DISTRICT TO HAVE IN FIRST CONSTRUCTION PHASE

B-15 Approximate Exploration Locations

P-1 Approximate Perc Test Locations

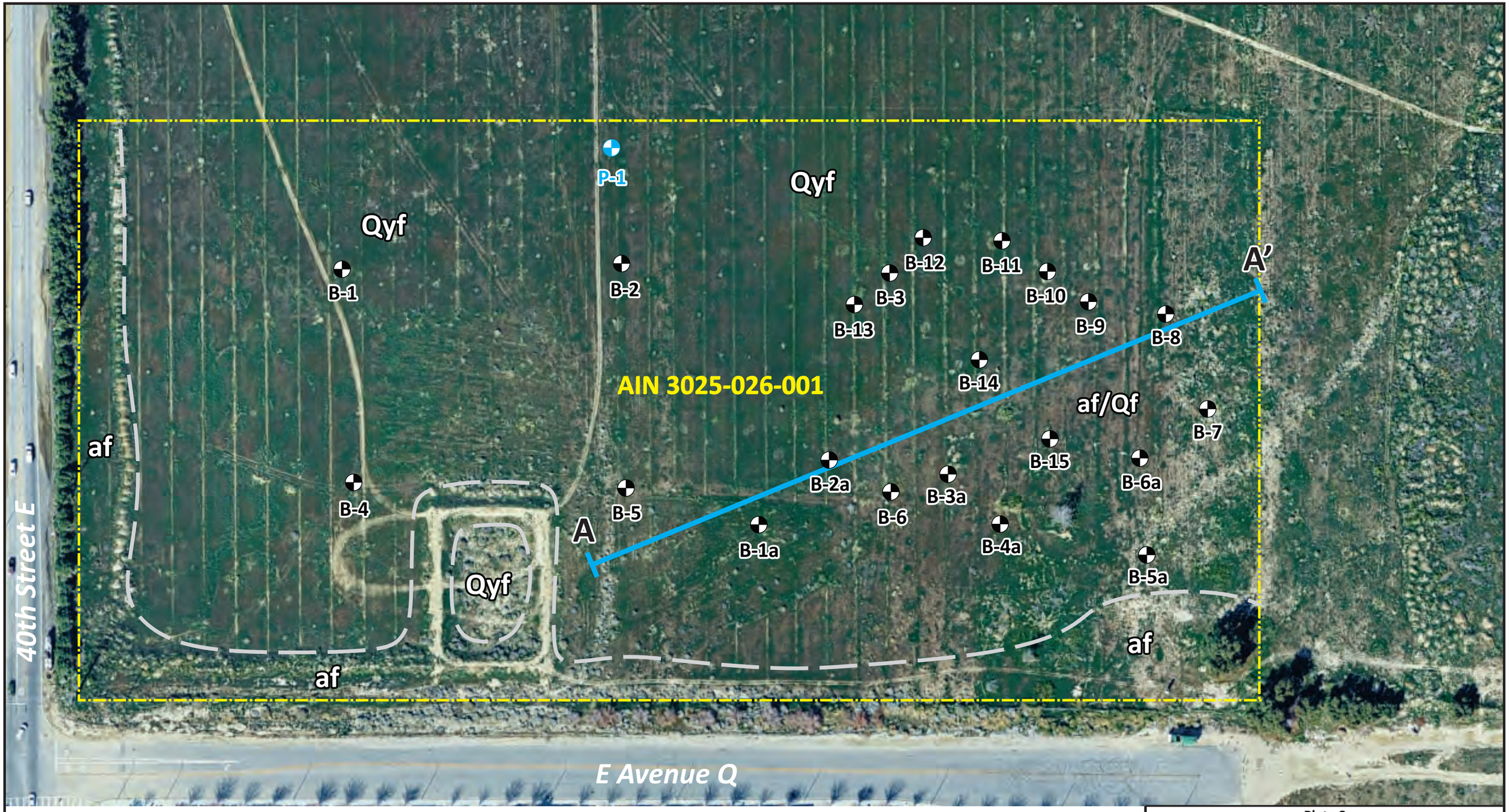
Reference: Phase 01A ELOP Center Master Plan dated 10/7/2025

Plate 2a
Proposed Site Improvements

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

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LEGEND

- Approximate Site/AIN Boundaries
- **B-15** Approximate Exploration Locations
- **P-1** Approximate Perc Test Locations
- **af** - Artificial Fill
- **Qyf** - Quaternary (Middle Holocene) Alluvial Fan Deposits
- **A** — **A'** Approximate Cross Section Location
- Contact: Dashed where approximate, dotted/queried where conjectural

N

Approximate Scale: 1" = 100'

0 100' 200'

Reference: Google Earth, 2/14/2024.

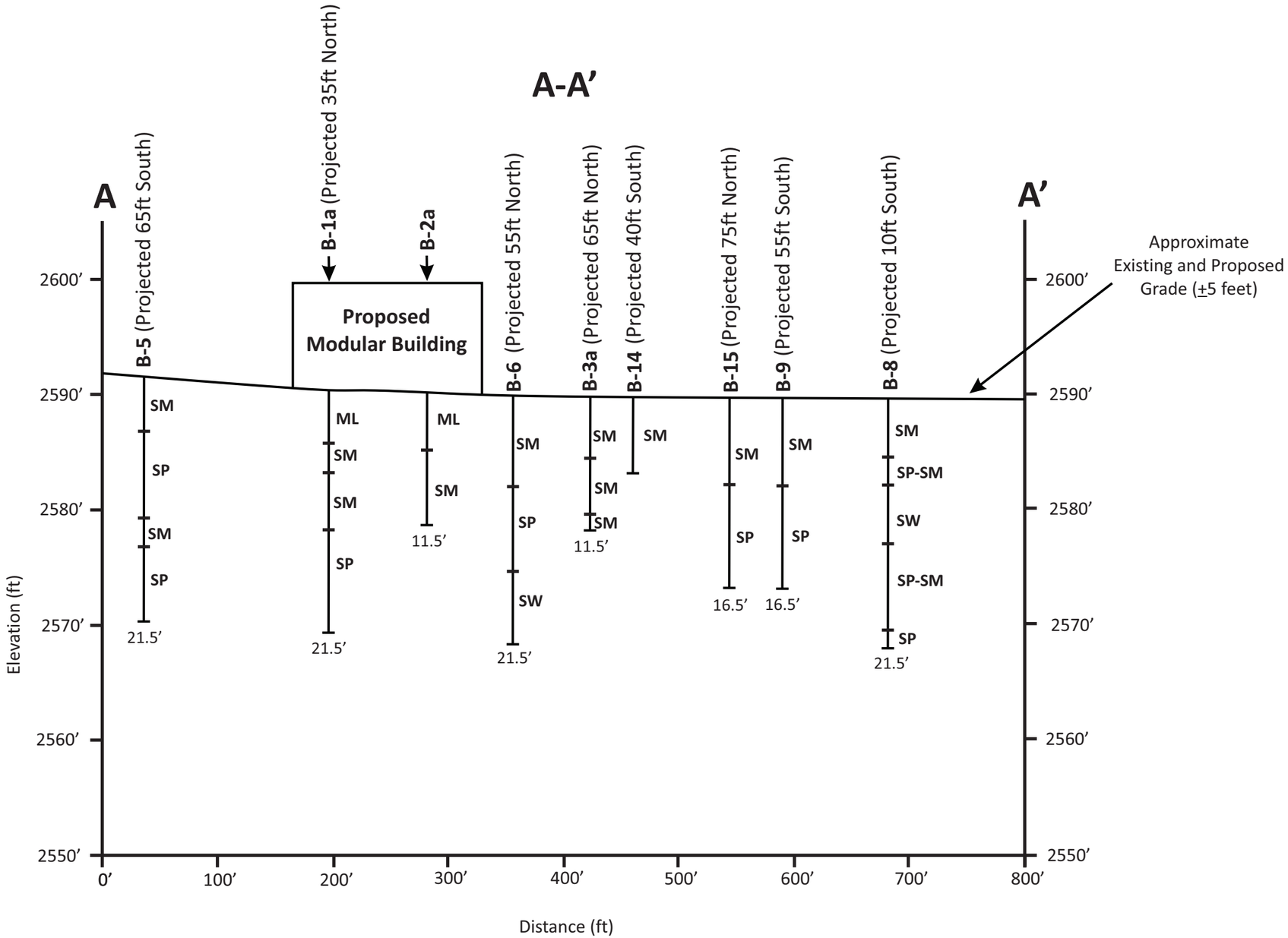
Plate 3
Boring Location Map & Site Geology

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

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A-A’



Approximate Horizontal Scale 1”= 100’

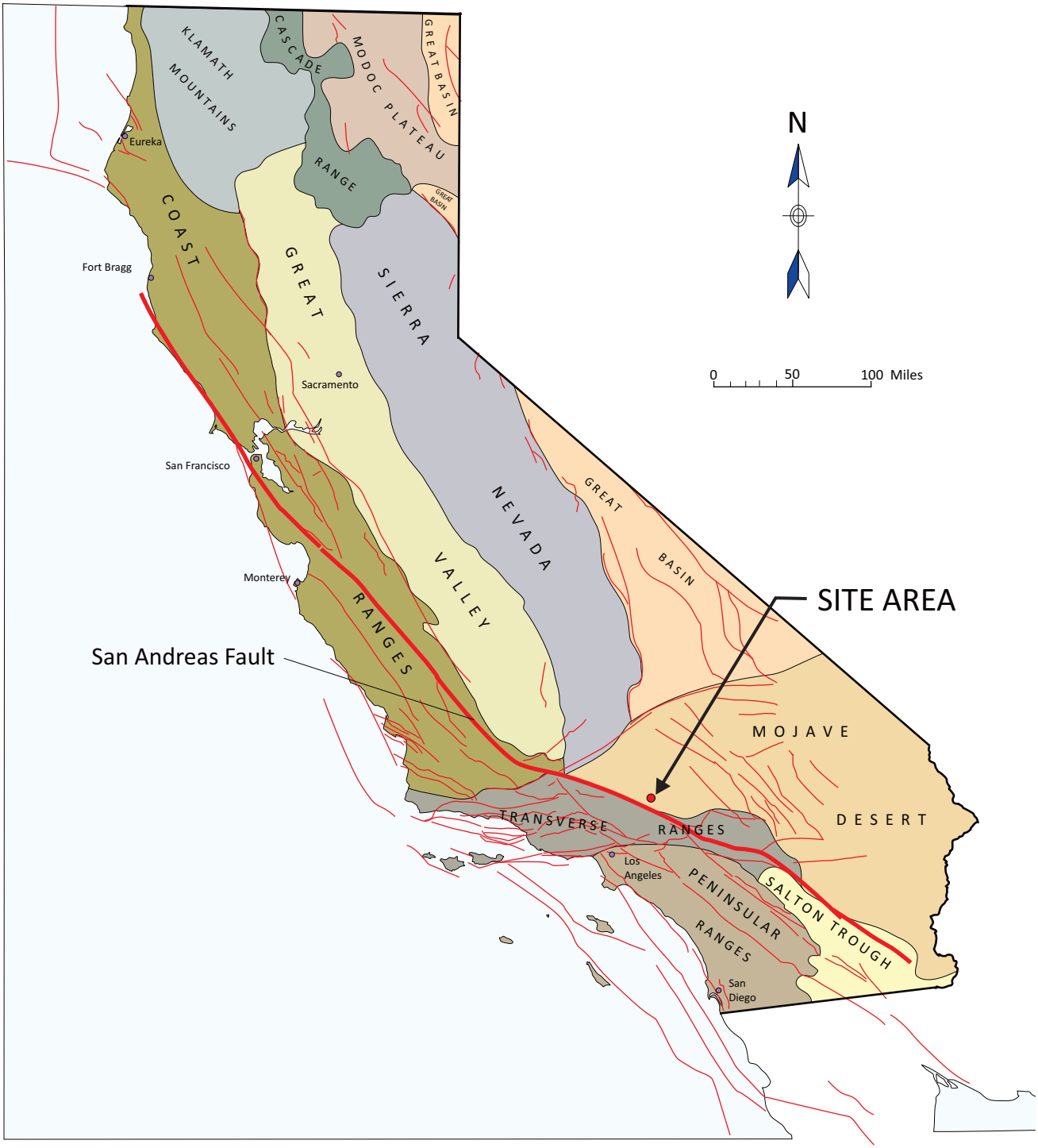
Approximate Vertical Scale 1”= 10’

Plate 3a
Geologic Cross Section A-A’

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

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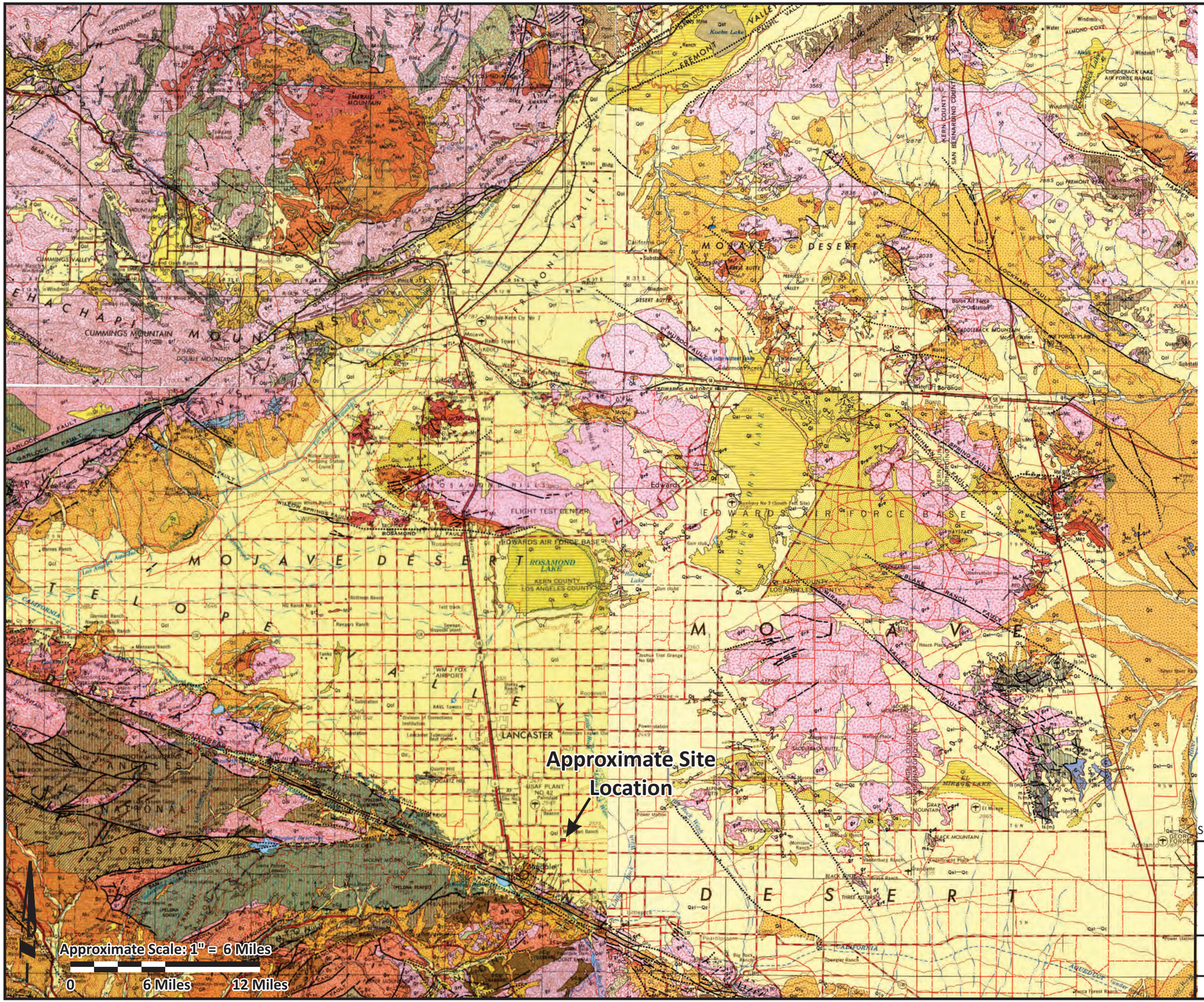
Map showing geomorphic provinces of California and major active and potentially active faults. Fault locations are based on Jennings (1994) and Blake (2000).

Plate 4
State of California Geomorphic Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

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LEGEND

Qs	Dune sand	Qc	Oligocene nonmarine
Qal	Alluvium	Ec	Eocene nonmarine
Ql	Lake deposits	E	Eocene marine
Qg	Glacial deposits	Ep	Paleocene marine
Qt	River terrace deposits	Tc	Tertiary nonmarine
Qm	Pleistocene marine and marine terrace deposits	Tm	Tertiary marine
Qpv	Pleistocene volcanic rocks Qpv^r-rhyolite Qpv^a-andesite Qpv^b-basalt Qpv^p-pyroclastic rocks	Ti	Tertiary intrusive (hypabyssal) rocks Ti^r-rhyolite Ti^a-andesite Ti^b-basalt
Qc	Pleistocene nonmarine	Tl	Tertiary lake deposits
QP	Plio-Pleistocene nonmarine	Tv	Tertiary volcanic rocks Tv^r-rhyolite Tv^a-andesite Tv^b-basalt Tv^p-pyroclastic rocks
	Quaternary and/or Pliocene cinder cones	Ku	Upper Cretaceous marine
Pc	Undivided Pliocene nonmarine	Ju	Upper Jurasssic marine
Pu	Upper Pliocene marine	gr	Mesozoic granitic rocks
Pmlc	Middle and/or lower Pliocene nonmarine	bi	Mesozoic basic intrusive rocks
Pml	Middle and/or lower Pliocene marine	ub	Mesozoic ultrabasic intrusive rocks
Pv	Pliocene volcanic rocks Pv^r-rhyolite Pv^a-andesite Pv^b-basalt Pv^p-pyroclastic rocks	JTrv	Jurassic-Triassic metavolcanic rocks
Mc	Undivided Miocene nonmarine	ls	Pre-Cretaceous metamorphic rocks (ls=limestone)
Muc	Upper Miocene nonmarine	ms	Pre-Cretaceous metasedimentary rocks
Mu	Upper Miocene marine	mv	Pre-Cretaceous metavolcanic rocks
Mm	Middle Miocene marine	gr-m	Pre-Cenozoic granitic and metamorphic rocks
Ml	Lower Miocene marine	pCc	Precambrian igneous and metamorphic rock complex
Mv	Miocene volcanic rocks Mv^r-rhyolite Mv^a-andesite Mv^b-basalt Mv^p-pyroclastic rocks	pCg	Undivided Precambrian metamorphic rocks pCg=gneiss pCs=schist pCls=limestone and/or dolomite
		pCgr	Undivided Precambrian granitic rocks

– Fault: Dashed where approximate, dotted where concealed

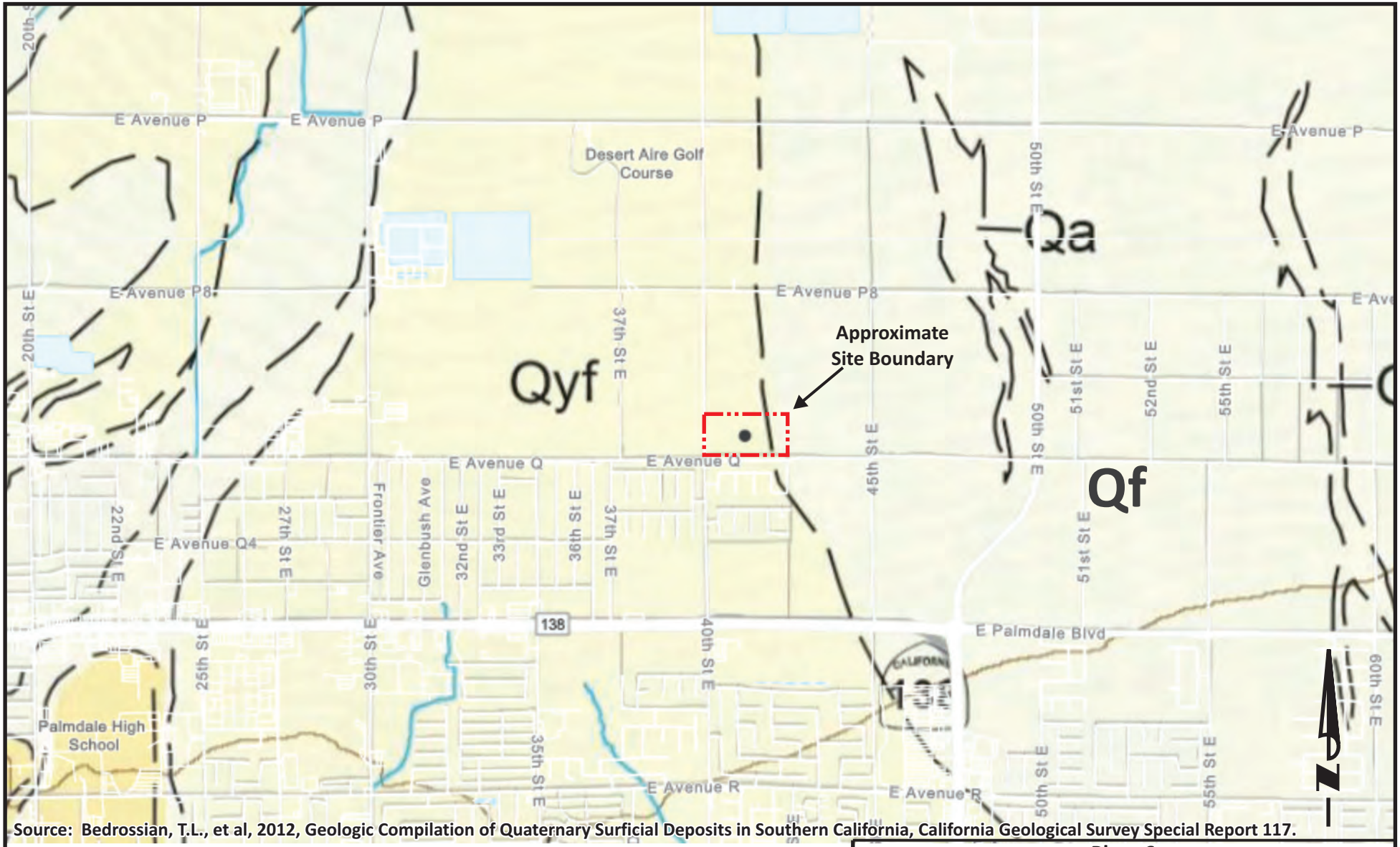
Source: USGS Geologic Map of California, Los Angeles sheet, dated 1969

Plate 5
Regional Geologic Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

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Source: Bedrossian, T.L., et al, 2012, Geologic Compilation of Quaternary Surficial Deposits in Southern California, California Geological Survey Special Report 117.

LEGEND

- Approximate Site Boundary
- **Qa** - Quaternary (Holocene) Alluvium
- **Qf** - Quaternary (Upper/Modern Holocene) Alluvial Fan Deposits
- **Qyf** - Quaternary (Middle Holocene) Alluvial Fan Deposits
- **Qof** - Quaternary (Pleistocene) Older Alluvial Fan Deposits

Approximate Scale: 1" = 2,000'

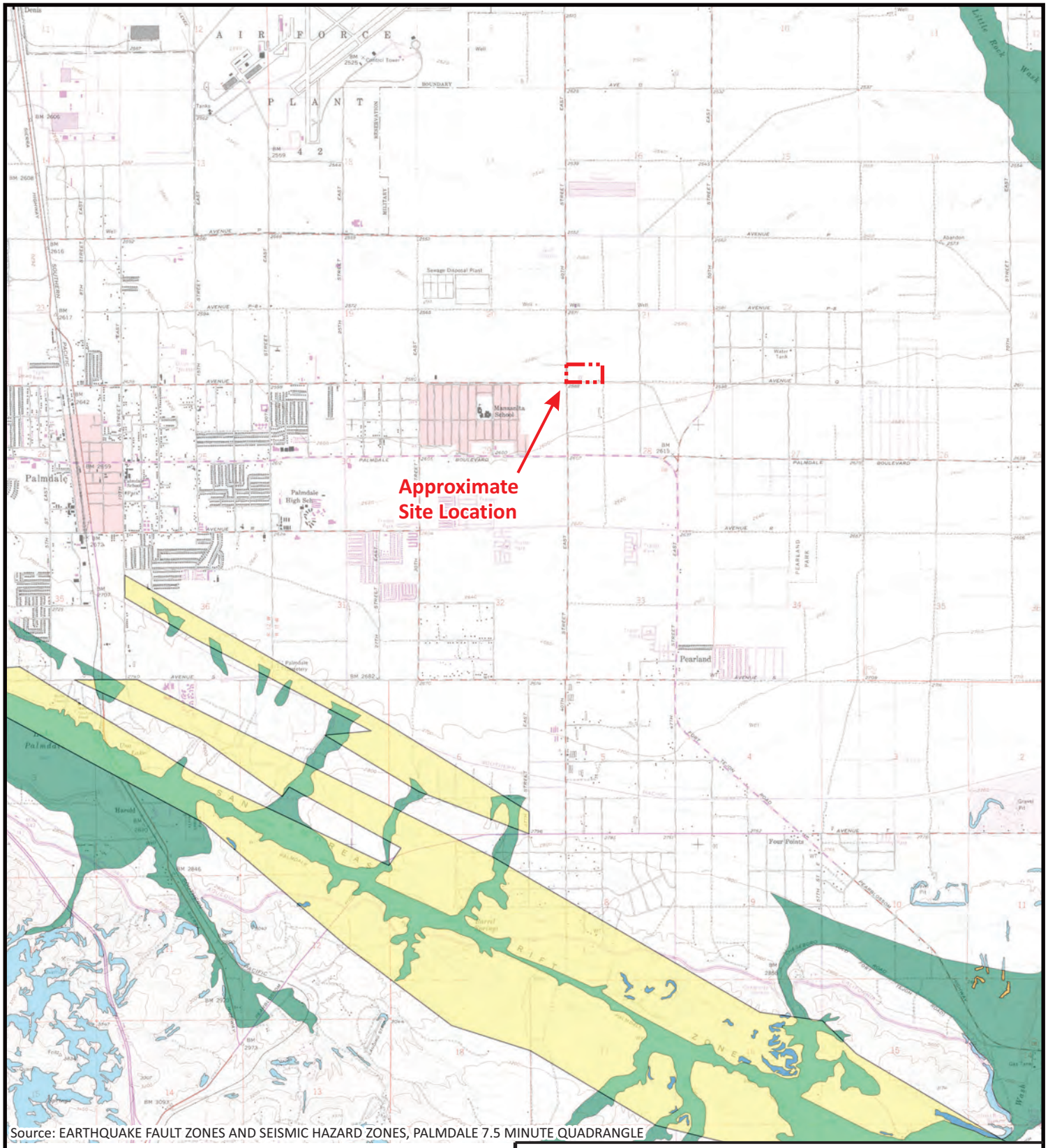
0 2,000' 4,000'

Plate 6
Local Geologic Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

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Source: EARTHQUAKE FAULT ZONES AND SEISMIC HAZARD ZONES, PALMDALE 7.5 MINUTE QUADRANGLE

LEGEND

Approximate Site Boundary

Approximate Scale: 1" = 1 Mile

0 1 Mile 2 Miles

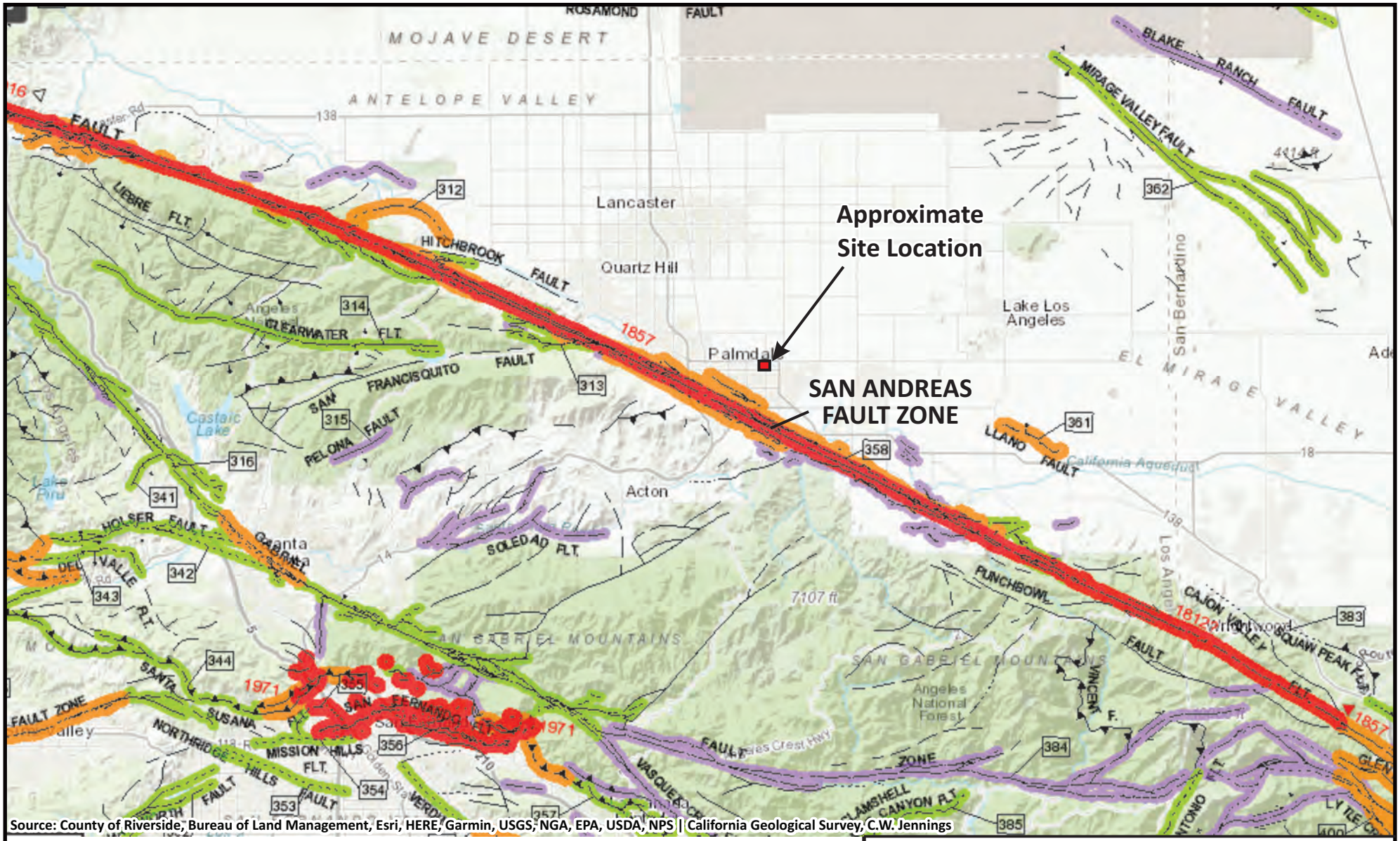
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Plate 7
Alquist-Priolo Earthquake Fault Zones

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

12/3/2025 | File No.: 307083-004



Source: County of Riverside, Bureau of Land Management, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | California Geological Survey, C.W. Jennings

LEGEND

- Fault along which historic (last 200 years) displacement has occurred.
- Fault along which Holocene (last 11,700 years) displacement, has occurred.
- Fault along which Late Quaternary (past 700,000 years) displacement has occurred.
- Fault along which Quaternary (past 1.6 million years) displacement has occurred.

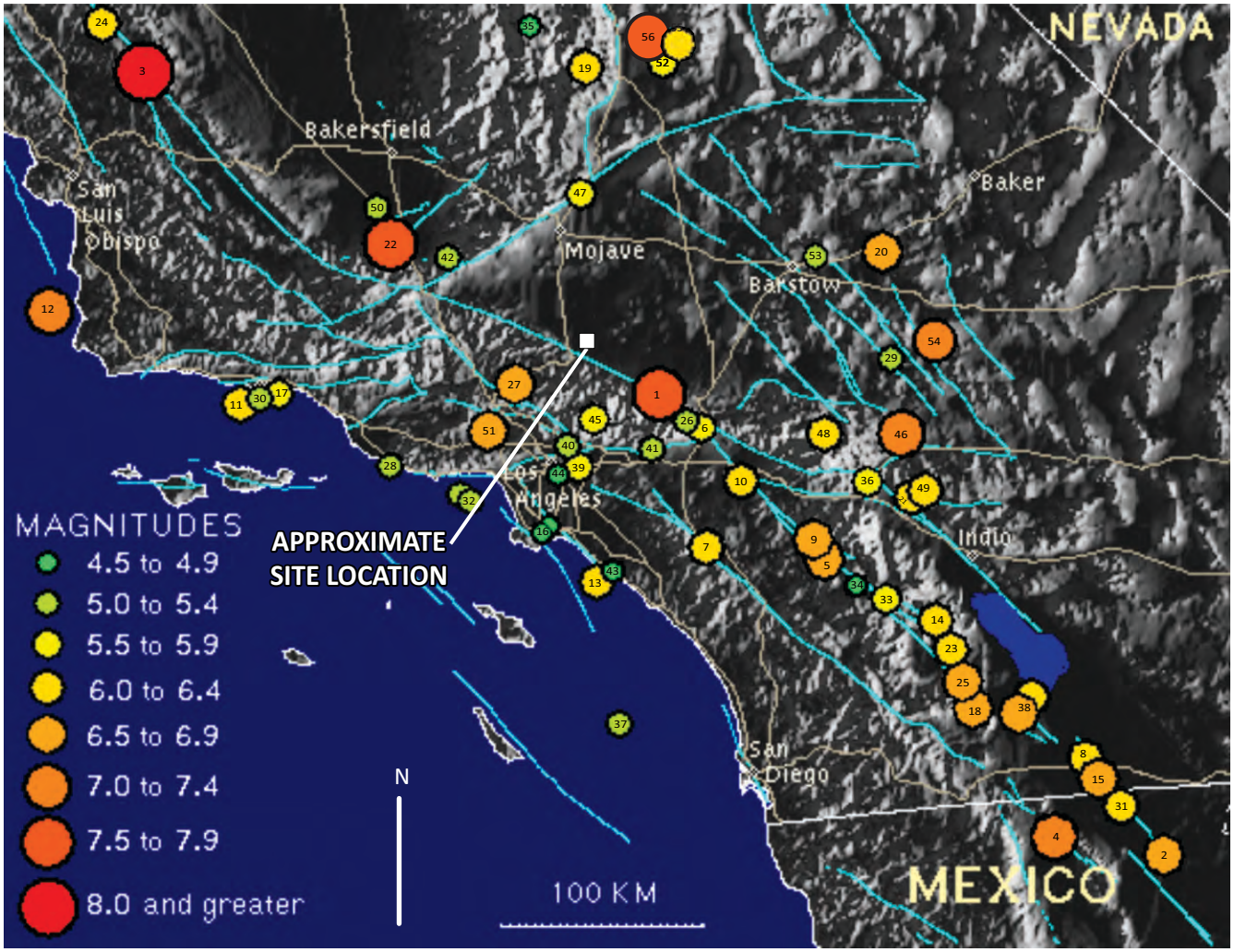
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Plate 8
Regional Fault Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

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HISTORIC EARTHQUAKES AND EPICENTERS

1. 1812, WRIGHTWOOD
2. 1852, VOLCANO LAKE
3. 1857, FORT TEJON
4. 1892, LAGUNA SALADA
5. 1899, SAN JACINTO
6. 1899, CAJON PASS
7. 1910, ELSINORE
8. 1915, IMPERIAL VALLEY
9. 1918, SAN JACINTO
10. 1923, NORTH SAN JACINTO
11. 1925, SANTA BARBARA
12. 1927, LOMPOC
13. 1933, LONG BEACH
14. 1937, SAN JACINTO
15. 1940, IMPERIAL VALLEY
16. 1941, TORRANCE-GARDENA
17. 1941, SANTA BARBARA
18. 1942, FISH CREEK MOUNTAINS
19. 1946, WALKER PASS
20. 1947, MANIX
21. 1948, DESERT HOT SPRINGS
22. 1952, KERN COUNTY
23. 1954, SAN JACINTO
24. 1966, PARKFIELD
25. 1968, BORREGO MOUNTAINS
26. 1970, LYTLE CREEK
27. 1971, SAN FERNANDO
28. 1973, POINT MAGU
29. 1975, GALWAY LAKE
30. 1978, SANTA BARBARA
31. 1979, IMPERIAL VALLEY
32. 1979, MALIBU
33. 1980, WHITE WASH
34. 1982, ANZA GAP
35. 1983, DURRWOOD MEADOWS SWARM
36. 1986, NORTH PALM SPRINGS
37. 1986, OCEANSIDE
38. 1987, ELMORE RANCH & SUPERSTITION HILLS
39. 1987, WHITTIER NARROWS
40. 1988, PASADENA
41. 1988, UPLAND
42. 1988, TEJON RANCH
43. 1989, NEWPORT BEACH
44. 1989, MONTEBELLO
45. 1991, SIERRA MADRE
46. 1992, LANDERS
47. 1992, MOJAVE
48. 1992, BIG BEAR
49. 1992, JOSHUA TREE
50. 1993, WHEELER RIDGE
51. 1994, NORTHRIDGE
52. 1995, RIDGECREST
53. 1997, CALICO
54. 1999, HECTOR MINE
55. 2019, RIDGECREST
56. 2019, RIDGECREST

SOURCE: SOUTHERN CALIFORNIA EARTHQUAKE CENTER, WEB PAGE, 2005

MAP SHOWING LOCATIONS OF SIGNIFICANT HISTORICAL EARTHQUAKES IN SOUTHERN CALIFORNIA FROM 1812 TO 2000

Plate 9
Earthquake Epicenter Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

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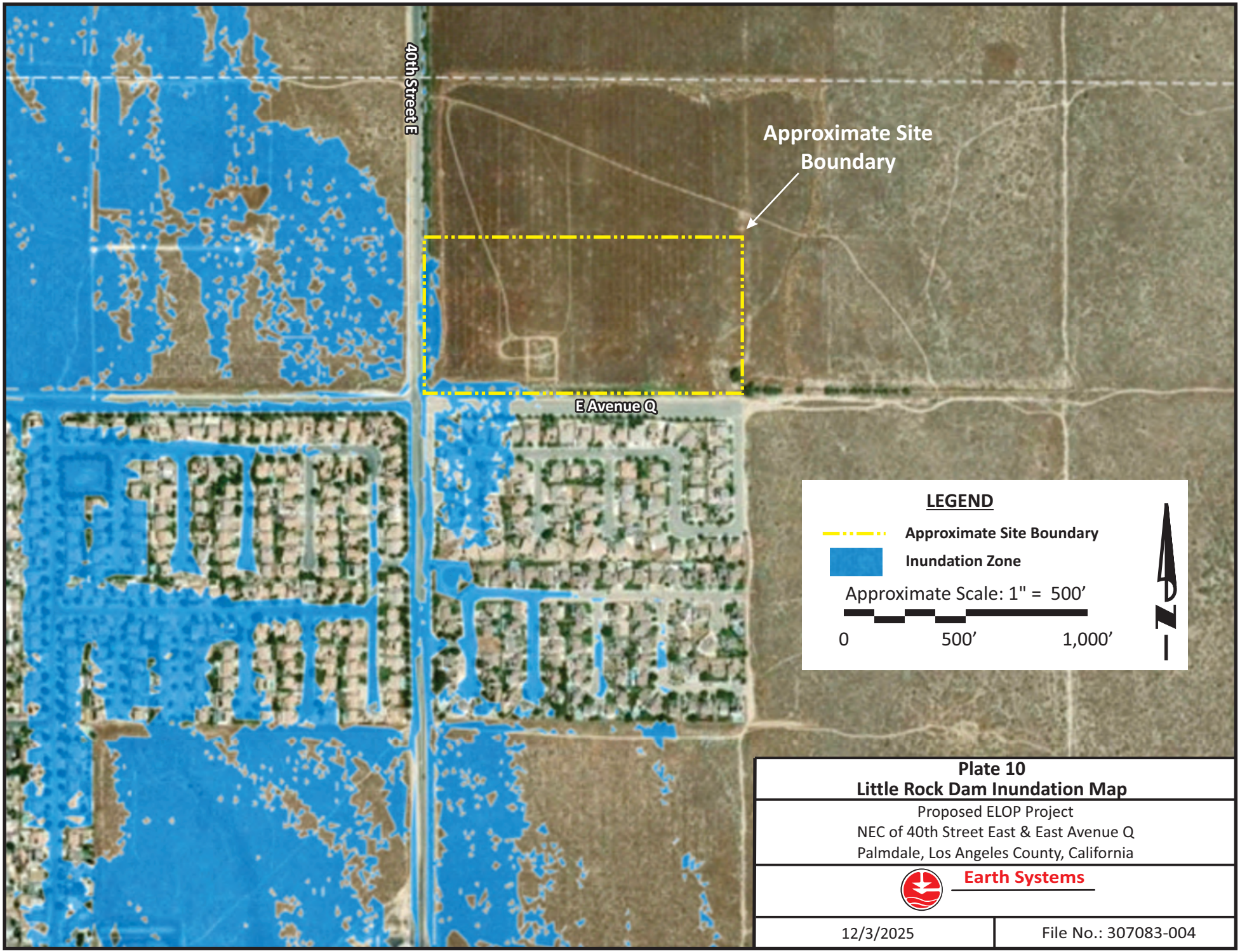


Plate 10
Little Rock Dam Inundation Map

Proposed ELOP Project
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

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Table A-1
Fault Parameters

Fault Section Name	Distance (miles)	Distance (km)	Upper Seis. Depth (km)	Lower Seis. Depth (km)	Avg Dip Angle (deg.)	Avg Dip Direction (deg.)	Avg Rake (deg.)	Trace Length (km)	Fault Type	**Mean Mag**	Mean Return Interval (years)	Slip Rate (mm/yr)
San Andreas (Mojave S) FM3.1, 3.2	3.6	5.8	0.0	13.1	90	206	180	98	A	**7.7**	102	34
San Gabriel (Extension) FM3.1, 3.2	22.5	36.2	0.0	14.7	61	6	180	62	B'	**7.2**		
San Gabriel FM3.1, 3.2	22.6	36.3	0.0	14.7	61	39	180	71	B	**7.3**		1
Santa Susana, alt 2 FM3.2	25.1	40.4	0.0	10.6	53	10	90	43	B'	**6.8**		
Sierra Madre (San Fernando) FM3.1, 3.2	25.4	40.8	0.0	13.0	45	9	90	18	B	**6.6**		2
Sierra Madre FM3.1, 3.2	25.4	40.9	0.0	14.2	53	19	90	57	B	**7.2**		2
Clamshell-Sawpit FM3.1, 3.2	26.6	42.7	0.0	14.0	50	334	90	16	B	**6.6**		0.5
Northridge FM3.1, 3.2	26.6	42.8	7.4	16.8	35	201	90	33	B	**6.8**		1.5
San Andreas (Mojave N) FM3.1, 3.2	26.8	43.2	0.0	15.1	90	199	180	37	A	**7.8**	106	9
Santa Susana East (connector) FM3.1, 3.2	28.5	45.8	0.0	16.3	55	na	na	8	B'	**6.3**		
Raymond FM3.1, 3.2	29.6	47.6	0.0	15.6	79	348	60	22	B	**6.7**		1.5
Verdugo FM3.1, 3.2	30.1	48.5	0.0	14.5	55	31	90	32	B	**6.8**		0.5
Holser, alt 1, FM 3.1	30.4	48.9	0.0	18.6	58	187	90	20	B	**6.7**		0.4
Mission Hills FM3.1, 3.2	30.7	49.4	0.0	14.5	55	na	na	13	B'	**6.5**		
Santa Susana, alt 1, FM3.1	31.0	49.8	0.0	16.3	55	9	90	27	B	**6.8**		5
Holser, alt 2 FM3.2	31.1	50.1	0.0	18.5	58	182	90	17	B'	**6.7**		
Hollywood FM3.1, 3.2	33.6	54.0	0.0	17.3	70	346	30	19	B	**6.6**		1
Northridge Hills FM3.1, 3.2	33.6	54.1	0.0	14.9	31	19	90	25	B'	**7.0**		
San Andreas (San Bernardino N) FM3.1, 3.2	34.4	55.4	0.0	12.8	90	212	180	35	A	**7.5**	103	27
Santa Monica, alt 2 FM3.2	35.5	57.2	0.0	11.6	50	338	30	28	B	**6.7**		1
Elysian Park (Upper) FM3.1, 3.2	35.6	57.3	3.0	15.0	50	15	90	20	B	**6.6**		1.3
Garlock (West) FM3.1, 3.2	36.5	58.8	0.0	14.7	90	149	0	98	A	**7.6**	493	5
Del Valle FM3.1, 3.2	36.7	59.1	0.0	18.8	73	195	90	9	B'	**6.3**		
Cucamonga FM3.1, 3.2	37.0	59.5	0.0	7.8	45	347	90	28	B	**6.6**		5
North Salt Lake FM3.1, 3.2	37.3	60.1	0.5	16.7	54	343	na	3	B'	**5.9**		
San Jose FM3.1, 3.2	38.5	62.0	0.0	15.8	74	334	30	20	B	**6.6**		0.5
Cleghorn FM3.1, 3.2	38.7	62.3	0.0	15.5	90	187	0	25	B	**6.7**		3
San Jacinto (San Bernardino) FM3.1, 3.2	38.8	62.4	0.0	16.1	90	225	180	37	A	**7.6**	219	17
Puente Hills, FM3.1	39.1	62.9	5.0	13.0	25	20	90	44	B	**7.1**		0.7
San Vicente FM3.1, 3.2	39.2	63.1	1.6	17.0	66	7	na	9	B'	**6.3**		
San Jacinto (Lytle Creek connector) FM3.1, 3.2	39.4	63.4	0.0	16.1	90	na	na	23	B'	**6.7**		
Oak Ridge (Onshore) FM3.1, 3.2	40.2	64.6	1.0	19.4	65	159	90	50	B	**7.2**		4
Elysian Park (Lower, CFM) FM3.1, 3.2	40.2	64.6	10.0	14.7	22	33	na	41	B'	**6.8**		
Whittier, alt 1, FM3.1	40.9	65.9	0.0	12.4	70	24	150	46	A	**7.1**	530	4
Whittier, alt 2 FM3.2	40.9	65.9	0.0	14.1	75	24	150	46	A	**6.9**	165	4
Santa Monica, alt 1, FM3.1	41.2	66.3	0.0	17.9	75	343	30	14	B	**6.5**		1
Simi-Santa Rosa FM3.1, 3.2	41.4	66.6	1.0	12.1	60	346	30	39	B	**6.8**		1
Puente Hills (LA) FM3.2	41.5	66.8	2.1	15.0	27	20	90	22	B	**6.9**		0.7
San Cayetano FM3.1, 3.2	41.5	66.8	0.0	16.0	42	3	90	42	B	**7.2**		6
Pine Mtn FM3.1, 3.2	41.7	67.1	0.0	16.3	45	5	na	62	B'	**7.3**		

Reference: USGS OFR 2013-1165 (CGS SP 228) Based on Site Coordinates of 34.588 Latitude, -118.0558 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2008-1437). Mean magntude is average of Ellworths-B and Hanks & Bakun moment area relationship.

Site Coordinates: 34.588 N 118.056 W

Table A-2

Historical Earthquakes in Vicinity of Project Site, M >= 5.0

		Epicenter		*Distance*	
		Latittude	*Longitude*	*from*	*Magnitude*
Day	*Year*	*(Degrees)*		*Site (mi)*	M_W
1/16	1857	34.52	118.04	4.8	**6.3**
4/12	1880	34.70	118.40	21.0	**5.9**
2/9	1971	34.42	118.37	21.3	**6.6**
2/9	1971	34.42	118.37	21.3	**5.8**
2/9	1971	34.42	118.37	21.3	**5.8**
2/9	1971	34.42	118.37	21.3	**5.3**
6/28	1991	34.27	117.99	22.3	**5.6**
4/99	1803	34.20	118.10	26.9	**5.5**
12/8	1812	34.37	117.65	27.6	**7.5**
8/28	1889	34.20	117.90	28.2	**5.6**
12/3	1988	34.15	118.13	30.5	**5.0**
7/30	1894	34.30	117.60	32.7	**6.2**
1/17	1994	34.27	118.49	33.1	**5.9**
7/11	1855	34.10	118.10	33.8	**6.0**
3/20	1994	34.23	118.47	34.2	**5.3**
1/19	1994	34.38	118.62	35.2	**5.1**
1/29	1994	34.31	118.58	35.5	**5.1**
10/4	1987	34.07	118.10	35.9	**5.2**
1/17	1994	34.34	118.61	35.9	**5.2**
10/1	1987	34.06	118.08	36.5	**5.9**
4/4	1893	34.30	118.60	36.8	**5.8**
2/28	1990	34.14	117.70	37.0	**5.7**
9/12	1970	34.27	117.53	37.1	**5.2**
7/22	1899	34.30	117.50	37.4	**6.4**
6/26	1995	34.39	118.67	37.5	**5.0**
1/17	1994	34.21	118.54	38.0	**6.7**
4/26	1997	34.37	118.67	38.1	**5.1**
1/10	1857	34.76	118.71	39.0	**5.6**
1/18	1994	34.38	118.70	39.4	**5.2**
1/19	1994	34.38	118.71	39.9	**5.3**
7/28	1769	34.00	118.00	40.7	**6.0**
1/17	1994	34.33	118.70	40.8	**5.8**
6/14	1892	34.20	117.50	41.5	**5.5**
7/21	1952	35.10	118.48	42.8	**5.2**
7/11	1992	35.21	118.07	43.0	**5.7**
6/10	1988	34.94	118.74	45.8	**5.4**
12/16	1858	34.20	117.40	46.0	**6.0**
7/22	1899	34.20	117.40	46.0	**5.9**
3/29	2014	33.93	117.92	46.0	**5.1**
7/29	2008	33.96	117.77	46.8	**5.4**

From full earthquake catalog in USGS OFR 2008-1437h as updated with current events through 2021. For events with an asterisk, alternate solutions are given in the OFR. Ordered By Closest Event. Maximum 40 Closest Events Shown.

Table A-1 - General Procedure Seismic Design Values

2022 California Building Code (CBC) (ASCE 7-16, Supplement 3) Seismic Design Parameters

(Values presented should only be used by a Structural Engineer to determine if the exception in 11.4.8 (ASCE 7-16) can be used)

Seismic Design Category		**E**	CBC Reference	ASCE 7-16 Reference	
Site Class		**D**	Table 1613.5.6	Table 11.6-2	
Latitude:		34.588	Table 1613.5.2	Table 20.3-1	
Longitude:		-118.056			
Maximum Considered Earthquake (MCE) Ground Motion					
Short Period Spectral Reponse	S_S	**1.868 g**	Figure 1613.5	Figure 22-1	
1 second Spectral Response	S_1	**0.779 g**	Figure 1613.5	Figure 22-2	
Site Coefficient	F_a	1.00	Table 1613.5.3(1)	Table 11.4-1	
Site Coefficient	F_v	1.70	Table 1613.5.3(2)	Table 11-4.2	
	S_{MS}	1.868 g	$= F_a x S_S$		
	S_{M1}	1.324 g	$= F_v x S_1$		
ASCE7-16 Supplement 3, Exception 1*	S_{M1*}	1.986 g	$=S_{M1} x 1.5$	Exception 1, 11.4.8, Supplement 3	
Design Earthquake Ground Motion					
Short Period Spectral Reponse	S_{DS}	**1.245 g**	$= 2/3 x S_{MS}$		
Unadjusted 1 second Spectral Response	S_{D1}	**0.883 g**	$= 2/3 x S_{M1}$		
Modified 1 second Spectral Response*	S_{D1*}	**1.324 g**	$= 2/3 x S_{M1}$*	*Exception 1, 11.4.8, Supplement 3	

Site Specific Evaluation May Be Required for Site Class=D or E & S1>=0.2. The Above SDS and SD1 are NOT Valid Unless the Exception of ASCE7-16 Supplement 3, Section 11.4.8 Applies & the SM1* & SD1* Values are used for Site Class D.

To	0.14 sec	$= 0.2 * S_{D1}/S_{DS}$	
Ts (11.4.8 ASCE 7-16 Exception Assumed)	0.71 sec	$= S_{D1}/S_{DS}$	
Risk Category	III	Table 1604.5	
Seismic Importance Factor	1.25		
F_{PGA}	1.10		
PGA_M	**0.89**		
Vertical Coefficient (C_V)	1.47	Table 11.9-1	

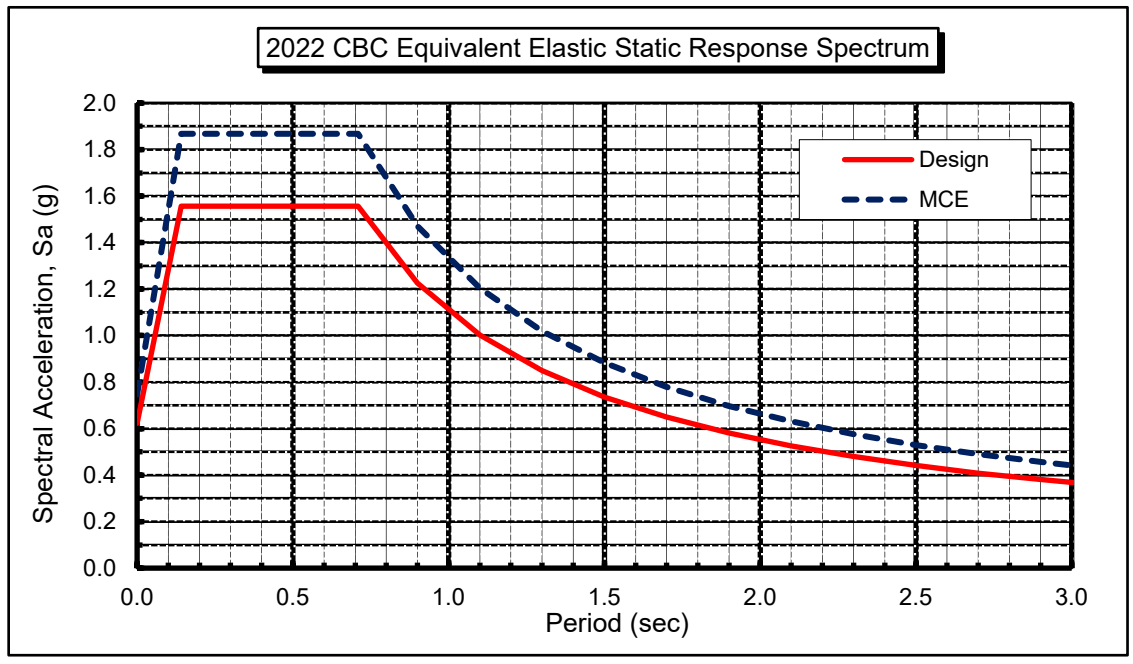


Table 11.5-1 Design

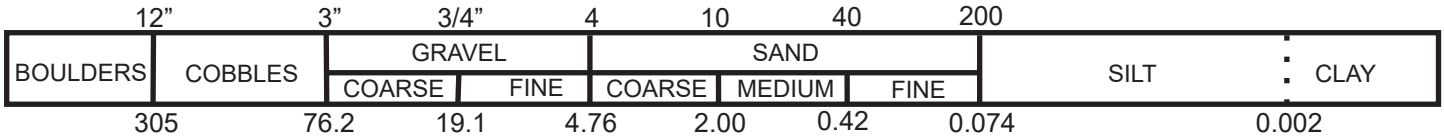
Period T (sec)	Sa (g)
0.00	0.623
0.05	0.952
0.14	1.557
0.71	1.557
0.90	1.226
1.10	1.003
1.30	0.849
1.50	0.736
1.70	0.649
1.90	0.581
2.10	0.526
2.30	0.480
2.50	0.441
2.70	0.409
2.90	0.381
3.10	0.356

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on ASTM Designations D 2487 and D 2488 (Unified Soil Classification System). Information on each boring log is a compilation of subsurface conditions obtained from the field as well as from laboratory testing of selected samples. The indicated boundaries between strata on the boring logs are approximate only and may be transitional.

SOIL GRAIN SIZE

U.S. STANDARD SIEVE



SOIL GRAIN SIZE IN MILLIMETERS

RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND NON-PLASTIC SILTS)

Very Loose	*N=0-4	RD=0-30	Easily push a 1/2-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2-inch reinforcing rod with hammer
Dense	N=31-50	RD=70-90	Drive a 1/2-inch reinforcing rod 1 foot with difficulty by a hammer
Very Dense	N>50	RD=90-100	Drive a 1/2-inch reinforcing rod a few inches with hammer

*N=Blows per foot in the Standard Penetration Test at 60% theoretical energy. For the 3-inch diameter Modified California sampler,140-pound weight, multiply the blow count by 0.63 (about 2/3) to estimate N. If automatic hammer is used, multiply a factor of 1.3 to 1.5 to estimate N. RD=Relative Density (%). C=Undrained shear strength (cohesion).

CONSISTENCY OF COHESIVE SOILS (CLAY OR CLAYEY SOILS)

Very Soft	*N=0-1	*C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Firm	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very Stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000	Dented slightly by a pencil point or thumbnail

MOISTURE DENSITY

Moisture Condition: An observational term; dry, damp, moist, wet, saturated.
Moisture Content: The weight of water in a sample divided by the weight of dry soil in the soil sample expressed as a percentage.
Dry Density: The pounds of dry soil in a cubic foot.

MOISTURE CONDITION

Dry.....Absence of moisture, dusty, dry to the touch
Damp.....Slight indication of moisture
Slightly Moist.....Very quick (less than 1 minute) color change when exposed to air (granular soil), Below optimum (granular)
Moist.....Color change with period of air exposure (granular soil) Below optimum moisture content (cohesive soil)
Very Moist.....High degree of saturation by visual and touch (granular soil) Above optimum moisture content (cohesive soil), No free water
Wet.....Free surface water

PLASTICITY

DESCRIPTION	FIELD TEST
Nonplastic	A 1/8 in. (3-mm) thread cannot be rolled at any moisture content.
Low	The thread can barely be rolled.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit.
High	The thread can be rerolled several times after reaching the plastic limit.

GROUNDWATER LEVEL

Water Level (measured or after drilling)

Water Level (during drilling)

RELATIVE PROPORTIONS

Trace.....minor amount (<5%)
some.....significant amount
with.....(Typically greater than 15%)
modifier/and...sufficient amount to influence material behavior (Typically >30%)

LOG KEY SYMBOLS

Bulk, Bag or Grab Sample

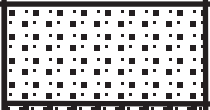
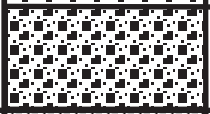
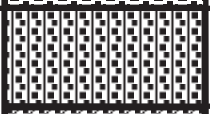
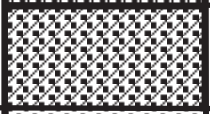
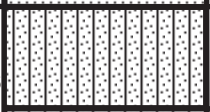
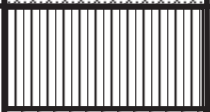
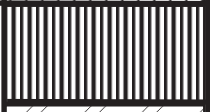
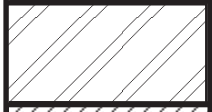
Standard Penetration Split Spoon Sampler (2” outside diameter)

Modified California Sampler (3” outside diameter)

No Recovery

Terms and Symbols Used on Boring Logs

Earth Systems

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is larger than No. 200 sieve size	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures. Little or no fines
		GRAVELS WITH FINES		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS More than 50% of coarse fraction passing No. 4 sieve	CLEAN SAND (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SAND WITH FINES (appreciable amount of fines)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, rock flour, silty low clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
		LIQUID LIMIT GREATER THAN 50		MH	Inorganic silty, micaceous, or diatomaceous fine sand or silty soils
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat, humus, swamp soils with high organic contents
VARIOUS SOILS AND MAN MADE MATERIALS					Fill Materials
MAN MADE MATERIALS					Asphalt and concrete

Soil Classification System

Earth Systems

Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-1
Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

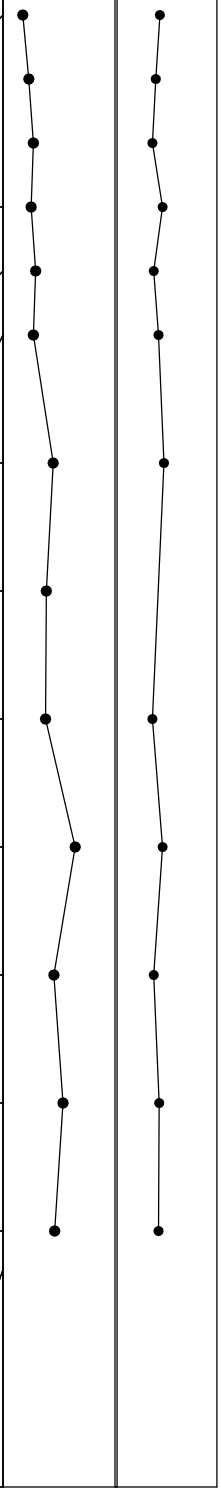
Drilling Date: 9/9/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, medium dense, dry, fine to coarse grained sand
		5,9,12		SP-SM	116	1	POORLY GRADED SAND WITH SILT: light brownish gray, medium dense, dry, fine to coarse grained sand
5		9,12,13			110	0	
		9,12,19			105	0	
10		8,11,18		SW	120	0	WELL GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand, some fine gravel
		11,13,19		SM	107	0	SILTY SAND: light brownish gray, medium dense, dry, fine to medium grained sand
15		12,15,19		SP	114	0	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
20		19,21,26		SW	122	1	WELL GRADED SAND: light brownish gray, dense, dry, fine to coarse grained sand
25		17,50		SP			POORLY GRADED SAND: light brownish gray, very dense, dry, fine to coarse grained sand, some fine gravel, no recovery, logged from cuttings
30		15,18,23		ML	105	2	SANDY SILT: brown, hard, damp, fine to medium grained sand, borderline silty sand (SM)
35		26,30,39		SW	120	1	WELL GRADED SAND WITH GRAVEL: brownish gray, very dense, dry, fine to coarse grained sand, fine gravel cobbles 3-5"
40		15,18,34		SM	107	1	SILTY SAND: light brown, very dense, dry, medium to coarse grained sand cobbles 3-5"
45		29,50		SW	115	2	WELL GRADED SAND WITH GRAVEL: brown, very dense, dry, fine to coarse grained sand, sub-rounded gravel up to 2"
50		18,21,29		SM	114	4	SILTY SAND: brown, dense, damp, fine to medium grained sand
55							Boring completed at 51-1/2 feet No groundwater encountered Backfilled with cuttings
60							



Earth Systems

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Boring No. B-2

Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

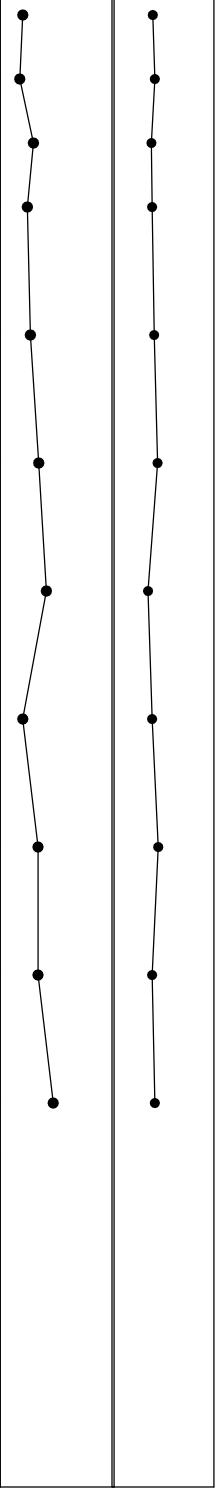
Drilling Date: 9/9/25
Drilling Method: Mobile 61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, medium dense, damp, fine grained sand
	RING	6,10,14			110	1	
5	RING	7,9,10		SP-SM	113	0	POORLY GRADED SAND WITH SILT: light brownish gray, medium dense, dry, fine to coarse grained sand
	RING	7,14,23			108	1	dense
10	RING	10,12,14		SM	109	1	SILTY SAND: light brownish gray, medium dense, dry, fine to medium grained sand
15	RING	11,13,16		SP	112	1	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
20	RING	12,19,20		SW	117	1	WELL GRADED SAND WTIH GRAVEL: light brownish gray, dense, damp, medium to coarse grained sand, gravel up to 1"
25	RING	13,24,24			103	1	gravel up to 2"
							becomes clayey
30	RING	7,9,14		SC	109	17	CLAYEY SAND: brown, medium dense, moist, fine to medium grained sand
							some cobbles up to 6"
35	RING	50		SW	118	1	WELL GRADED SAND WITH GRAVEL: gray, very dense, dry, medium to coarse grained sand, fine gravel
							cobbles up to 5"
40	RING	50		GP	109	1	POORLY GRADED GRAVEL WITH SAND: very dense, dry, gravel up to 3", fine to coarse grained sand
45	RING	15,24,28		SM	113	4	SILTY SAND: light brown, dense, damp, fine to medium grained sand, hard drilling on cobble
50							
55							Refusal at 47 feet due to hard drilling No groundwater encountered Backfilled with cuttings
60							



Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-3

Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

Drilling Date: 9/9/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
	RING	6,9,11			100	1	
5	RING	5,8,11		SW-SM	109	1	WELL GRADED SAND WITH SILT: light brownish gray, medium dense, dry, fine to coarse grained sand
	RING	9,14,14		SM	110	1	SILTY SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
10	RING	8,12,15			110	1	fine to medium grained sand
	RING	9,15,20		SP	108	1	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to medium grained sand
15	RING	12,20,21			119	1	
20	RING	12,18,20		SM	106	1	SILTY SAND: light brownish gray, dense, dry, fine to medium grained sand
25							Boring completed 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-4

Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

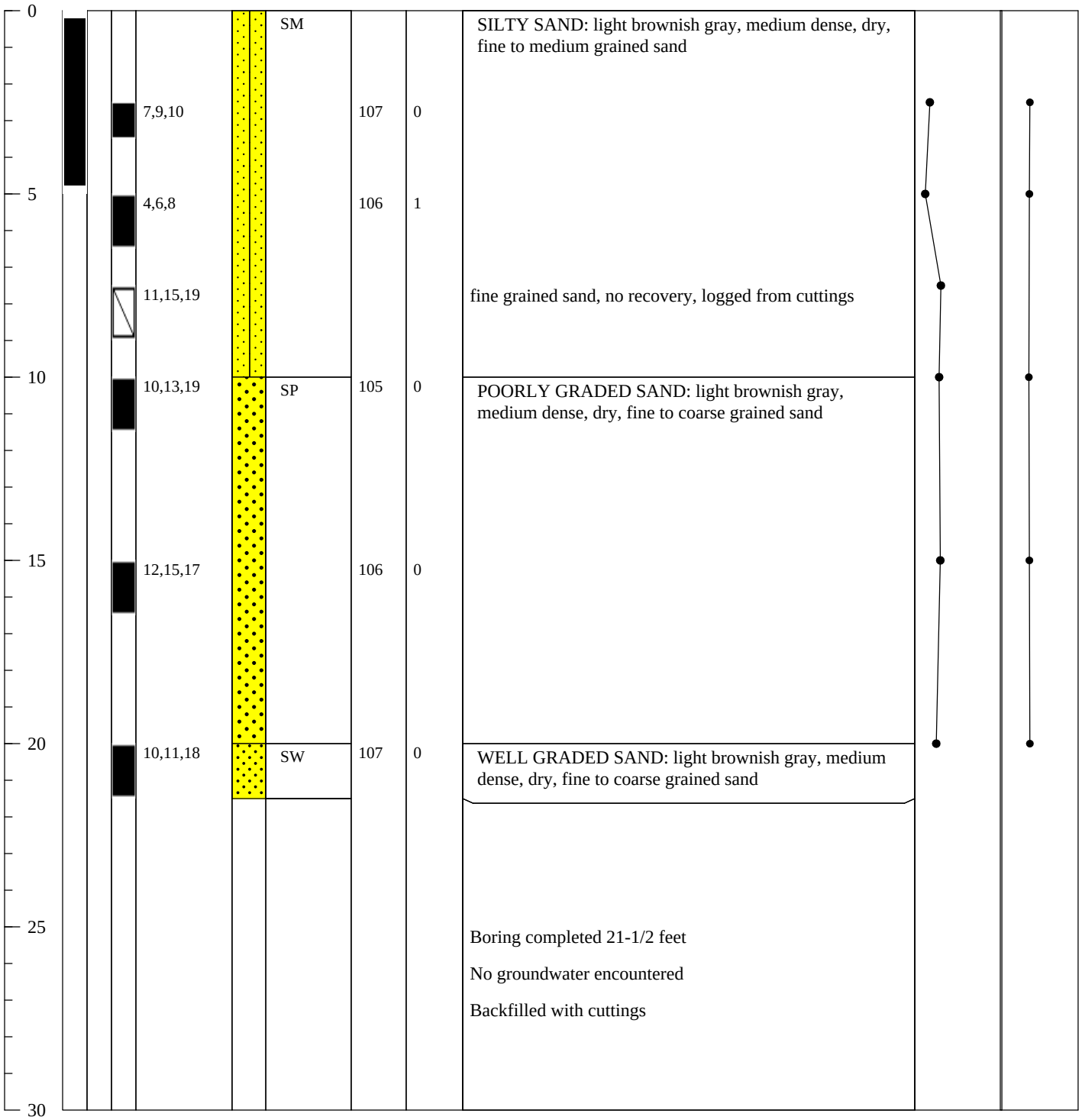
Drilling Date: 9/9/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0				SM			SILTY SAND: light brownish gray, medium dense, dry, fine to medium grained sand
	RING	7,9,10			107	0	
5	RING	4,6,8			106	1	
	RING	11,15,19					fine grained sand, no recovery, logged from cuttings
10	RING	10,13,19		SP	105	0	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
15	RING	12,15,17			106	0	
20	RING	10,11,18		SW	107	0	WELL GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
25							Boring completed 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

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Boring No. B-5

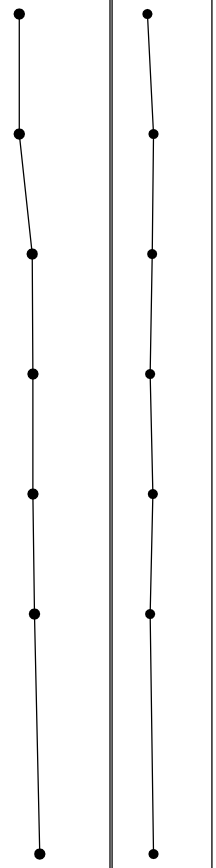
Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

Drilling Date: 9/9/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brownish gray, medium dense, dry, fine to medium grained
	RING	6,9,13			105	0	
5	RING	8,10,10		SP	114	1	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
	RING	9,14,22			112	1	
10	RING	10,13,21			109	1	
	RING	11,17,18		SM	113	1	SILTY SAND WITH GRAVEL: light brownish gray, medium dense, dry, fine to coarse grained sand, gravel up to 1-1/2"
15	RING	11,16,21		SP	109	1	POORLY GRADED SAND: light brownish gray, dense, dry, fine to medium grained sand
20	RING	13,17,25			114	1	
25							Boring completed 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density



Earth Systems

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Boring No. B-6

Project Name: Proposed ELOP Project
Project Number: 307083-003
Boring Location: See Plate 2

Drilling Date: 9/9/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brownish gray, medium dense, dry, fine to medium grained sand
	RING	5,7,8			105	1	
5	RING	4,7,10			105	1	
	RING	8,14,20		SP	112	0	POORLY GRADED SAND: light brownish gray, medium dense, dry, fine to coarse grained sand
10	RING	9,12,15			109	1	fine to medium grained sand
15	RING	12,15,21		SW	107	1	WELL GRADED SAND WITH GRAVEL: light brownish gray, medium dense, dry, fine to coarse grained sand, gravel up to 1"
20	RING	10,17,22			108	1	dense
25							Boring completed 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Earth Systems

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Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-1a

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

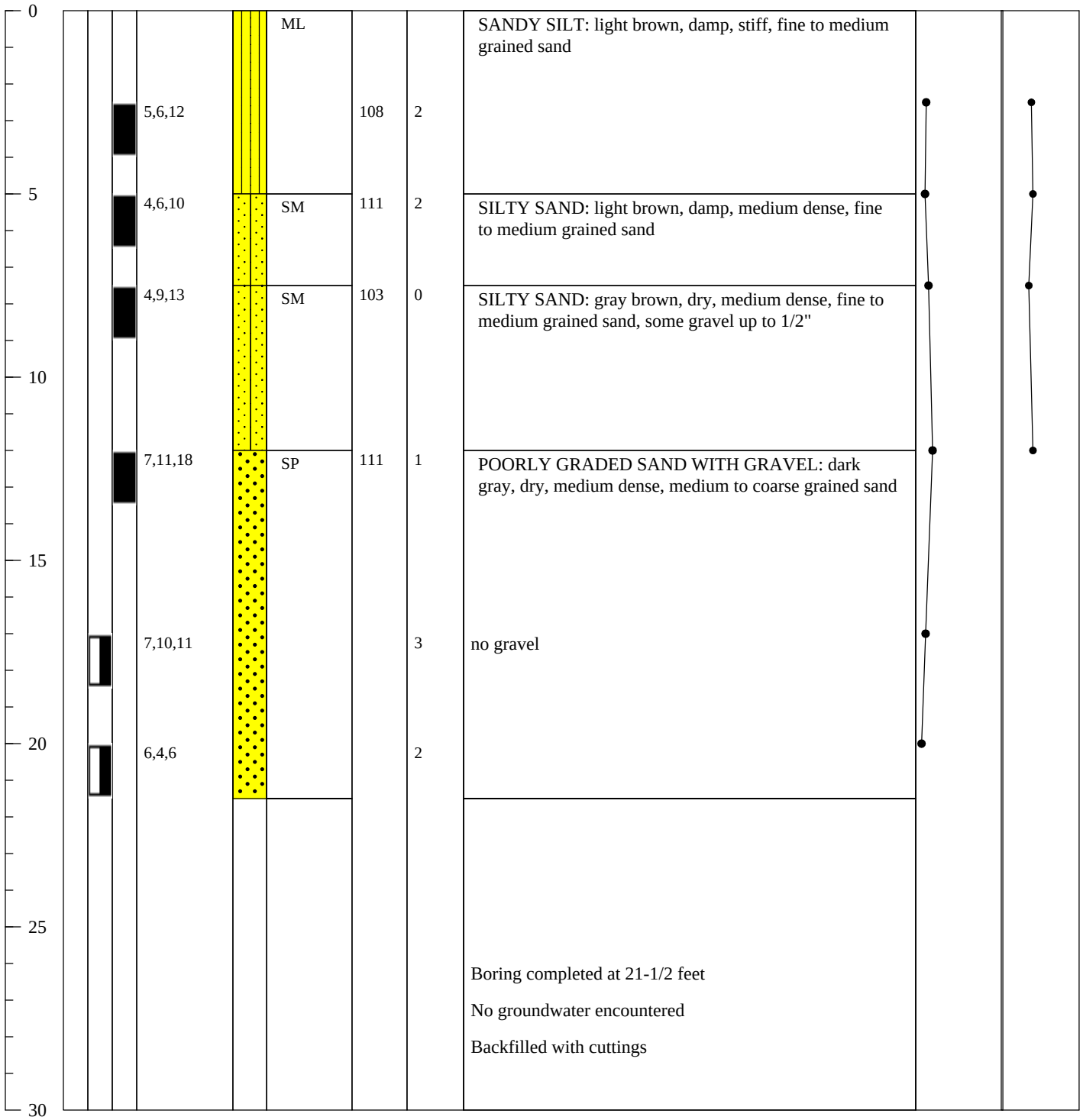
Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0	RING	5,6,12		ML	108	2	SANDY SILT: light brown, damp, stiff, fine to medium grained sand
5	RING	4,6,10		SM	111	2	SILTY SAND: light brown, damp, medium dense, fine to medium grained sand
	RING	4,9,13		SM	103	0	SILTY SAND: gray brown, dry, medium dense, fine to medium grained sand, some gravel up to 1/2"
10	RING	7,11,18		SP	111	1	POORLY GRADED SAND WITH GRAVEL: dark gray, dry, medium dense, medium to coarse grained sand
15	BAG	7,10,11				3	no gravel
20	BAG	6,4,6				2	
25							Boring completed at 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

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Boring No. B-2a

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

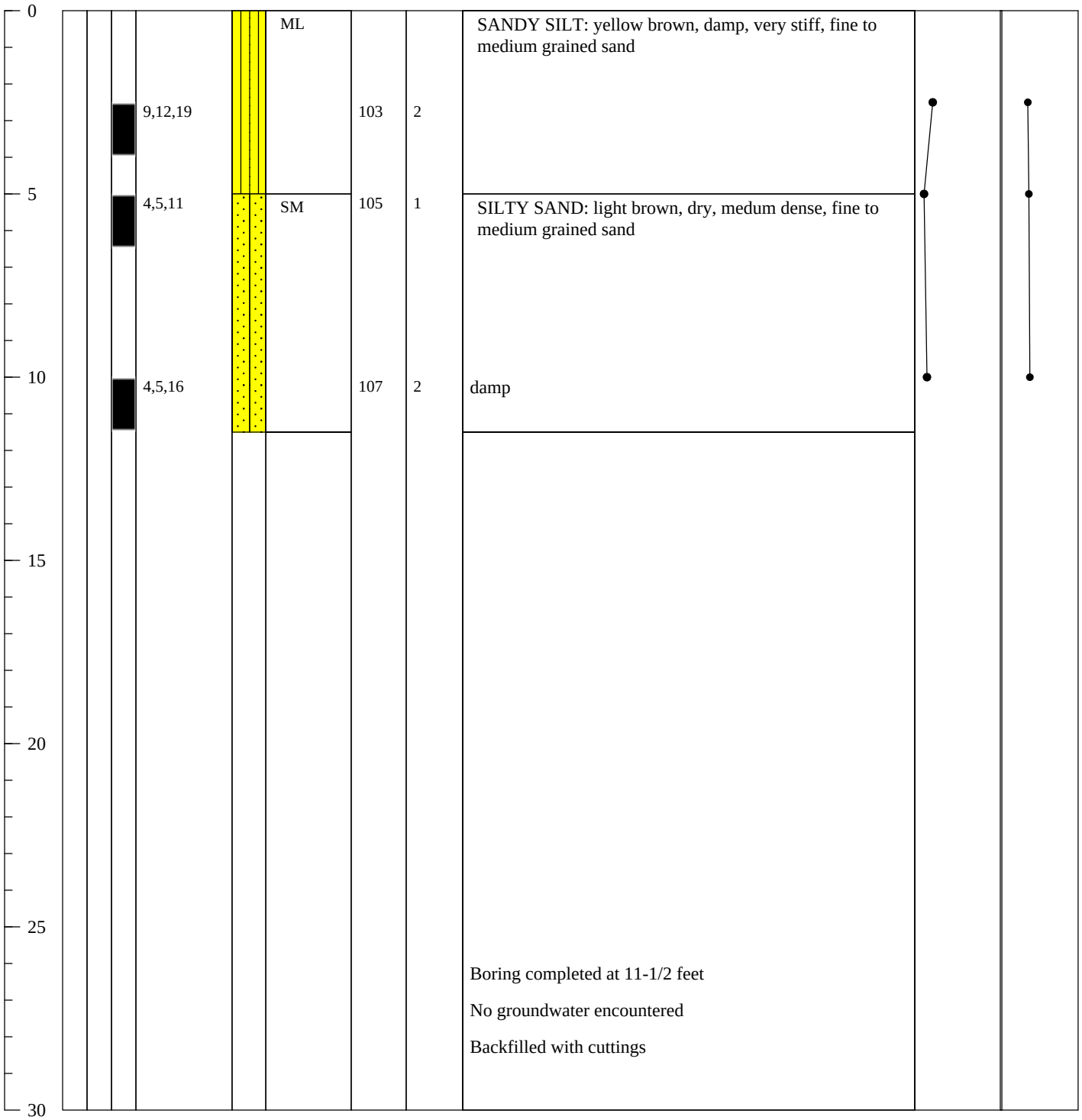
Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0				ML			SANDY SILT: yellow brown, damp, very stiff, fine to medium grained sand
	RING	9,12,19			103	2	
5	RING	4,5,11		SM	105	1	SILTY SAND: light brown, dry, medum dense, fine to medium grained sand
10	RING	4,5,16			107	2	damp
15							
20							
25							Boring completed at 11-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

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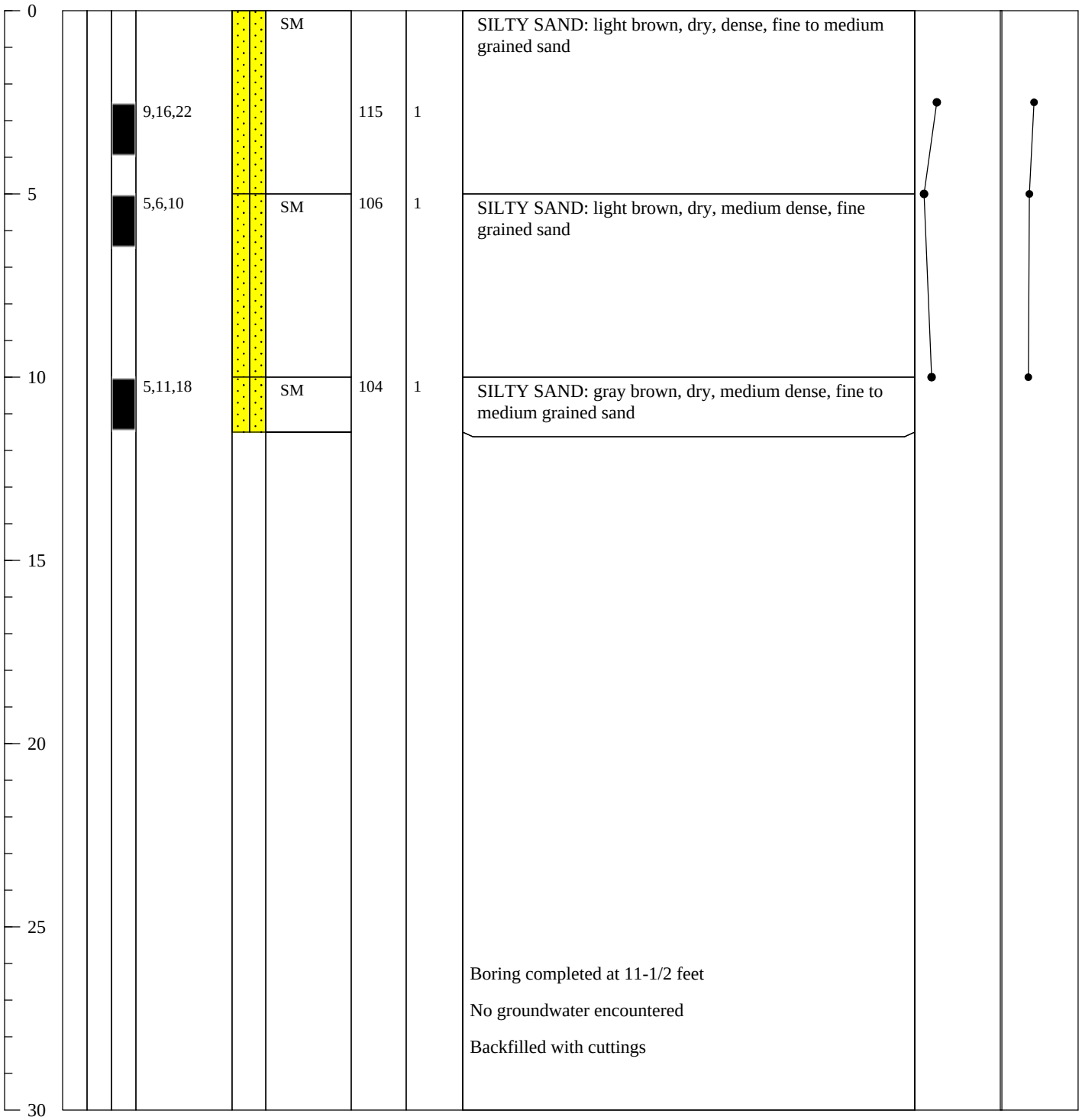
Boring No. B-3a
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density



Depth (Ft.)	Sample Type (Bulk, BAG, RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0				SM			SILTY SAND: light brown, dry, dense, fine to medium grained sand
	RING	9,16,22			115	1	
5	RING	5,6,10		SM	106	1	SILTY SAND: light brown, dry, medium dense, fine grained sand
10	RING	5,11,18		SM	104	1	SILTY SAND: gray brown, dry, medium dense, fine to medium grained sand
15							
20							
25							Boring completed at 11-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Earth Systems

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Boring No. B-4a

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

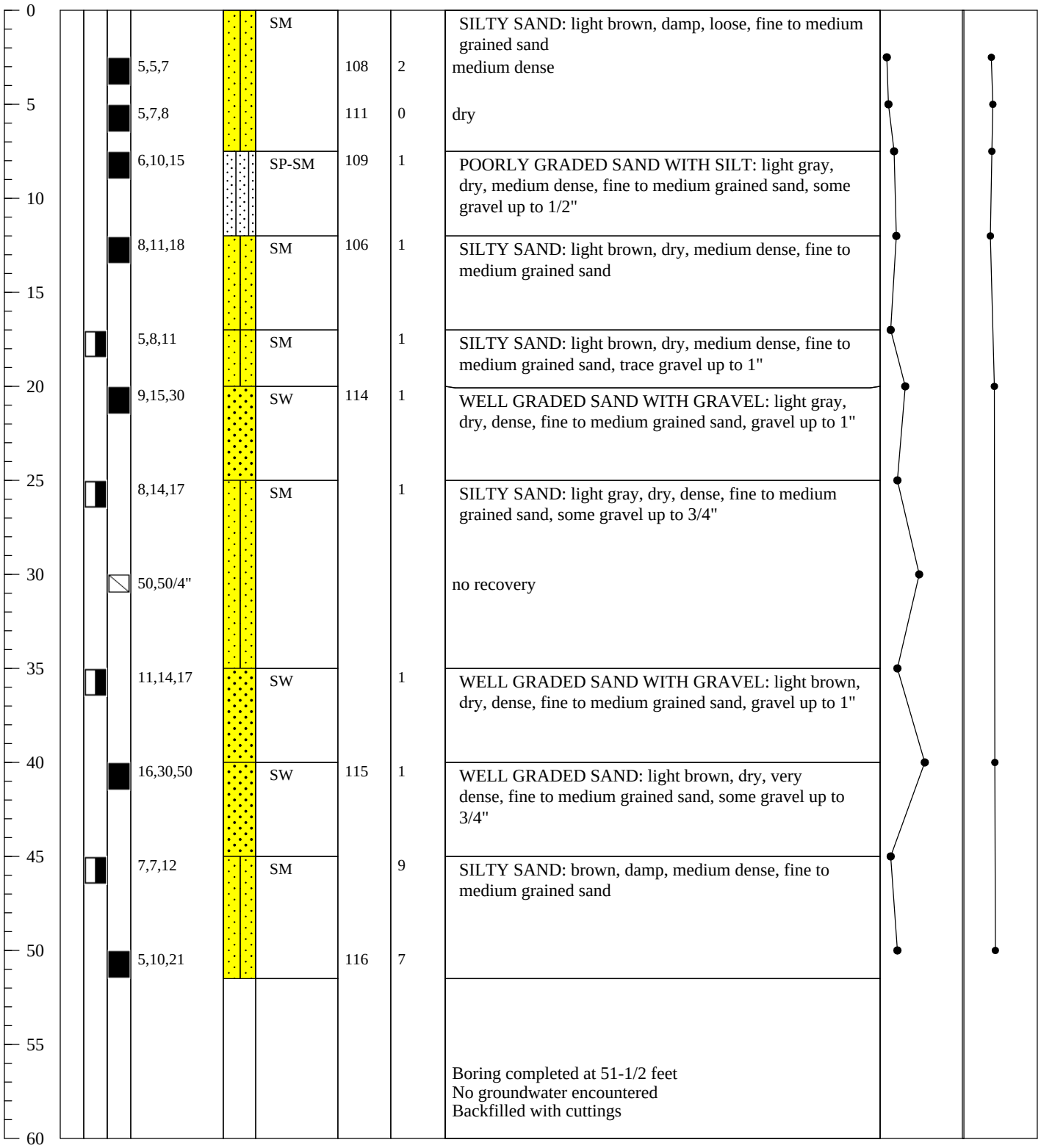
Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, damp, loose, fine to medium grained sand
	RING	5,5,7			108	2	medium dense
5	RING	5,7,8			111	0	dry
	RING	6,10,15		SP-SM	109	1	POORLY GRADED SAND WITH SILT: light gray, dry, medium dense, fine to medium grained sand, some gravel up to 1/2"
10	RING	8,11,18		SM	106	1	SILTY SAND: light brown, dry, medium dense, fine to medium grained sand
15	BAG	5,8,11		SM		1	SILTY SAND: light brown, dry, medium dense, fine to medium grained sand, trace gravel up to 1"
20	RING	9,15,30		SW	114	1	WELL GRADED SAND WITH GRAVEL: light gray, dry, dense, fine to medium grained sand, gravel up to 1"
25	BAG	8,14,17		SM		1	SILTY SAND: light gray, dry, dense, fine to medium grained sand, some gravel up to 3/4"
30		50,50/4"					no recovery
35	BAG	11,14,17		SW		1	WELL GRADED SAND WITH GRAVEL: light brown, dry, dense, fine to medium grained sand, gravel up to 1"
40	RING	16,30,50		SW	115	1	WELL GRADED SAND: light brown, dry, very dense, fine to medium grained sand, some gravel up to 3/4"
45	BAG	7,7,12		SM		9	SILTY SAND: brown, damp, medium dense, fine to medium grained sand
50	RING	5,10,21			116	7	
55							Boring completed at 51-1/2 feet No groundwater encountered Backfilled with cuttings
60							



Earth Systems

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Boring No. B-5a

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

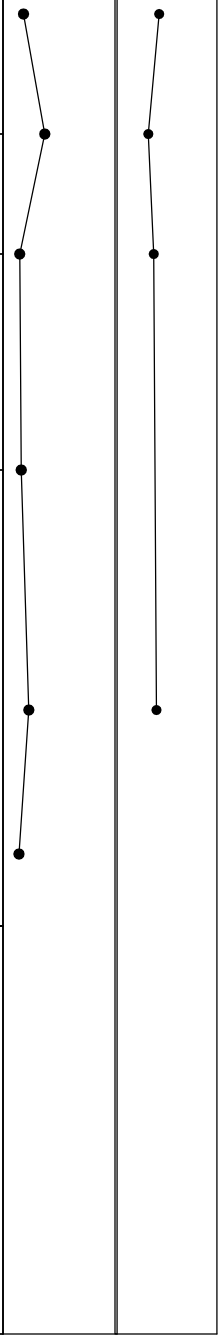
Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				ML			SANDY SILT: light brown, dry, very stiff, fine to medium grained sand
	RING	7,12,15			115	1	
5	RING	7,13,21		SP-SM	99	2	POORLY GRADED SAND WITH SILT: light gray damp, medium dense, fine to medium grained sand
	RING	5,9,13		SW	107	1	WELL GRADED SAND: light gray, dry, medium dense, medium to coarse grained sand
10	BAG	7,12,12		SW			WELL GRADED SAND: light gray, dry, dense, medium to coarse grained sand, some gravel up to 1-1/2"
15	RING	10,14,20			111	0	damp
20	RING	7,7,14					no recovery, dry poorly graded sand
25							Boring completed at 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

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Boring No. B-6a

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: olive, dry, medium dense, fine to medium grained sand
5	RING	7,8,14			106	0	
	RING	8,12,21		SW	112	1	WELL GRADED SAND: olive, dry, medium dense, medium to coarse grained sand
10	RING	9,10,13		SP	114	1	POORLY GRADED SAND: gray brown, dry, medium dense, fine to medium grained sand
15	RING	7,11,12					light gray, dense
20							Boring completed at 16-1/2 feet No groundwater encountered Backfilled with cuttings
25							
30							

Earth Systems

1680 Illinois Ave., Perris, CA 92571
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Boring No. B-7
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, dry, medium dense, fine to medium grained sand
	RING	7,8,12			114	1	
5	RING	4,4,7		SW	110	1	WELL GRADED SAND: olive dry, loose, medium to coarse grained sand
	RING	5,8,11			116	0	medium dense
10	RING	5,7,11		SM	117	1	SILTY SAND: olive, dry, medium dense, medium to coarse grained sand
15	BAG	6,12,15		SM			SILTY SAND: olive dry, dense, fine to medium grained sand
20	RING	10,15,18		SW	113	1	WELL GRADED SAND: brown, dry, medium dense, fine to medium grained sand, some gravel up to 1/2"
25							Boring completed at 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Earth Systems

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Boring No. B-8
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: brown, dry, medium dense, fine to medium grained sand
	RING	6,6,10			110	2	damp
5	RING	6,12,14		SP-SM	111	1	POORLY GRADED SAND WITH SILT: olive, dry, medium dense, fine to medium grained sand
	RING	7,9,14		SW	112	1	WELL GRADED SAND WITH GRAVEL: light gray, dry, medium dense, fine to medium grained sand, gravel up to 1"
10	BAG	5,7,11		SP-SM			POORLY GRADED SAND WITH SILT: light brown, damp, medium dense, fine to medium grained sand
15	RING	11,13,26			115	2	light gray, dense
20	BAG	10,13,12		SP			POORLY GRADED SAND: light gray, damp, dense, medium to coarse grained sand
25							Boring completed at 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Earth Systems

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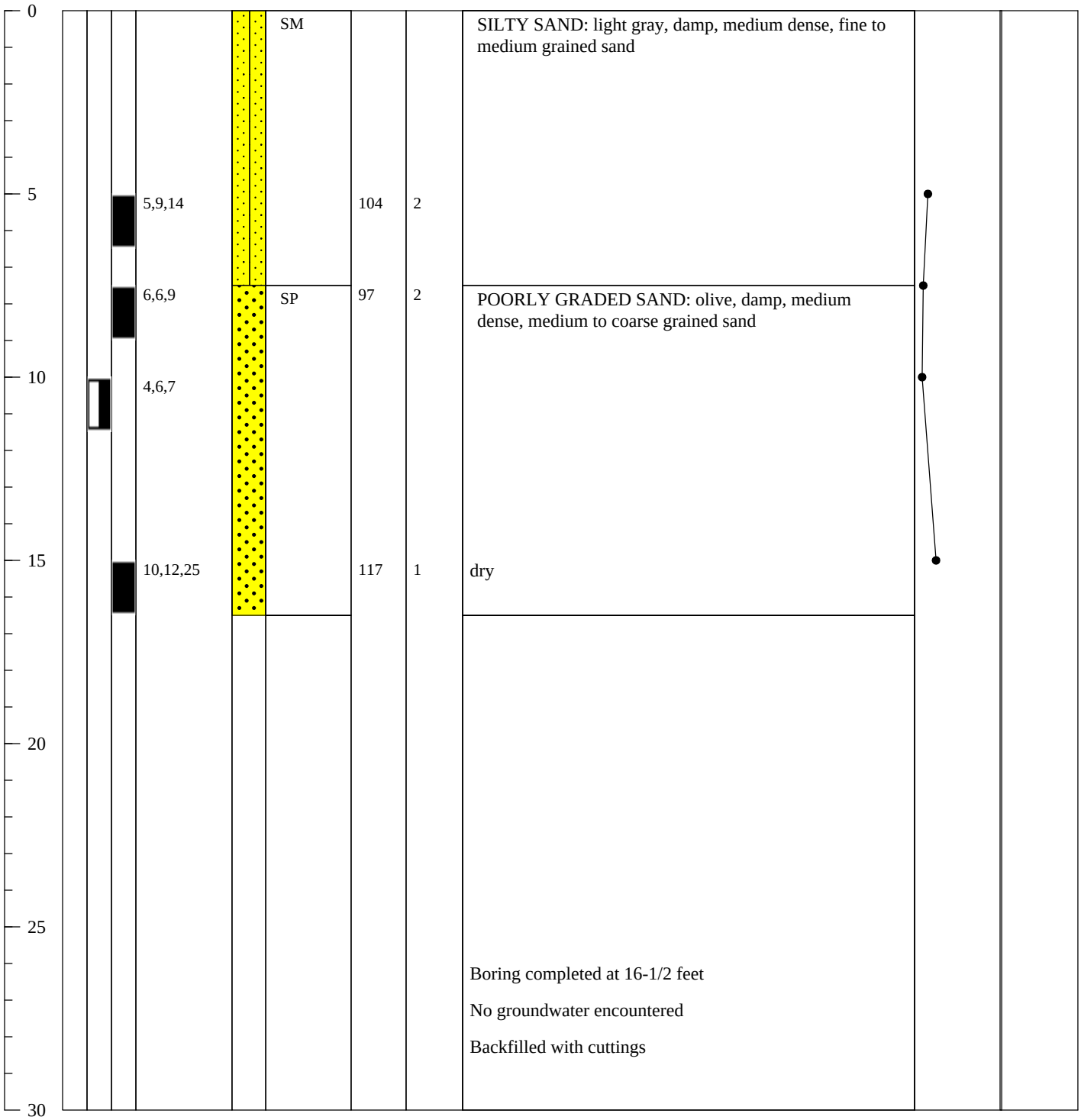
Boring No. B-9
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/4/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density



Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-10
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light gray, dry, medium dense, fine to medium grained sand
5	RING	5,8,12			105	2	
	RING	6,12,18		SP-SM	116	2	POORLY GRADED SAND WITH SILT: olive, damp, medium dense, medium to coarse grained sand
10	RING	12,15,27			124	2	dense
15	BAG	7,11,13					
20							
25							Boring completed at 16-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-11
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

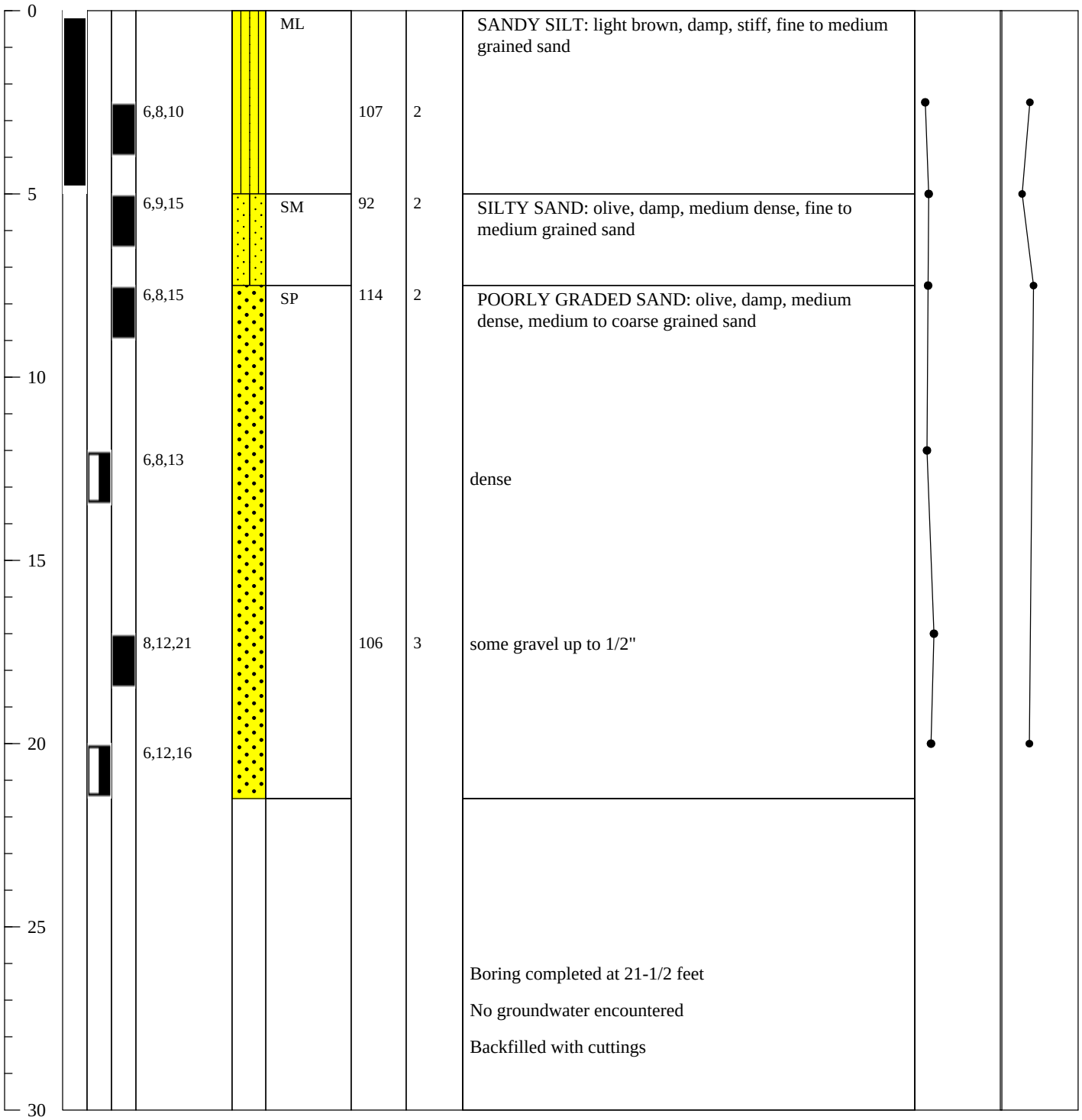
Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0	RING	6,8,10		ML	107	2	SANDY SILT: light brown, damp, stiff, fine to medium grained sand
5	RING	6,9,15		SM	92	2	SILTY SAND: olive, damp, medium dense, fine to medium grained sand
	RING	6,8,15		SP	114	2	POORLY GRADED SAND: olive, damp, medium dense, medium to coarse grained sand
10	BAG	6,8,13					dense
15	RING	8,12,21			106	3	some gravel up to 1/2"
20	BAG	6,12,16					
25							Boring completed at 21-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

1680 Illinois Ave., Perris, CA 92571
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Boring No. B-12
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

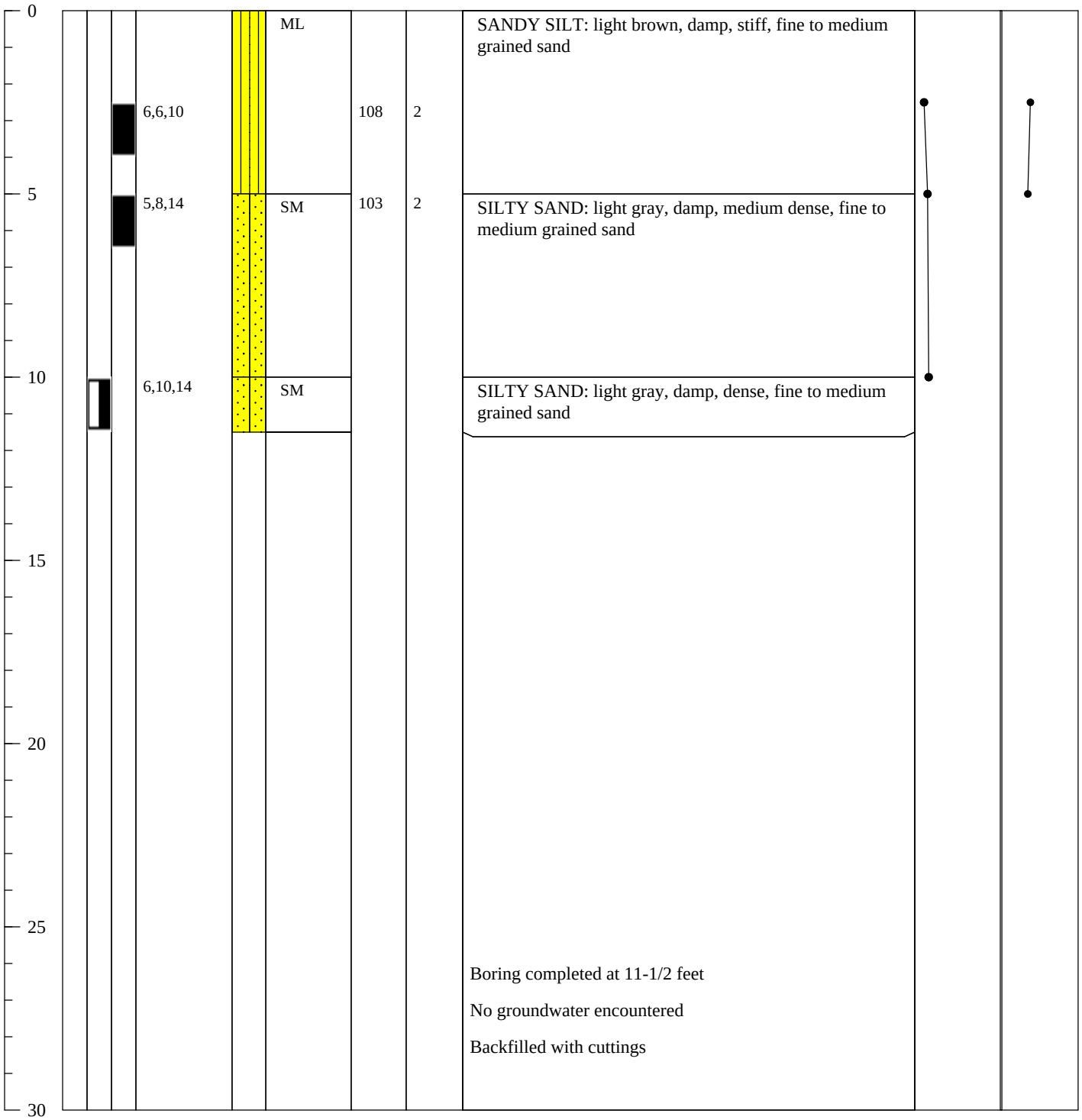
Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				ML			SANDY SILT: light brown, damp, stiff, fine to medium grained sand
	RING	6,6,10			108	2	
5	RING	5,8,14		SM	103	2	SILTY SAND: light gray, damp, medium dense, fine to medium grained sand
10	BAG	6,10,14		SM			SILTY SAND: light gray, damp, dense, fine to medium grained sand
15							
20							
25							Boring completed at 11-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-13

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, damp, medium dense, fine to medium grained sand
5	RING	10,10,17			100	3	
	RING	10,11,15		SP	106	2	POORLY GRADED SAND: light brown, damp, medium dense, medium to coarse grained sand
10	RING	6,9,13			108	2	olive
15	RING	6,7,10					
20							
25							Boring completed at 16-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-14
Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description
0				SM			SILTY SAND: light brown, damp, medium dense, fine to medium grained sand
	RING	6,8,11			112	2	
5	RING	6,8,14			113	2	
10							
15							
20							
25							Boring completed at 6-1/2 feet No groundwater encountered Backfilled with cuttings
30							

Earth Systems

1680 Illinois Ave., Perris, CA 92571
Phone (951) 928-9799, Fax (951) 928-9948

Boring No. B-15

Project Name: Proposed ELOP Project
Project Number: 307083-004
Boring Location: See Plate 3

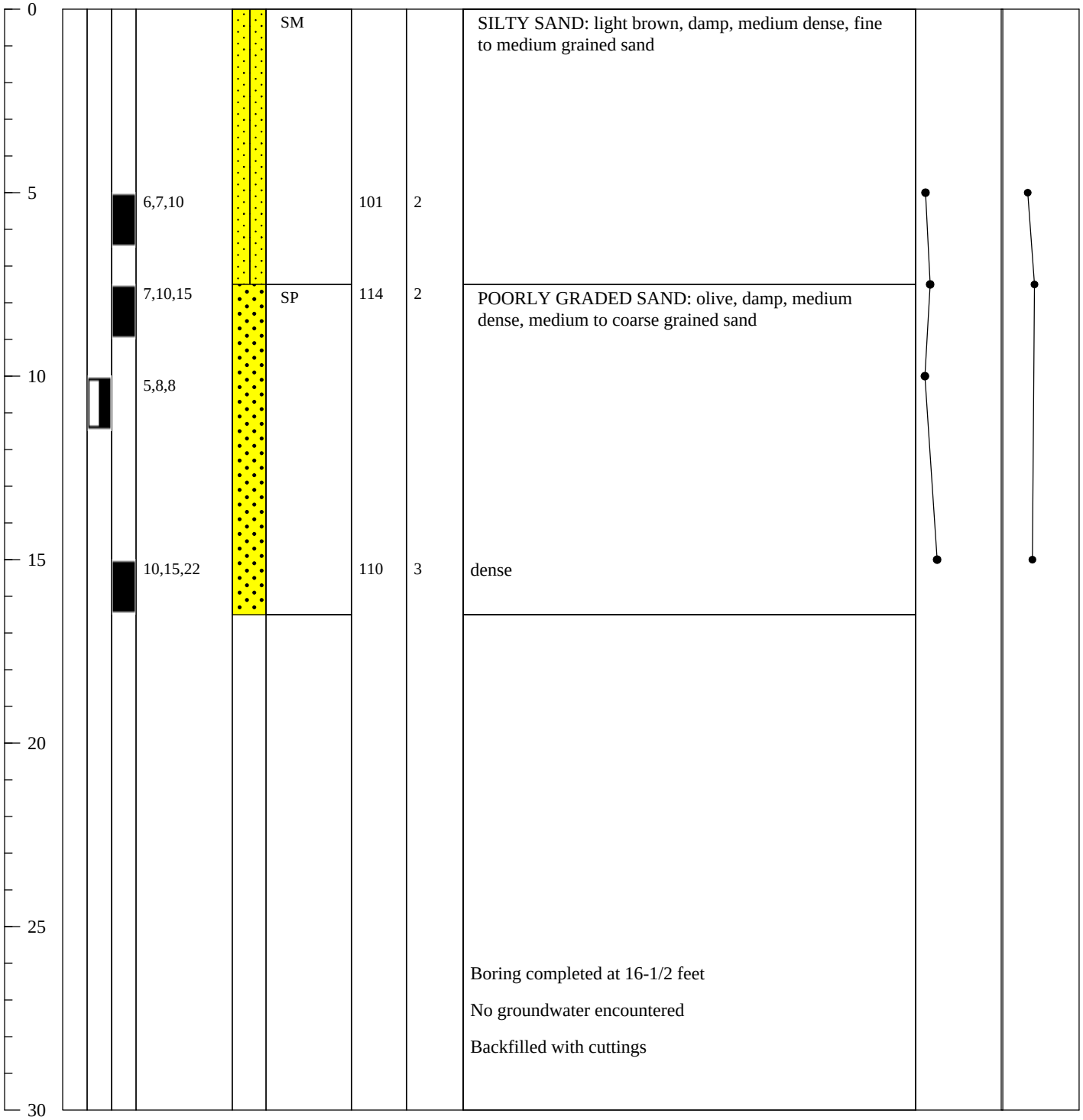
Drilling Date: 11/5/25
Drilling Method: Mobile B-61 w/auto hammer
Drill Type: 8" HSA
Logged By: SJ

Description of Units

Note: The stratification lines shown represent the approximate boundary between soil and/or rock types and the transition may be gradational.

Graphic Trend
Blow Count Dry Density

Depth (Ft.)	Sample Type (Bulk / BAG / RING)	Penetration Resistance (Blows/6")	Symbol	USCS	Dry Density (pcf)	Moisture Content (%)	Description of Units
0				SM			SILTY SAND: light brown, damp, medium dense, fine to medium grained sand
5	RING	6,7,10			101	2	
	RING	7,10,15		SP	114	2	POORLY GRADED SAND: olive, damp, medium dense, medium to coarse grained sand
10	BAG	5,8,8					
15	RING	10,15,22			110	3	dense
20							
25							Boring completed at 16-1/2 feet No groundwater encountered Backfilled with cuttings
30							



Boring No.	B-1	Project and Number	Proposed ELOP Center	307083-004
		ESSW Field Staff		
		Drilling Company	GP Drilling	
		Drilling Method	6-8" H S A	HSA Inner Diameter 3"
		Site Latitude (North)	Decimal Degrees	34.5880°N
		Site Longitude (West)	Decimal Degrees	118.0558°W

Date Drilled
9/9/2025

Hammer Weight (lbs)
140

Hammer Drop (inches)
30

Hammer Efficiency (E_M)
78

Borehole Correction (Cb)*
1

*inside diameter of Hollow Stem Auger

Sampler Correction Mod Cal to SPT
0.63

Sampler Liner Correction (Cs)
1.2 Applied if SPT Sampler Used
1.0 Applied if Cal Sampler Used

Rod Length Above Ground (ft)
3

Depth to Estimate Vs Over (ft)*
100

*Caltrans Estimation Method

*N_{sub} Value Desired For Column 6
70

*Only Used for Calculating Nsub otherwise not used by program (i.e.N50, N70, N80, etc)

Calculation Results
Ave. SPT N_{60HE}-value (blows/ft)
35
(Based on Upper 50 feet)
Ave. Shear Wave Velocity (ft/sec)
934
(Based on Upper 50 feet)
Soil Profile Type (Site Class)
D
(Based on Upper 50 feet)
Ave. Friction Angle (degrees)
35
(Based on Upper 50 feet)
Estimated Shear Wave Velocity **
Based on Depth Less than 100' ft
909 (ft/sec Upper 100 feet)
Soil Profile Type (Site Class)**
D
Based on
Ave. Shear Wave Velocity (ft/sec)
277 (m/sec Upper 100 feet)
Ave. Field SPT N-value (blows/ft)
26.6
(Based on Upper 50 feet)
Ave. Field SPT N-value (blows/ft)
27.3
(Based on Upper 100 feet)
Soil Profile Type (Site Class)**
D
Based on
Ave. Field Blow Count
27 (Upper 100 feet)

	Equipment variable	Typical Correction (%/100)
Energy ratio (Skempton, 1986)	Donut Hammer	0.50 to 1.00
	Safety Hammer	0.70 to 1.20
	Automatic-Trip Donut-type Hammer	0.80 to 1.30

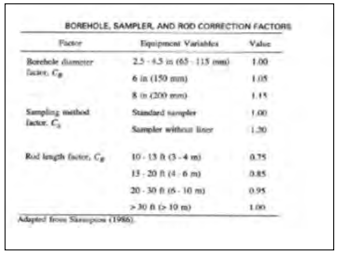
→ Hammer energy as related to the standard 60% delivered energy, i.e. a 72% hammer has and energy ratio of 1.2, i.e. (72/60=1.2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bottom of Layer Depth (ft)	Blow Count***	Type of Sampler	d_i (feet)	N_{60} (blows/ft)	N70 (blows/ft)	N_{60HE} (blows/ft)	V_{si}** (m/sec)	V_{si} (ft/sec)	Φ_i (degrees)	d_i/N_{60HEi}	d_i/V_{si}	d_i/Φ_i	Consistency if Coarse Grained (Based on ASTM and Corrected for N60)	Consistency if Fine Grained (Based on ASTM and Corrected for N60)
2.5	21	c	2.5	12.90	11.06	17.20	229.33	752.20	31.55	0.14536	0.00332	0.079239	Medium Dense	Stiff
5.0	25	c	2.5	15.36	13.16	20.48	241.22	791.22	32.37	0.12210	0.00316	0.077229	Medium Dense	Very Stiff
7.5	31	c	2.5	19.04	16.32	25.39	256.75	842.15	33.44	0.09847	0.00297	0.074758	Medium Dense	Very Stiff
10.0	29	c	2.5	17.81	15.27	23.75	251.83	826.01	33.10	0.10526	0.00303	0.075523	Medium Dense	Very Stiff
12.5	32	c	2.5	22.28	19.09	26.21	259.13	849.94	33.60	0.09539	0.00294	0.074394	Medium Dense	Very Stiff
15.0	34	c	2.5	23.67	20.29	27.85	263.72	865.01	33.92	0.08978	0.00289	0.0737	Medium Dense	Very Stiff
20.0	47	c	5.0	36.57	31.34	38.49	289.69	950.17	35.71	0.12989	0.00526	0.140032	Dense	Hard
25.0	57	c	5.0	44.35	38.01	46.68	306.35	1004.84	36.85	0.10711	0.00498	0.135685	Dense	Hard
30.0	41	c	5.0	33.58	28.78	33.58	278.44	913.27	34.93	0.14890	0.00547	0.143131	Dense	Hard
35.0	69	c	5.0	56.51	48.44	56.51	323.81	1062.08	38.05	0.08848	0.00471	0.131418	Very Dense	Hard
40.0	52	c	5.0	42.59	36.50	42.59	298.30	978.44	36.30	0.11740	0.00511	0.13775	Dense	Hard
45.0	79	c	5.0	64.70	55.46	64.70	336.77	1104.60	38.93	0.07728	0.00453	0.128421	Very Dense	Hard
50.0	50	c	5.0	40.95	35.10	40.95	294.93	967.37	36.07	0.12210	0.00517	0.138634	Dense	Hard
		Total:	50.0	"d" Feet				Total:		1.44752	0.05354	1.409914		

**Used When Boring Depths are less than 100 feet to estimate Shear Wave Velocity over 100 feet. Caltrans Geotechnical Services Design Manual, Version 1.0, August 2009 using N60HE corrected only for Hammer Energy (Empirical Calculation)

*** Uncorrected blowcount not to exceed 100 blows as entry per CBC

Consistency classification based upon ASCE 1996



BOREHOLE, SAMPLER, AND ROD CORRECTION FACTORS

Factor	Equipment Variables	Value
Borehole diameter factor, C_B	2.5 - 4.5 in (65 - 115 mm)	1.00
	6 in (150 mm)	1.05
	8 in (200 mm)	1.15
Sampling method factor, C_S	Standard sampler	1.00
	Sampler without liner	1.20
Rod length factor, C_R	10 - 13 ft (3 - 4 m)	0.75
	13 - 20 ft (4 - 6 m)	0.85
	20 - 30 ft (6 - 10 m)	0.95
	> 30 ft (> 10 m)	1.00

Adapted from Skempton (1986).

Spreadsheet Version 2.6, 2019: Prepared by Kevin L. Paul, PE, GE

Boring No.	B-2	**Project and Number**	Proposed ELOP Center	307083-004	
		ESSW Field Staff			
		Drilling Company	GP Drilling		
		Drilling Method	6-8" H S A	**HSA Inner Diameter**	3"
		Site Latitude (North)	**Decimal Degrees**		
			34.5880°N		
		Site Longitude (West)	**Decimal Degrees**		
			118.0558°W		

Date Drilled	9/9/2025
Hammer Weight (lbs)	140
Hammer Drop (inches)	30
Hammer Efficiency (E_M)	78
Borehole Correction (Cb)*	1
*inside diameter of Hollow Stem Auger	
Sampler Correction Mod Cal to SPT	0.63
Sampler Liner Correction (Cs)	
1.2 Applied if SPT Sampler Used	
1.0 Applied if Cal Sampler Used	
Rod Length Above Ground (ft)	3
Depth to Estimate Vs Over (ft)*	100
*Caltrans Estimation Method	
N_{sub} Value Desired For Column 6	70
*Only Used for Calculating Nsub otherwise not used by program (i.e.N_{50}, N_{70}, N_{80}, etc)	

Calculation Results	
Ave. SPT N_{60HE}-value (blows/ft)	28
(Based on Upper 45 feet)	
Ave. Shear Wave Velocity (ft/sec)	878
(Based on Upper 45 feet)	
Soil Profile Type (Site Class)	D
(Based on Upper 45 feet)	
Ave. Friction Angle (degrees)	34
(Based on Upper 45 feet)	
Estimated Shear Wave Velocity ** Based on Depth Less than 100' ft	**865 (ft/sec Upper 100 feet)**
Soil Profile Type (Site Class)**	**D Based on Ave. Shear Wave Velocity (ft/sec) 264 (m/sec Upper 100 feet)**
Ave. Field SPT N-value (blows/ft)	21.6
(Based on Upper 45 feet)	
Ave. Field SPT N-value (blows/ft)	**22.7**
(Based on Upper 100 feet)	
Soil Profile Type (Site Class)**	**D Based on Ave. Field Blow Count 23 (Upper 100 feet)**

	Equipment variable	Typical Correction (%/100)
Energy ratio (Skempton, 1986)	Donut Hammer	0.50 to 1.00
	Safety Hammer	0.70 to 1.20
	Automatic-Trip Donut-type Hammer	0.80 to 1.30

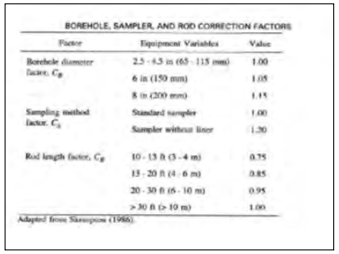
→ Hammer energy as related to the standard 60% delivered energy, i.e. a 72% hammer has and energy ratio of 1.2, i.e. (72/60=1.2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bottom of Layer Depth (ft)	**Blow Count*** **	**Type of Sampler**	**d_i (feet)**	**N_{60} (blows/ft)**	**N70 (blows/ft)**	**N_{60HE} (blows/ft)**	**V_{si}** ** **(m/sec)**	**V_{si} (ft/sec)**	**Φ_i (degrees)**	**d_i/N_{60HEi}**	**d_i/V_{si}**	**d_i/Φ_i**	**Consistency if Coarse Grained (Based on ASTM and Corrected for N60)**	**Consistency if Fine Grained (Based on ASTM and Corrected for N60)**
2.5	24	c	2.5	14.74	12.64	19.66	238.39	781.90	32.18	0.12719	0.00320	0.0777	Medium Dense	Stiff
5.0	19	c	2.5	11.67	10.00	15.56	222.77	730.69	31.10	0.16066	0.00342	0.080394	Medium Dense	Stiff
7.5	37	c	2.5	22.73	19.48	30.30	270.27	886.48	34.37	0.08250	0.00282	0.072734	Medium Dense	Very Stiff
10.0	26	c	2.5	15.97	13.69	21.29	243.98	800.27	32.56	0.11740	0.00312	0.076778	Medium Dense	Very Stiff
15.0	29	c	5.0	20.19	17.30	23.75	251.83	826.01	33.10	0.21052	0.00605	0.151046	Medium Dense	Very Stiff
20.0	39	c	5.0	30.34	26.01	31.94	274.43	900.12	34.66	0.15654	0.00555	0.144269	Dense	Hard
25.0	48	c	5.0	37.35	32.01	39.31	291.46	955.99	35.83	0.12719	0.00523	0.139556	Dense	Hard
30.0	23	c	5.0	18.84	16.15	18.84	235.46	772.31	31.97	0.26544	0.00647	0.15638	Medium Dense	Very Stiff
35.0	50	c	5.0	40.95	35.10	40.95	294.93	967.37	36.07	0.12210	0.00517	0.138634	Dense	Hard
40.0	50	c	5.0	40.95	35.10	40.95	294.93	967.37	36.07	0.12210	0.00517	0.138634	Dense	Hard
45.0	55	c	5.0	45.05	38.61	45.05	303.20	994.48	36.63	0.11100	0.00503	0.136487	Dense	Hard
		Total:	45.0	"d" Feet				Total:		1.60263	0.05124	1.312612		

**Used When Boring Depths are less than 100 feet to estimate Shear Wave Velocity over 100 feet. Caltrans Geotechnical Services Design Manual, Version 1.0, August 2009 using N60HE corrected only for Hammer Energy (Empirical Calculation)

*** Uncorrected blowcount not to exceed 100 blows as entry per CBC

Consistency classification based upon ASCE 1996



BOREHOLE, SAMPLER, AND ROD CORRECTION FACTORS

Factor	Equipment Variables	Value
Borehole diameter factor, C_B	2.5 - 4.5 in (65 - 115 mm)	1.00
	6 in (150 mm)	1.05
	8 in (200 mm)	1.15
Sampling method factor, C_S	Standard sampler	1.00
	Sampler without liner	1.20
Rod length factor, C_R	10 - 13 ft (3 - 4 m)	0.75
	13 - 20 ft (4 - 6 m)	0.85
	20 - 30 ft (6 - 10 m)	0.95
	> 30 ft (> 10 m)	1.00

Adapted from Skempton (1986).

Spreadsheet Version 2.6, 2019: Prepared by Kevin L. Paul, PE, GE

Boring No.	B-4a	Project and Number	Proposed ELOP Center	307083-004
		ESSW Field Staff		
		Drilling Company	GP Drilling	
		Drilling Method	6-8" H S A	HSA Inner Diameter 3"
		Site Latitude (North)	Decimal Degrees	34.5880°N
		Site Longitude (West)	Decimal Degrees	118.0558°W

Date Drilled
11/4/2025

Hammer Weight (lbs)
140

Hammer Drop (inches)
30

Hammer Efficiency (E_M)
78

Borehole Correction (Cb)*
1

*inside diameter of Hollow Stem Auger

Sampler Correction Mod Cal to SPT
0.63

Sampler Liner Correction (Cs)
1.2 Applied if SPT Sampler Used
1.0 Applied if Cal Sampler Used

Rod Length Above Ground (ft)
3

Depth to Estimate Vs Over (ft)*
100

*Caltrans Estimation Method

*N_{sub} Value Desired For Column 6
70

*Only Used for Calculating Nsub otherwise not used by program (i.e.N50, N70, N80, etc)

Calculation Results
Ave. SPT N_{60HE}-value (blows/ft)
25
(Based on Upper 50 feet)
Ave. Shear Wave Velocity (ft/sec)
874
(Based on Upper 50 feet)
Soil Profile Type (Site Class)
D
(Based on Upper 50 feet)
Ave. Friction Angle (degrees)
34
(Based on Upper 50 feet)
Estimated Shear Wave Velocity ** Based on Depth Less than 100' ft
873 (ft/sec Upper 100 feet)
Soil Profile Type (Site Class)**
D Based on Ave. Shear Wave Velocity (ft/sec)
266 (m/sec Upper 100 feet)
Ave. Field SPT N-value (blows/ft)
19.1
(Based on Upper 50 feet)
Ave. Field SPT N-value (blows/ft)
27.2
(Based on Upper 100 feet)

Soil Profile Type (Site Class)**
D Based on Ave. Field Blow Count
27 (Upper 100 feet)

	Equipment variable	Typical Correction (%/100)
Energy ratio (Skempton, 1986)	Donut Hammer	0.50 to 1.00
	Safety Hammer	0.70 to 1.20
	Automatic-Trip Donut-type Hammer	0.80 to 1.30

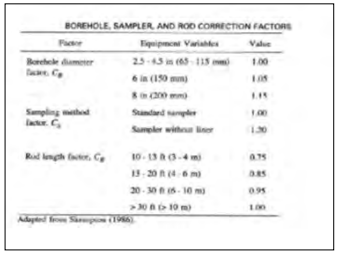
→ Hammer energy as related to the standard 60% delivered energy, i.e. a 72% hammer has and energy ratio of 1.2, i.e. (72/60=1.2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bottom of Layer Depth (ft)	Blow Count***	Type of Sampler	d_i (feet)	N_{60} (blows/ft)	N70 (blows/ft)	N_{60HE} (blows/ft)	V_{si}** (m/sec)	V_{si} (ft/sec)	Φ_i (degrees)	d_i/N_{60HEi}	d_i/V_{si}	d_i/Φ_i	Consistency if Coarse Grained (Based on ASTM and Corrected for N60)	Consistency if Fine Grained (Based on ASTM and Corrected for N60)
2.5	12	c	2.5	7.37	6.32	9.83	194.98	639.52	29.17	0.25438	0.00391	0.085695	Loose	Firm
5.0	15	c	2.5	9.21	7.90	12.29	208.01	682.27	30.08	0.20350	0.00366	0.083122	Loose	Stiff
7.5	15	c	2.5	9.21	7.90	12.29	208.01	682.27	30.08	0.20350	0.00366	0.083122	Loose	Stiff
12.0	29	c	4.5	20.19	17.30	23.75	251.83	826.01	33.10	0.18947	0.00545	0.135942	Medium Dense	Very Stiff
17.0	19	s	5.0	25.19	21.59	24.70	254.71	835.45	33.30	0.20243	0.00598	0.150147	Medium Dense	Very Stiff
20.0	45	c	3.0	35.01	30.01	36.86	286.06	938.26	35.46	0.08140	0.00320	0.08461	Dense	Hard
25.0	31	s	5.0	45.94	39.38	40.30	293.57	962.89	35.97	0.12407	0.00519	0.138995	Dense	Hard
30.0	100	c	5.0	81.90	70.20	81.90	360.59	1182.75	40.57	0.06105	0.00423	0.123257	Very Dense	Hard
35.0	31	s	5.0	48.36	41.45	40.30	293.57	962.89	35.97	0.12407	0.00519	0.138995	Dense	Hard
40.0	31	c	5.0	25.39	21.76	25.39	256.75	842.15	33.44	0.19694	0.00594	0.149516	Medium Dense	Very Stiff
45.0	80	s	5.0	124.80	106.97	104.00	386.46	1267.59	42.34	0.04808	0.00394	0.118105	Very Dense	Hard
50.0	19	c	5.0	15.56	13.34	15.56	222.77	730.69	31.10	0.32132	0.00684	0.160787	Medium Dense	Very Stiff
		Total:	50.0	"d" Feet				Total:		2.01019	0.05721	1.452295		

**Used When Boring Depths are less than 100 feet to estimate Shear Wave Velocity over 100 feet. Caltrans Geotechnical Services Design Manual, Version 1.0, August 2009 using N60HE corrected only for Hammer Energy (Empirical Calculation)

*** Uncorrected blowcount not to exceed 100 blows as entry per CBC

Consistency classification based upon ASCE 1996



BOREHOLE, SAMPLER, AND ROD CORRECTION FACTORS

Factor	Equipment Variables	Value
Borehole diameter factor, C_B	2.5 - 4.5 in (65 - 115 mm)	1.00
	6 in (150 mm)	1.05
	8 in (200 mm)	1.15
Sampling method factor, C_S	Standard sampler	1.00
	Sampler without liner	1.20
Rod length factor, C_R	10 - 13 ft (3 - 4 m)	0.75
	13 - 20 ft (4 - 6 m)	0.85
	20 - 30 ft (6 - 10 m)	0.95
	> 30 ft (> 10 m)	1.00

Adapted from Skempton (1986).

Spreadsheet Version 2.6, 2019: Prepared by Kevin L. Paul, PE, GE

LIQUEFY-v 2.3.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Coryright & Developed 2007 by Shelton L. Stringer, PE, GE, PG , EG - Earth Systems Southwest

Project: Proposed ELOP Project
Job No: 307083-004
Date: 12/3/2025
Boring: B-1 Data Set: 1

Methods: **Liquefaction Analysis using 1996 & 1998 NCEER workshop method (Youd & Idriss, editors)**
Journal of Geotechnical and Enviromental Engineering (JGEE), October 2001, Vol 127, No. 10, ASCE
Settlement Analysis from Tokimatsu and Seed (1987), JGEE,Vol 113, No.8, ASCE
Modified by Pradel, JGEE, Vol 124, No. 4, ASCE

EARTHQUAKE INFORMATION:
Magnitude: 7.9 7.5
PGA, g: 0.59 0.68
MSF: 0.88
GWT: 100.0 feet
Calc GWT: 100.0 feet
Remediate to: 5.0 feet

SPT N VALUE CORRECTIONS:
Energy Correction to N60 (C_E): 1.30 Automatic Hammer
Drive Rod Corr. (C_R): 1 Default
Rod Length above ground (feet): 3.0
Borehole Dia. Corr. (C_B): 1.00
Sampler Liner Correction for SPT?: 1 Yes
Cal Mod/ SPT Ratio: 0.63

Threshold Acceler., g: #N/A

Total (ft) Liquefied Thickness	Total (in.) Induced Subsidence
0	0.5

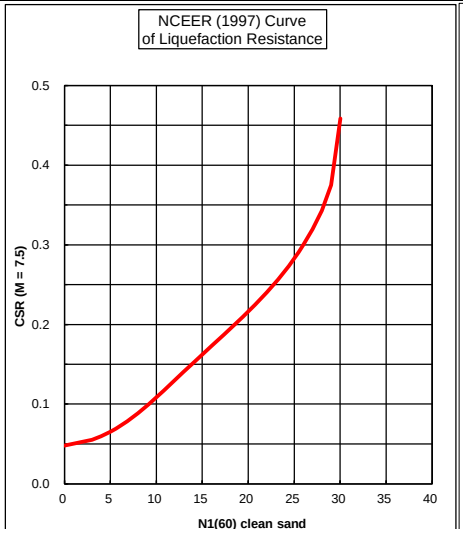
upper 50 ft

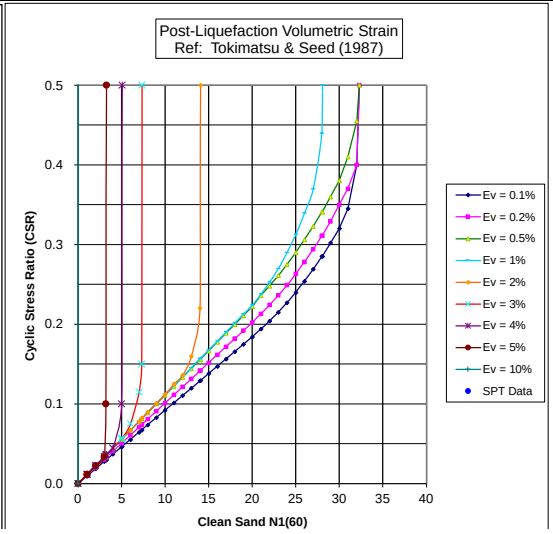
Required SF: 1.50
Minimum Calculated SF: #N/A

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

Nc = 19.2

Base Depth (feet)	Cal Mod N	SPT N	Liquef. Suscept. (0 or 1)	Total Unit Wt. (pcf)	Fines Content (%)	Depth of SPT (feet)	Rod Length (feet)	Tot.Stress at SPT po (tsf)	Eff.Stress at SPT p'o (tsf)	rd	C_N	C_R	C_S	$N_{1(60)}$	Rel. Dens. Dr (%)	*Trigger FC Adj.* $\Delta N_{1(60)}$	*Equiv. Sand* $N_{1(60)CS}$	Kσ	M = 7.5 Available CRR	M =7.5 Induced CSR*	**Liquefac. Safety Factor**	*Post FC Adj.* $\Delta N_{1(60)}$	$N_{1(60)CS}$	Volumetric *Strain* (%)	**Induced Subsidence (in.)**	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	**Dry Sand Subsidence (in.)**
								0.000																								
4.5	21	**50**	1	117	17	2.5	5.5	0.146	0.146	1.00	1.70	0.75	1.00	82.9	100	8.0	90.9	1.00	1.200	0.439	**Non-Liq.**	8.0	90.9	0.01	**0.00**	0.098	629	0.056	1.8E-04	2.9E-05	3.3E-05	**0.00**
7.0	25	**16**	1	110	5	5.0	8.0	0.291	0.291	0.99	1.70	0.75	1.00	26.1	61	0.0	26.1	1.00	0.302	0.436	**Non-Liq.**	0.0	26.1	0.12	**0.04**	0.195	585	0.111	7.3E-04	5.3E-04	5.9E-04	**0.04**
9.5	31	**20**	1	105	5	7.5	10.5	0.427	0.427	0.98	1.57	0.75	1.00	30.0	65	0.0	30.0	1.00	0.454	0.434	**Non-Liq.**	0.0	30.0	0.10	**0.03**	0.286	743	0.162	6.9E-04	4.3E-04	4.8E-04	**0.03**
12.0	29	**18**	1	120	5	10.0	13.0	0.562	0.562	0.98	1.37	0.76	1.00	24.7	59	0.0	24.7	1.00	0.278	0.431	**Non-Liq.**	0.0	24.7	0.16	**0.05**	0.377	799	0.212	9.2E-04	7.1E-04	8.0E-04	**0.05**
14.5	32	**20**	1	108	17	12.5	15.5	0.709	0.709	0.97	1.22	0.82	1.00	26.2	61	4.6	30.7	1.00	1.200	0.429	**Non-Liq.**	4.6	30.7	0.10	**0.03**	0.475	965	0.266	7.8E-04	4.7E-04	5.2E-04	**0.03**
17.0	34	**21**	1	114	5	15.0	18.0	0.846	0.846	0.97	1.12	0.86	1.00	26.9	62	0.0	26.9	1.00	0.318	0.427	**Non-Liq.**	0.0	26.9	0.15	**0.04**	0.566	1,008	0.316	9.4E-04	6.6E-04	7.4E-04	**0.04**
23.0	47	**30**	1	123	5	20.0	23.0	1.144	1.144	0.96	0.96	0.93	1.00	34.6	70	0.0	34.6	0.97	1.200	0.435	**Non-Liq.**	0.0	34.6	0.09	**0.07**	0.766	1,275	0.422	8.2E-04	4.2E-04	4.7E-04	**0.07**
28.0	67	**42**	1	123	5	25.0	28.0	1.452	1.452	0.94	0.85	0.98	1.00	46.1	81	0.0	46.1	0.88	1.200	0.471	**Non-Liq.**	0.0	46.1	0.06	**0.03**	0.973	1,580	0.527	6.9E-04	2.5E-04	2.8E-04	**0.03**
33.0	41	**26**	1	107	50	30.0	33.0	1.743	1.743	0.92	0.78	1.00	1.00	26.2	61	10.0	36.2	0.86	1.200	0.471	**Non-Liq.**	10.0	36.2	0.10	**0.06**	1.168	1,597	0.618	8.7E-04	4.3E-04	4.8E-04	**0.06**
38.0	69	**43**	1	121	5	35.0	38.0	2.025	2.025	0.89	0.72	1.00	1.00	40.9	76	0.0	40.9	0.77	1.200	0.509	**Non-Liq.**	0.0	40.9	0.07	**0.04**	1.356	1,793	0.695	7.9E-04	3.3E-04	3.7E-04	**0.04**
43.0	52	**33**	1	109	17	40.0	43.0	2.315	2.315	0.85	0.68	1.00	1.00	28.8	64	4.7	33.5	0.79	1.200	0.474	**Non-Liq.**	4.7	33.5	0.11	**0.06**	1.551	1,795	0.759	8.8E-04	4.8E-04	5.3E-04	**0.06**
48.0	79	**50**	1	117	5	45.0	48.0	2.596	2.596	0.80	0.64	1.00	1.00	41.3	77	0.0	41.3	0.70	1.200	0.507	**Non-Liq.**	0.0	41.3	0.07	**0.04**	1.739	2,038	0.804	7.2E-04	3.0E-04	3.4E-04	**0.04**
51.5	50	**32**	1	119	17	50.0	53.0	2.890	2.890	0.75	0.61	1.00	1.00	24.8	59	4.5	29.3	0.74	0.387	0.448	**Non-Liq.**	4.5	29.3	0.12	**0.05**	1.936	1,917	0.838	8.4E-04	5.3E-04	6.0E-04	**0.05**





$N_{1(60)} = C_N*C_E*C_B*C_R*C_S*N$

C_R = 0.75 for Rod lengths < 3m, 1.0 for > 10m
= min(1,max(0.75,1.4666-2.556/(z(ft))$^{0.5}$))

$C_N = (1 \text{ atm}/p'o)^{0.5}$, max 1.7

C_S = max(1.1,min(1.3,1+$N_{1(60)}$/100)) for SPT without liners

MSF = $10^{2.24}/M^{2.56}$

z = Depth (m)

pa = 1 atm = 101 KPa = 1.058 tsf

p = 0.67*po

τ_{av} = 0.65*PGA*po*rd

$G_{max} = 447*N_{1(60)CS}^{(1/3)}*p^{0.5}$

a = 0.0389*(p/1)+0.124

b = 6400*(p/1)$^{(-0.6)}$

$\gamma = [1+a*EXP(b*\tau_{av}/G_{max})]/[(1+a)*\tau_{av}/G_{max}]$

$E_{15} = \gamma*(N_{1(60)CS}/20)^{-1.2}$

$E_{nc} = (Nc/15)^{0.45}*E15$

$Nc = (MAG-4)^{2.17}$

$S = 2*H*E_{nc}$

rd = (1-0.4113*z^0.5+0.04052*z+0.001753*z^1.5)/(1-0.4177*z^0.5+0.05729*z-0.006205*z^1.5+0.00121*z^2))

$\Delta N_{1(60)}$ = min(10,IF(FC<35,exp(1.76-(190/FC^2)),5)+IF(FC<=5,1,IF(FC<35,0.99+(FC^1.5/1000),1.2))*N1(60) - N1(60)

$N_{1(60)CS} = N_{1(60)CS} + \Delta N_{1(60)}$

Kσ = min of 1.0 or (p'o/1.058)$^{(IF(Dr>0.7,0.6,IF(Dr<0.5,0.8,0.7))-1)}$

Dr = $(N_{1(60)}/70)^{0.5}$

CSReq = 0.65*PGA*(po/p'o)*rd

CSR* = CSReq/MSF/Kσ

$CRR_{7.5}$ = (0.048-0.004721*N+0.0006136*N^2-0.00001673*N^3)/(1-0.1248*N+0.009578*N^2-0.0003285*N^3+0.000003714*N^4))

N = $N_{1(60)CS}$

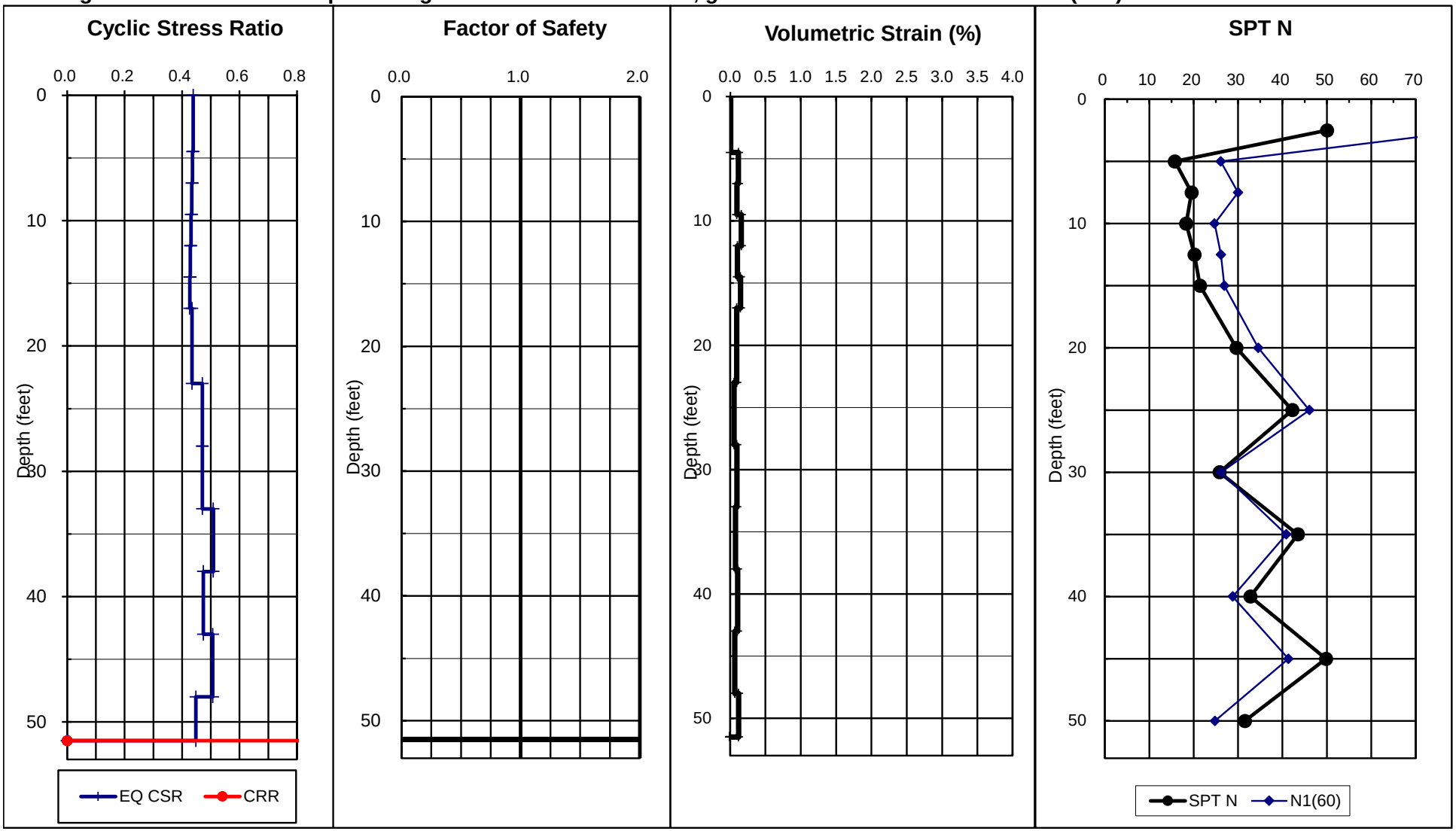
SF = $CRR_{7.5,1atm}$/CSR*

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED SUBSIDENCE

Proposed ELOP Project **Project No: 307083-004** 1996/1998 NCEER Method

Ground Compaction Remediated to 5 foot depth

Boring: B-1 **Earthquake Magnitude: 7.9** **PGA, g: 0.59** **Calc GWT (feet): 100**



Total Thickness of Liquefiable Layers: 0.0 feet

Estimated Total Ground Subsidence: 0.5 inches

LIQUEFY-v 2.3.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Coryright & Developed 2007 by Shelton L. Stringer, PE, GE, PG , EG - Earth Systems Southwest

Project: Proposed ELOP Project
Job No: 307083-004
Date: 12/3/2025
Boring: B-2 Data Set: 2

Methods: **Liquefaction Analysis using 1996 & 1998 NCEER workshop method (Youd & Idriss, editors)**
Journal of Geotechnical and Enviromental Engineering (JGEE), October 2001, Vol 127, No. 10, ASCE
Settlement Analysis from Tokimatsu and Seed (1987), JGEE,Vol 113, No.8, ASCE
Modified by Pradel, JGEE, Vol 124, No. 4, ASCE

EARTHQUAKE INFORMATION:

Magnitude: 7.9 7.5
PGA, g: 0.59 0.68
MSF: 0.88
GWT: 100.0 feet
Calc GWT: 100.0 feet
Remediate to: 5.0 feet

SPT N VALUE CORRECTIONS:

Energy Correction to N60 (C_E): 1.30 Automatic Hammer
Drive Rod Corr. (C_R): 1 Default
Rod Length above ground (feet): 3.0
Borehole Dia. Corr. (C_B): 1.00
Sampler Liner Correction for SPT?: 1 Yes
Cal Mod/ SPT Ratio: 0.63

Threshold Acceler., g: #N/A

Total (ft) Liquefied Thickness	Total (in.) Induced Subsidence
0	0.6

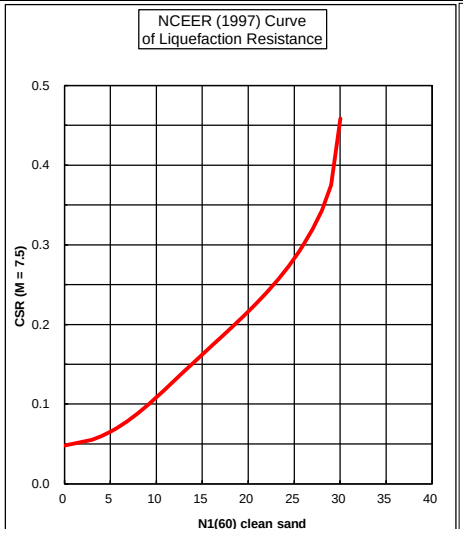
upper 50 ft

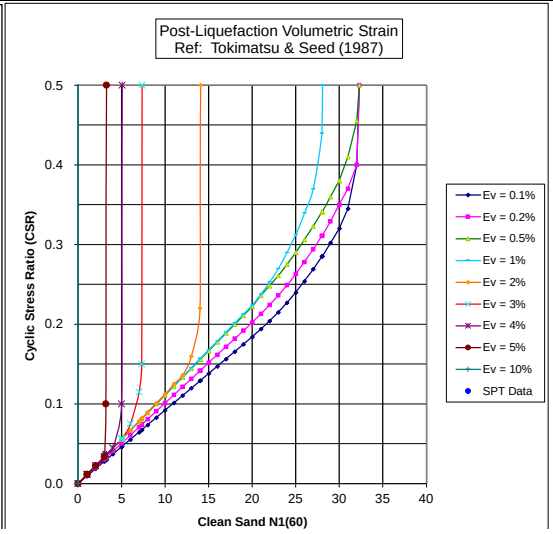
Required SF: 1.50
Minimum Calculated SF: #N/A

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

Nc = 19.2

Base Depth (feet)	Cal Mod N	SPT N	Liquef. Suscept. (0 or 1)	Total Unit Wt. (pcf)	Fines Content (%)	Depth of SPT (feet)	Rod Length (feet)	Tot.Stress at SPT po (tsf)	Eff.Stress at SPT p'o (tsf)	rd	C_N	C_R	C_S	$N_{1(60)}$	Rel. Dens. Dr (%)	*Trigger FC Adj.* $\Delta N_{1(60)}$	*Equiv. Sand* $N_{1(60)CS}$	Kσ	M = 7.5 Available CRR	M =7.5 Induced CSR*	**Liquefac. Safety Factor**	*Post FC Adj.* $\Delta N_{1(60)}$	$N_{1(60)CS}$	Volumetric *Strain* (%)	**Induced Subsidence (in.)**	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	**Dry Sand Subsidence (in.)**
								0.000																								
4.5	24	**50**	1	111	5	2.5	5.5	0.139	0.139	1.00	1.70	0.75	1.00	82.9	100	0.0	82.9	1.00	1.200	0.439	**Non-Liq.**	0.0	82.9	0.01	**0.00**	0.093	594	0.053	1.9E-04	3.4E-05	3.9E-05	**0.00**
7.0	19	**12**	1	114	8	5.0	8.0	0.278	0.278	0.99	1.70	0.75	1.00	19.8	53	0.5	20.4	1.00	0.221	0.436	**Non-Liq.**	0.5	20.4	0.21	**0.06**	0.186	527	0.106	9.8E-04	9.5E-04	1.1E-03	**0.06**
9.5	37	**23**	1	109	8	7.5	10.5	0.420	0.420	0.98	1.59	0.75	1.00	36.1	72	0.8	36.8	1.00	1.200	0.434	**Non-Liq.**	0.8	36.8	0.06	**0.02**	0.281	789	0.159	5.6E-04	2.7E-04	3.0E-04	**0.02**
13.0	26	**16**	1	110	17	10.0	13.0	0.556	0.556	0.98	1.38	0.76	1.00	22.3	56	4.3	26.6	1.00	0.311	0.431	**Non-Liq.**	4.3	26.6	0.13	**0.06**	0.373	814	0.210	8.4E-04	6.0E-04	6.7E-04	**0.06**
17.0	29	**18**	1	113	5	15.0	18.0	0.834	0.834	0.97	1.13	0.86	1.00	23.1	57	0.0	23.1	1.00	0.255	0.427	**Non-Liq.**	0.0	23.1	0.21	**0.10**	0.559	952	0.311	1.1E-03	9.2E-04	1.0E-03	**0.10**
23.0	39	**25**	1	119	5	20.0	23.0	1.126	1.126	0.96	0.97	0.93	1.00	28.9	64	0.0	28.9	0.98	0.371	0.429	**Non-Liq.**	0.0	28.9	0.14	**0.10**	0.754	1,191	0.415	9.5E-04	6.1E-04	6.8E-04	**0.10**
28.0	48	**30**	1	104	5	25.0	28.0	1.408	1.408	0.94	0.87	0.98	1.00	33.5	69	0.0	33.5	0.92	1.200	0.452	**Non-Liq.**	0.0	33.5	0.11	**0.06**	0.943	1,400	0.511	8.8E-04	4.8E-04	5.3E-04	**0.06**
33.0	23	**14**	1	127	40	30.0	33.0	1.691	1.691	0.92	0.79	1.00	1.00	14.9	46	8.0	22.9	0.91	0.252	0.445	**Non-Liq.**	8.0	22.9	0.24	**0.15**	1.133	1,351	0.600	1.3E-03	1.1E-03	1.2E-03	**0.15**
38.0	100	**63**	1	119	5	35.0	38.0	2.001	2.001	0.89	0.73	1.00	1.00	59.6	92	0.0	59.6	0.78	1.200	0.506	**Non-Liq.**	0.0	59.6	0.04	**0.02**	1.340	2,021	0.687	6.0E-04	1.6E-04	1.8E-04	**0.02**
43.0	100	**63**	1	110	5	40.0	43.0	2.289	2.289	0.85	0.68	1.00	1.00	55.7	89	0.0	55.7	0.73	1.200	0.510	**Non-Liq.**	0.0	55.7	0.04	**0.02**	1.534	2,114	0.751	6.2E-04	1.8E-04	2.0E-04	**0.02**
47.0	52	**33**	1	118	17	45.0	48.0	2.572	2.572	0.80	0.64	1.00	1.00	27.3	62	4.7	32.0	0.77	1.200	0.462	**Non-Liq.**	4.7	32.0	0.11	**0.05**	1.723	1,862	0.797	8.5E-04	4.9E-04	5.4E-04	**0.05**





$N_{1(60)} = C_N*C_E*C_B*C_R*C_S*N$

C_R = 0.75 for Rod lengths < 3m, 1.0 for > 10m
= min(1,max(0.75,1.4666-2.556/(z(ft))$^{0.5}$))

$C_N = (1 \text{ atm}/p'o)^{0.5}$, max 1.7

C_S = max(1.1,min(1.3,1+$N_{1(60)}$/100)) for SPT without liners

MSF = $10^{2.24}/M^{2.56}$

z = Depth (m)

pa = 1 atm = 101 KPa = 1.058 tsf

p = 0.67*po

τ_{av} = 0.65*PGA*po*rd

$G_{max} = 447*N_{1(60)CS}^{(1/3)}*p^{0.5}$

a = 0.0389*(p/1)+0.124

b = 6400*(p/1)$^{(-0.6)}$

$\gamma = [1+a*EXP(b*\tau_{av}/G_{max})]/[(1+a)*\tau_{av}/G_{max}]$

$E_{15} = \gamma*(N_{1(60)CS}/20)^{-1.2}$

$E_{nc} = (Nc/15)^{0.45}*E15$

Nc = $(MAG-4)^{2.17}$

S = 2*H*E_{nc}

rd = (1-0.4113*z^0.5+0.04052*z+0.001753*z^1.5)/(1-0.4177*z^0.5+0.05729*z-0.006205*z^1.5+0.00121*z^2))

$\Delta N_{1(60)}$ = min(10,IF(FC<35,exp(1.76-(190/FC^2)),5)+IF(FC<=5,1,IF(FC<35,0.99+(FC^1.5/1000),1.2))*N1(60) - N1(60)

$N_{1(60)CS} = N_{1(60)CS} + \Delta N_{1(60)}$

Kσ = min of 1.0 or (p'o/1.058)$^{(IF(Dr>0.7,0.6,IF(Dr<0.5,0.8,0.7))-1)}$

Dr = $(N_{1(60)}/70)^{0.5}$

CSReq = 0.65*PGA*(po/p'o)*rd

CSR* = CSReq/MSF/Kσ

$CRR_{7.5}$ = (0.048-0.004721*N+0.0006136*N^2-0.00001673*N^3)/(1-0.1248*N+0.009578*N^2-0.0003285*N^3+0.000003714*N^4))

N = $N_{1(60)CS}$

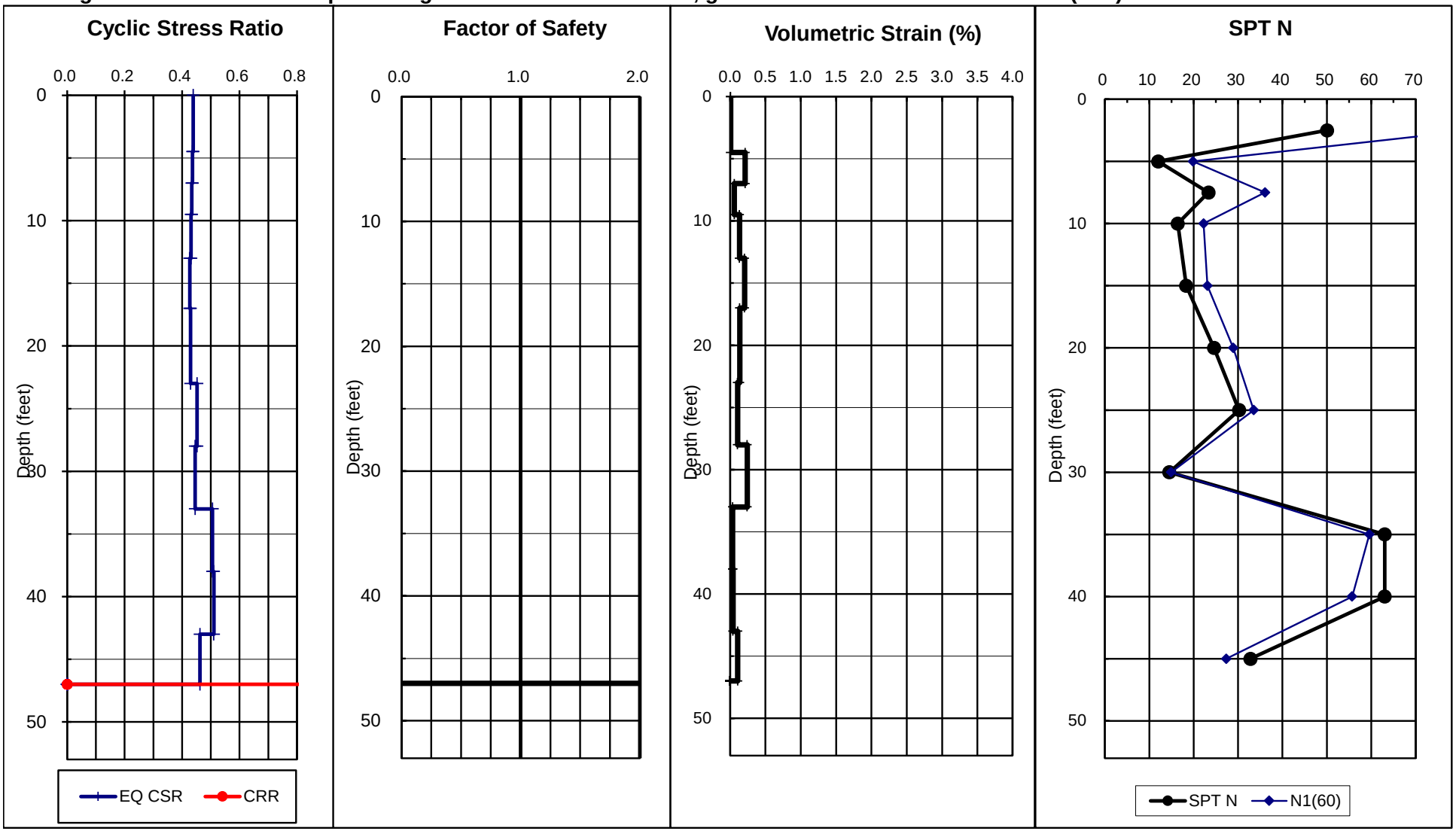
SF = $CRR_{7.5,1atm}$/CSR*

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED SUBSIDENCE

Proposed ELOP Project **Project No: 307083-004** 1996/1998 NCEER Method

Ground Compaction Remediated to 5 foot depth

Boring: B-2 **Earthquake Magnitude: 7.9** **PGA, g: 0.59** **Calc GWT (feet): 100**



Total Thickness of Liquefiable Layers: 0.0 feet

Estimated Total Ground Subsidence: 0.6 inches

LIQUEFY-v 2.3.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Coryright & Developed 2007 by Shelton L. Stringer, PE, GE, PG , EG - Earth Systems Southwest

Project: Proposed ELOP Project
Job No: 307083-004
Date: 12/3/2025
Boring: B-4a Data Set: 3

Methods: **Liquefaction Analysis using 1996 & 1998 NCEER workshop method (Youd & Idriss, editors)**
Journal of Geotechnical and Enviromental Engineering (JGEE), October 2001, Vol 127, No. 10, ASCE
Settlement Analysis from Tokimatsu and Seed (1987), JGEE,Vol 113, No.8, ASCE
Modified by Pradel, JGEE, Vol 124, No. 4, ASCE

EARTHQUAKE INFORMATION:
Magnitude: 7.9 7.5
PGA, g: 0.59 0.68
MSF: 0.88
GWT: 100.0 feet
Calc GWT: 100.0 feet
Remediate to: 5.0 feet

SPT N VALUE CORRECTIONS:
Energy Correction to N60 (C_E): 1.30 Automatic Hammer
Drive Rod Corr. (C_R): 1 Default
Rod Length above ground (feet): 3.0
Borehole Dia. Corr. (C_B): 1.00
Sampler Liner Correction for SPT?: 1 Yes
Cal Mod/ SPT Ratio: 0.63

Threshold Acceler., g: #N/A

Total (ft) Liquefied Thickness
0

Total (in.) Induced Subsidence
1.0

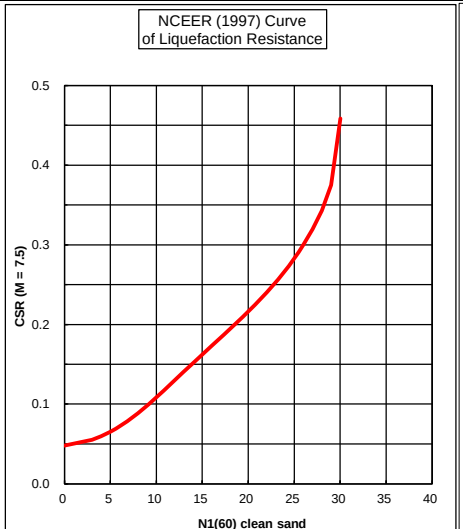
upper 50 ft

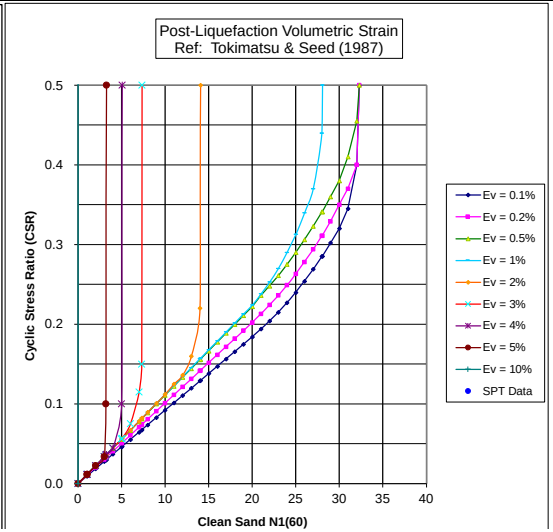
Required SF: 1.50
Minimum Calculated SF: #N/A

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

Nc = 19.2

Base Depth (feet)	Cal Mod N	SPT N	Liquef. Suscept. (0 or 1)	Total Unit Wt. (pcf)	Fines Content (%)	Depth of SPT (feet)	Rod Length (feet)	Tot.Stress at SPT po (tsf)	Eff.Stress at SPT p'o (tsf)	rd	C_N	C_R	C_S	$N_{1(60)}$	Rel. Dens. Dr (%)	*Trigger FC Adj.* $\Delta N_{1(60)}$	*Equiv. Sand* $N_{1(60)CS}$	Kσ	M = 7.5 Available CRR	M =7.5 Induced CSR*	**Liquefac. Safety Factor**	*Post FC Adj.* $\Delta N_{1(60)}$	$N_{1(60)CS}$	Volumetric *Strain* (%)	**Induced Subsidence (in.)**	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	**Dry Sand Subsidence (in.)**
								0.000																								
4.5	12	**50**	1	109	17	2.5	5.5	0.136	0.136	1.00	1.70	0.75	1.00	82.9	100	8.0	90.9	1.00	1.200	0.439	**Non-Liq.**	8.0	90.9	0.01	**0.00**	0.091	607	0.052	1.8E-04	2.9E-05	3.2E-05	**0.00**
7.0	15	**9**	1	111	17	5.0	8.0	0.273	0.273	0.99	1.70	0.75	1.00	15.7	47	4.0	19.6	1.00	0.212	0.436	**Non-Liq.**	4.0	19.6	0.23	**0.07**	0.183	516	0.104	1.0E-03	1.0E-03	1.2E-03	**0.07**
9.5	15	**9**	1	110	8	7.5	10.5	0.412	0.412	0.98	1.60	0.75	1.00	14.8	46	0.4	15.2	1.00	0.164	0.434	**Non-Liq.**	0.4	15.2	0.49	**0.15**	0.276	581	0.156	1.6E-03	2.2E-03	2.4E-03	**0.15**
13.0	29	**18**	1	107	17	12.0	15.0	0.655	0.655	0.97	1.27	0.81	1.00	24.3	59	4.5	28.8	1.00	0.368	0.429	**Non-Liq.**	4.5	28.8	0.12	**0.05**	0.439	908	0.246	8.1E-04	5.3E-04	5.9E-04	**0.05**
15.0		**19**	1	107	17	17.0	20.0	0.923	0.923	0.96	1.07	0.89	1.28	30.4	66	4.8	35.2	1.00	1.200	0.425	**Non-Liq.**	4.8	35.2	0.08	**0.02**	0.618	1,152	0.343	7.5E-04	3.8E-04	4.2E-04	**0.02**
19.0	45	**28**	1	114	5	20.0	23.0	1.101	1.101	0.96	0.98	0.93	1.00	33.7	69	0.0	33.7	0.99	1.200	0.426	**Non-Liq.**	0.0	33.7	0.10	**0.05**	0.738	1,240	0.406	8.2E-04	4.4E-04	4.9E-04	**0.05**
28.0		**31**	1	114	17	25.0	28.0	1.386	1.386	0.94	0.87	0.98	1.30	45.0	80	5.7	50.7	0.90	1.200	0.462	**Non-Liq.**	5.7	50.7	0.05	**0.05**	0.928	1,595	0.503	6.3E-04	2.1E-04	2.3E-04	**0.05**
33.0	100	**63**	1	114	17	30.0	33.0	1.671	1.671	0.92	0.80	1.00	1.00	65.2	96	6.9	72.1	0.83	1.200	0.487	**Non-Liq.**	6.9	72.1	0.02	**0.01**	1.119	1,968	0.593	5.2E-04	1.1E-04	1.2E-04	**0.01**
38.0		**31**	1	114	5	35.0	38.0	1.956	1.956	0.89	0.74	1.00	1.30	38.5	74	0.0	38.5	0.78	1.200	0.502	**Non-Liq.**	0.0	38.5	0.08	**0.05**	1.310	1,728	0.671	8.1E-04	3.7E-04	4.1E-04	**0.05**
43.0	31	**20**	1	116	5	40.0	43.0	2.243	2.243	0.85	0.69	1.00	1.00	17.4	50	0.0	17.4	0.86	0.188	0.436	**Non-Liq.**	0.0	17.4	0.40	**0.24**	1.503	1,421	0.736	1.5E-03	1.8E-03	2.0E-03	**0.24**
47.0		**80**	1	116	17	45.0	48.0	2.533	2.533	0.80	0.65	1.00	1.30	87.4	100	8.3	95.6	0.71	1.200	0.502	**Non-Liq.**	8.3	95.6	0.01	**0.01**	1.697	2,663	0.785	4.3E-04	6.6E-05	7.4E-05	**0.01**
51.5	19	**12**	1	124	17	50.0	53.0	2.835	2.835	0.75	0.61	1.00	1.00	9.5	37	3.6	13.1	0.82	0.142	0.404	**Non-Liq.**	3.6	13.1	0.59	**0.32**	1.899	1,452	0.822	1.6E-03	2.6E-03	2.9E-03	**0.32**





$N_{1(60)} = C_N*C_E*C_B*C_R*C_S*N$

C_R = 0.75 for Rod lengths < 3m, 1.0 for > 10m
= min(1,max(0.75,1.4666-2.556/(z(ft))$^{0.5}$))

$C_N = (1 \text{ atm}/p'o)^{0.5}$, max 1.7

C_S = max(1.1,min(1.3,1+$N_{1(60)}$/100)) for SPT without liners

MSF = $10^{2.24}/M^{2.56}$

z = Depth (m)

pa = 1 atm = 101 KPa = 1.058 tsf

p = 0.67*po

τ_{av} = 0.65*PGA*po*rd

$G_{max} = 447*N_{1(60)CS}^{(1/3)}*p^{0.5}$

a = 0.0389*(p/1)+0.124

b = 6400*(p/1)$^{(-0.6)}$

$\gamma = [1+a*EXP(b*\tau_{av}/G_{max})]/[(1+a)*\tau_{av}/G_{max}]$

$E_{15} = \gamma*(N_{1(60)CS}/20)^{-1.2}$

$E_{nc} = (Nc/15)^{0.45}*E15$

$Nc = (MAG-4)^{2.17}$

S = 2*H*E_{nc}

rd = (1-0.4113*z^0.5+0.04052*z+0.001753*z^1.5)/(1-0.4177*z^0.5+0.05729*z-0.006205*z^1.5+0.00121*z^2))

$\Delta N_{1(60)}$ = min(10,IF(FC<35,exp(1.76-(190/FC^2)),5)+IF(FC<=5,1,IF(FC<35,0.99+(FC^1.5/1000),1.2))*N1(60) - N1(60)

$N_{1(60)CS} = N_{1(60)CS} + \Delta N_{1(60)}$

Kσ = min of 1.0 or (p'o/1.058)$^{(IF(Dr>0.7,0.6,IF(Dr<0.5,0.8,0.7))-1)}$

Dr = $(N_{1(60)}/70)^{0.5}$

CSReq = 0.65*PGA*(po/p'o)*rd

CSR* = CSReq/MSF/Kσ

$CRR_{7.5}$ = (0.048-0.004721*N+0.0006136*N^2-0.00001673*N^3)/(1-0.1248*N+0.009578*N^2-0.0003285*N^3+0.000003714*N^4))

N = $N_{1(60)CS}$

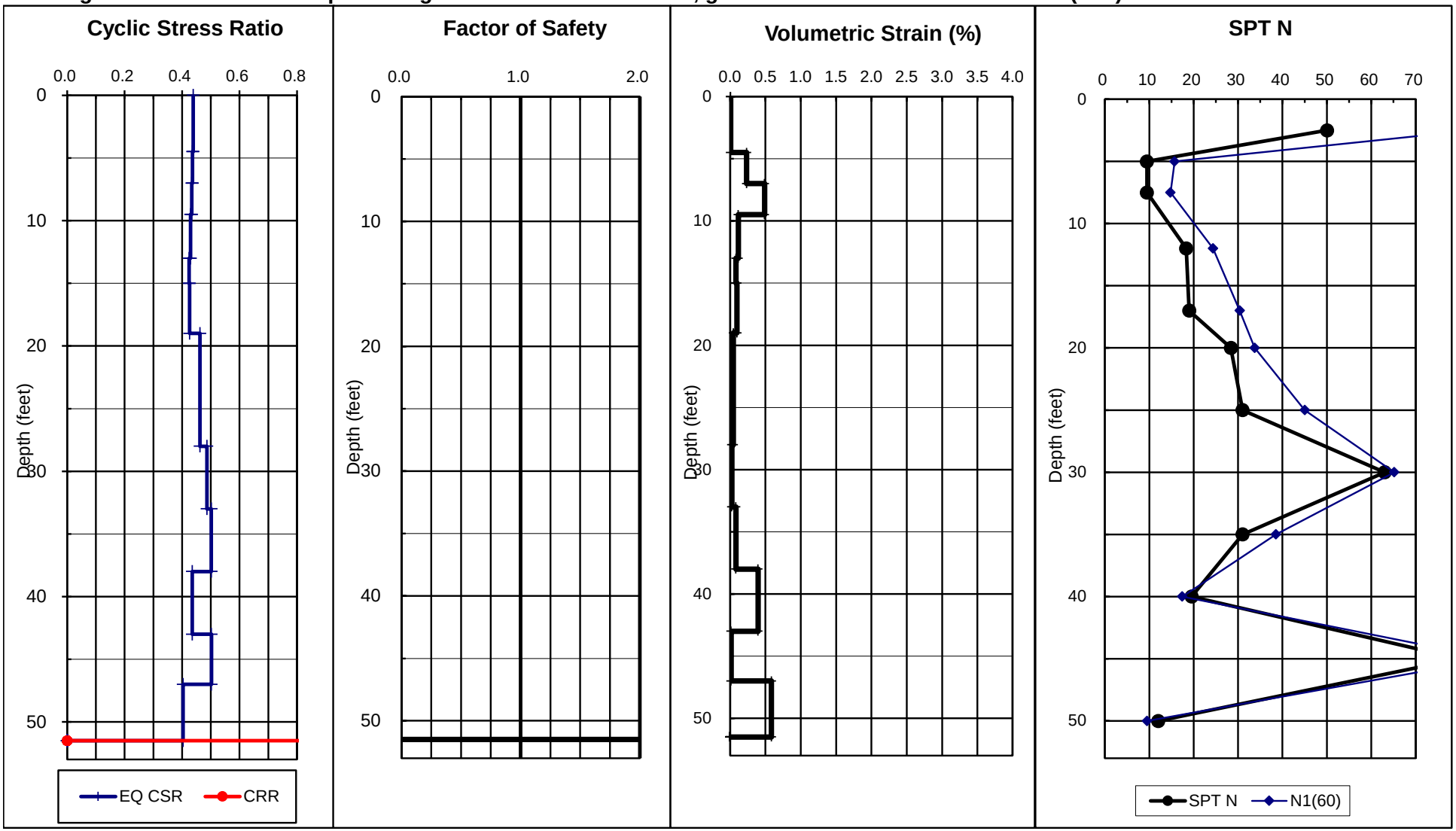
SF = $CRR_{7.5,1atm}$/CSR*

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED SUBSIDENCE

Proposed ELOP Project **Project No: 307083-004** 1996/1998 NCEER Method

Ground Compaction Remediated to 5 foot depth

Boring: B-4a **Earthquake Magnitude: 7.9** **PGA, g: 0.59** **Calc GWT (feet): 100**



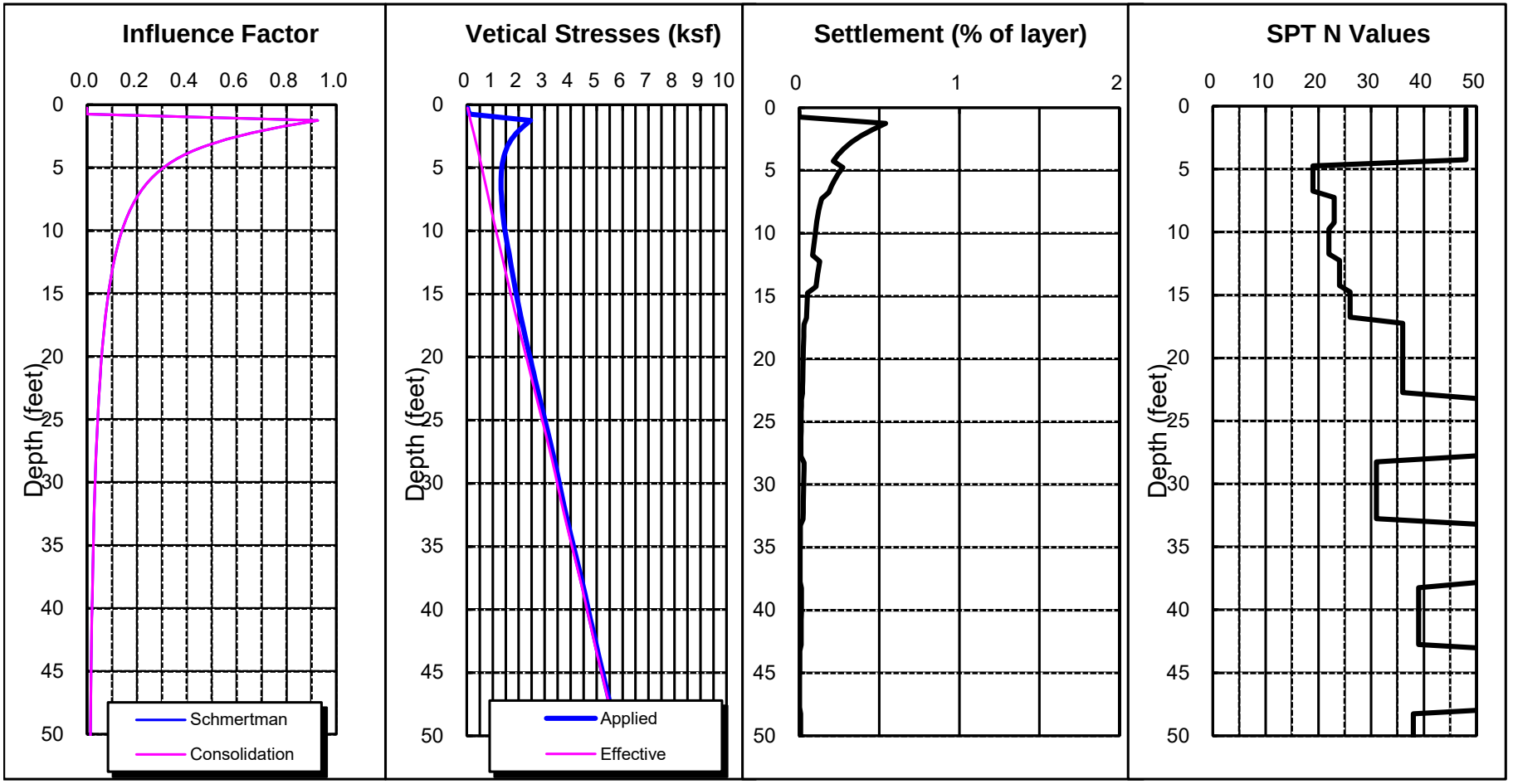
Total Thickness of Liquefiable Layers: 0.0 feet **Estimated Total Ground Subsidence: 1.0 inches**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 3.0 Length, ft: 40.0 Net pressure, ksf: 2.50 **Settlement, inches: 0.4**



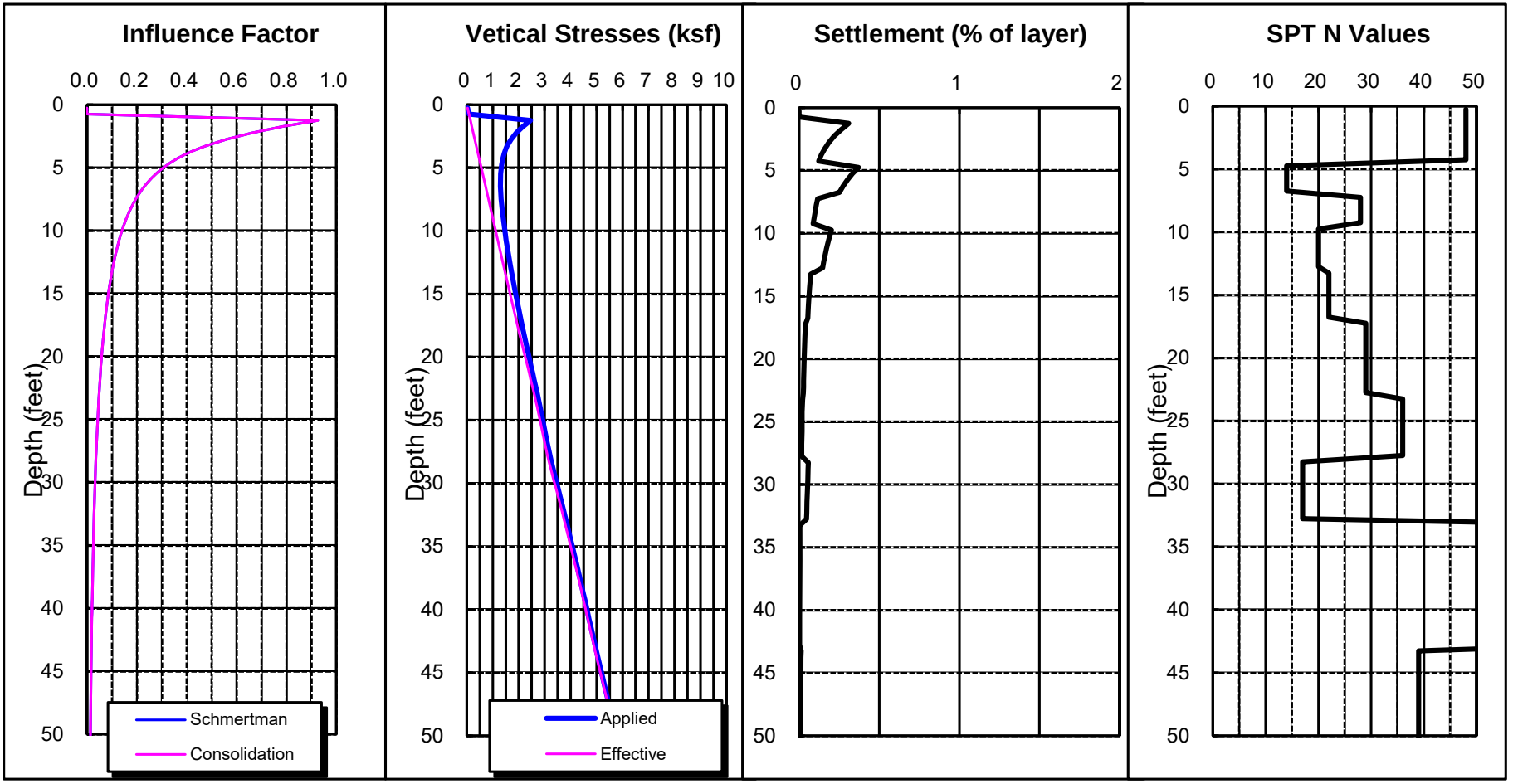
Load, Q: 8 kpf Embedment, feet: 1.0 **Boring: B-1**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 3.0 Length, ft: 40.0 Net pressure, ksf: 2.50 **Settlement, inches: 0.4**



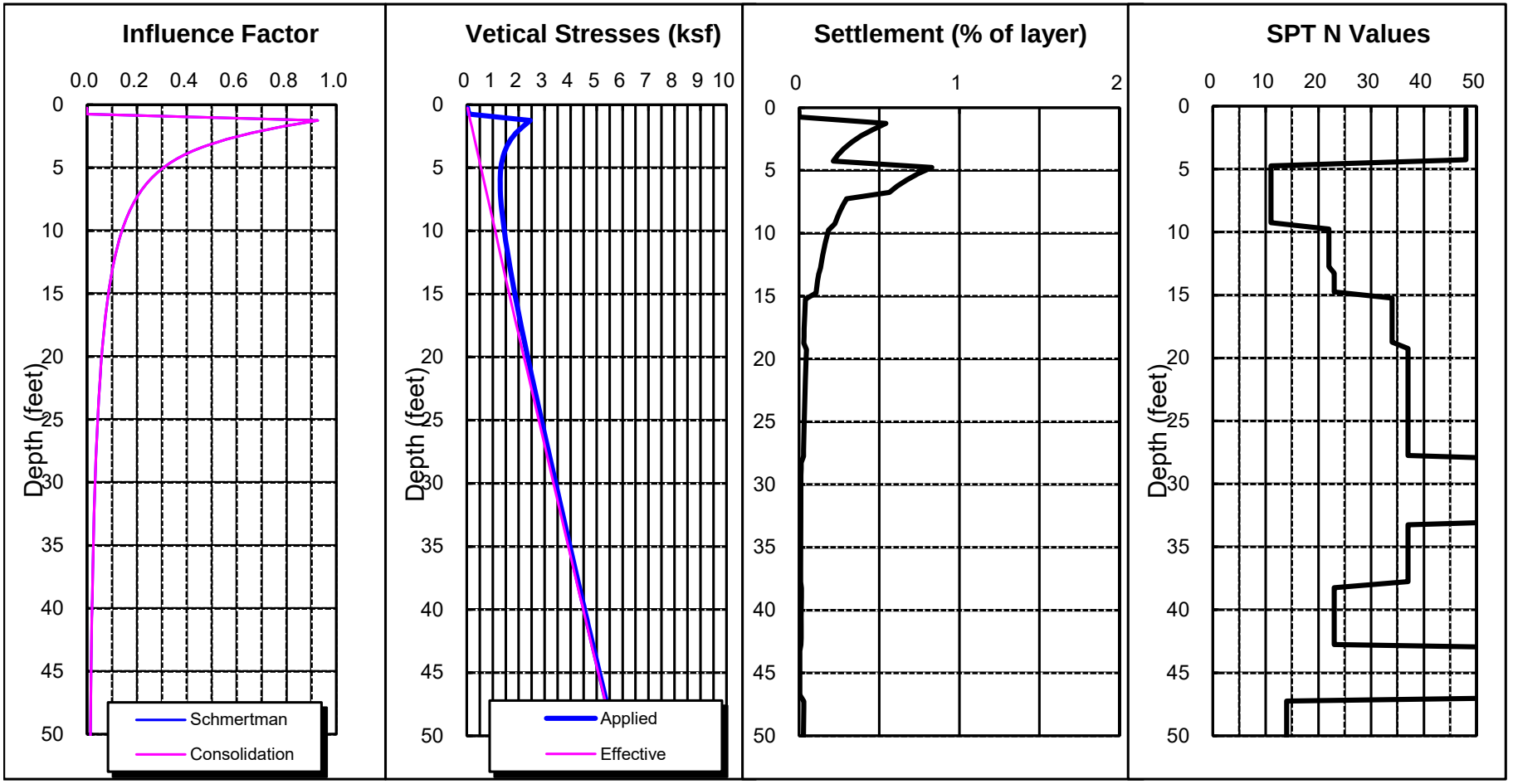
Load, Q: 8 kpf Embedment, feet: 1.0 **Boring: B-2**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 3.0 Length, ft: 40.0 Net pressure, ksf: 2.50 **Settlement, inches: 0.7**



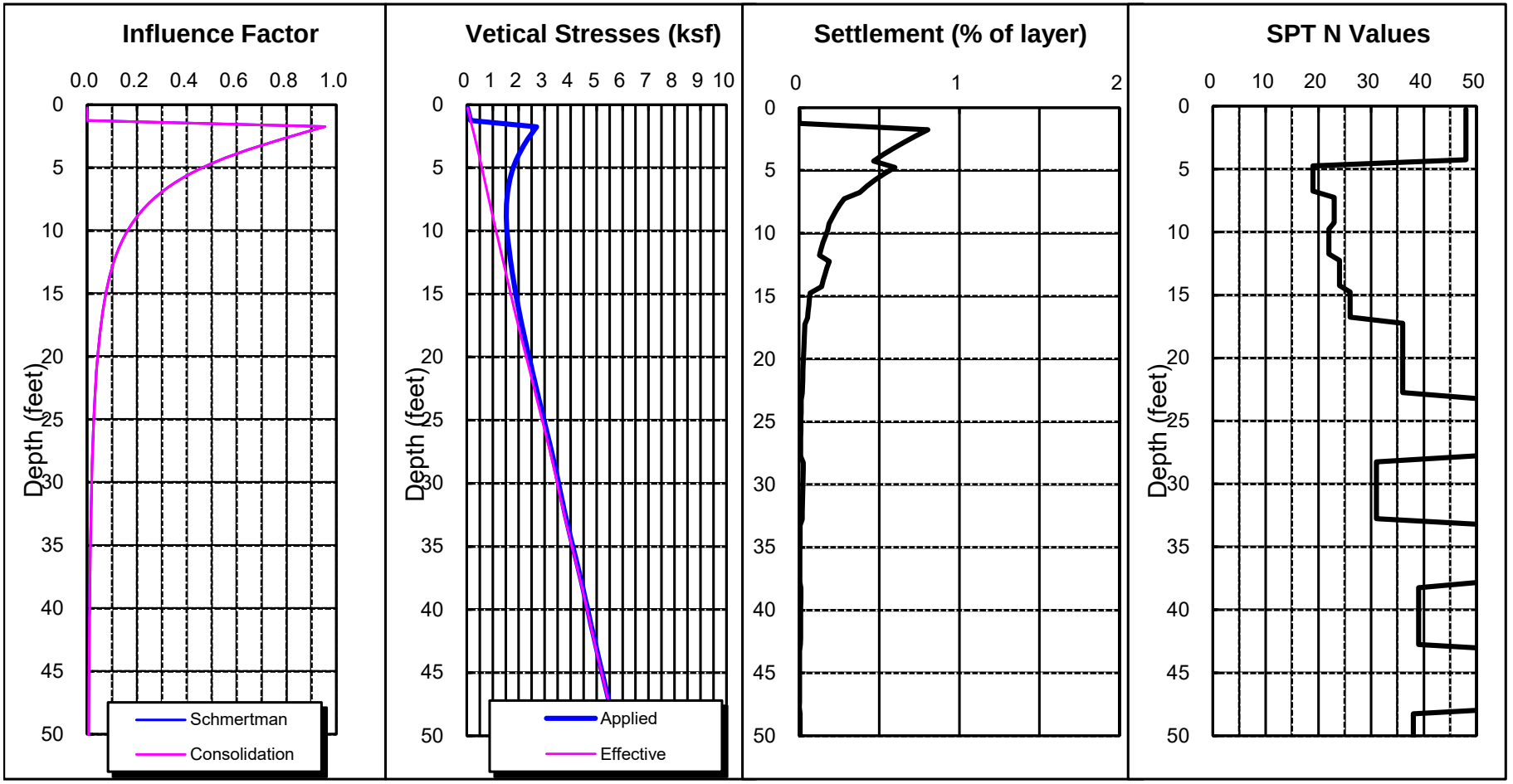
Load, Q: 8 kpf Embedment, feet: 1.0 **Boring: B-4a**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 7.0 Length, ft: 7.0 Net pressure, ksf: 2.60 **Settlement, inches: 0.6**



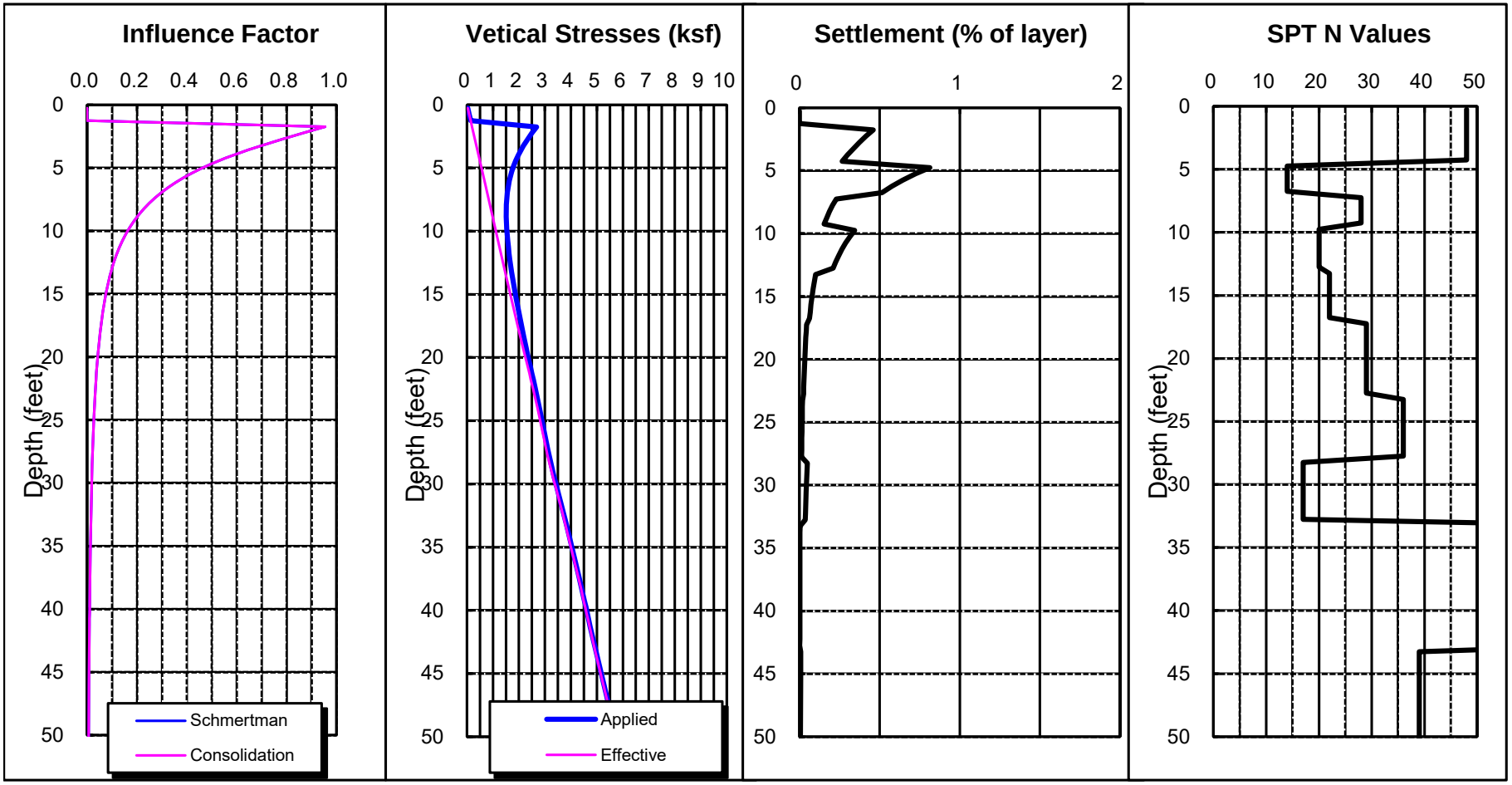
Load, Q: 127 kips Embedment, feet: 1.5 **Boring: B-1**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 7.0 Length, ft: 7.0 Net pressure, ksf: 2.60 **Settlement, inches: 0.6**



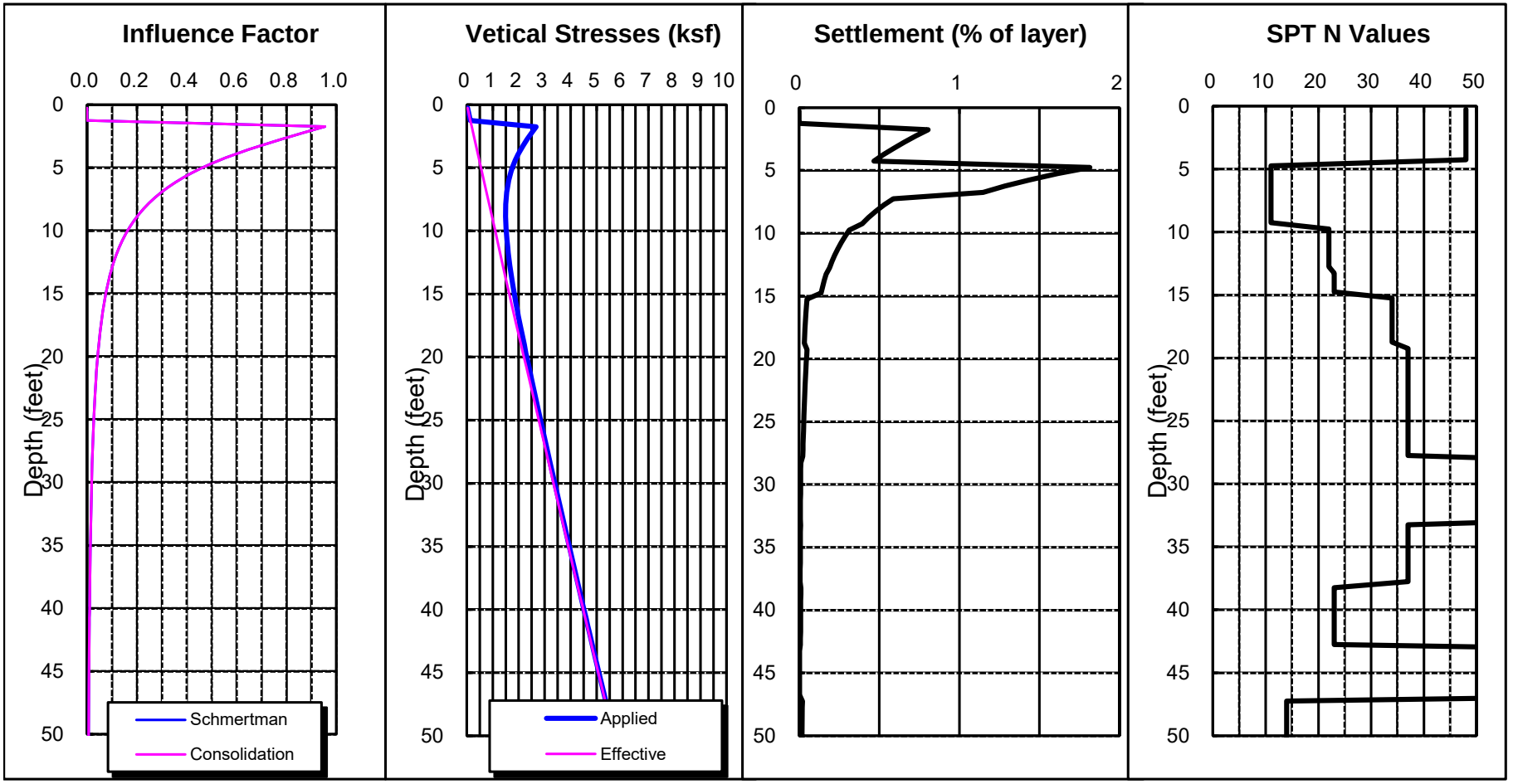
Load, Q: 127 kips Embedment, feet: 1.5 **Boring: B-2**

EARTH SYSTEMS - SETTLEMENT ANALYSES

Proposed ELOP Project

307083-004

Width, ft: 7.0 Length, ft: 7.0 Net pressure, ksf: 2.60 **Settlement, inches: 1.1**



Load, Q: 127 kips Embedment, feet: 1.5 **Boring: B-4a**

APPENDIX B

Laboratory Test Results

File No.: 307083-004 December 3, 2025

Lab No.: 25-303

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937 & D2216

Job Name: Proposed ELOP Project

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B-1	2.5	116	1	SP-SM
B-1	5	110	0	SP-SM
B-1	7.5	105	0	SP-SM
B-1	10	120	0	SW
B-1	12.5	107	0	SM
B-1	15	114	0	SP
B-1	20	122	1	SW
B-1	30	105	2	ML
B-1	35	120	1	SW
B-1	40	107	1	SM
B-1	45	115	2	SW
B-1	50	114	4	SM
B-2	2.5	110	1	SM
B-2	5	113	0	SP-SM
B-2	7.5	108	1	SP-SM
B-2	10	109	1	SM
B-2	15	112	1	SP
B-2	20	117	1	SW
B-2	25	103	1	SW
B-2	30	109	17	SC
B-2	35	118	1	SW
B-2	40	109	1	GP
B-2	45	113	4	SM

File No.: 307083-004 December 3, 2025

Lab No.: 25-303

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937 & D2216

Job Name: Proposed ELOP Project

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B-3	2.5	100	1	SM
B-3	5	109	1	SW-SM
B-3	7.5	110	1	SM
B-3	10	110	1	SM
B-3	12.5	108	1	SP
B-3	15	119	1	SP
B-3	20	106	1	SM
B-4	2.5	107	0	SM
B-4	5	106	1	SM
B-4	10	105	0	SP
B-4	15	106	0	SP
B-4	20	107	0	SW
B-5	2.5	105	0	SM
B-5	5	114	1	SP
B-5	7.5	112	1	SP
B-5	10	109	1	SP
B-5	12.5	113	1	SM
B-5	15	109	1	SP
B-5	20	114	1	SP
B-6	2.5	105	1	SM
B-6	5	105	1	SM
B-6	7.5	112	0	SP
B-6	10	109	1	SP
B-6	15	107	1	SW
B-6	20	108	1	SW

File No.: 307083-004 December 3, 2025

Lab No.: 25-303

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937 & D2216

Job Name: Proposed ELOP Project

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B-1a	2.5	108	2	ML
B-1a	5	111	2	SM
B-1a	7.5	103	0	SM
B-1a	12	111	1	SP
B-1a	17	---	3	SP
B-1a	20	---	2	SP
B-2a	2.5	103	2	ML
B-2a	5	105	1	SM
B-2a	10	107	2	SM
B-3a	2.5	115	1	SM
B-3a	5	106	1	SM
B-3a	10	104	1	SM
B-4a	2.5	108	2	SM
B-4a	5	111	0	SM
B-4a	7.5	109	1	SP-SM
B-4a	12	106	1	SM
B-4a	17	---	1	SM
B-4a	20	114	1	SW
B-4a	25	---	1	SM
B-4a	35	---	1	SW
B-4a	40	115	1	SW
B-4a	45	---	9	SM
B-4a	50	116	7	SM

File No.: 307083-004 December 3, 2025

Lab No.: 25-303

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937 & D2216

Job Name: Proposed ELOP Project

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B-5a	2.5	115	1	ML
B-5a	5	99	2	SP-SM
B-5a	7.5	107	1	SW
B-5a	17	111	0	SW
B-6a	5	106	0	SM
B-6a	7.5	112	1	SW
B-6a	10	114	1	SP
B-7	2.5	114	1	SM
B-7	5	110	1	SW
B-7	7.5	116	0	SW
B-7	12	117	1	SM
B-7	20	113	1	SW
B-8	2.5	110	2	SM
B-8	5	111	1	SP-SM
B-8	7.5	112	1	SW
B-8	17	115	2	SP-SM
B-9	5	104	2	SM
B-9	7.5	97	2	SP
B-9	15	117	1	SP
B-10	5	105	2	SM
B-10	7.5	116	2	SP-SM
B-10	10	124	2	SP-SM

File No.: 307083-004 December 3, 2025

Lab No.: 25-303

UNIT DENSITIES AND MOISTURE CONTENT ASTM D2937 & D2216

Job Name: Proposed ELOP Project

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B-11	2.5	107	2	ML
B-11	5	92	2	SM
B-11	7.5	114	2	SP
B-11	17	106	3	SP
B-12	2.5	108	2	ML
B-12	5	103	2	SM
B-13	5	100	3	SM
B-13	7.5	106	2	SP
B-13	10	108	2	SP
B-14	2.5	112	2	SM
B-14	5	113	2	SM
B-15	5	101	2	SM
B-15	7.5	114	2	SP
B-15	15	110	3	SP

File No.: 307083-004 12/3/2025

Lab No.: 25-303

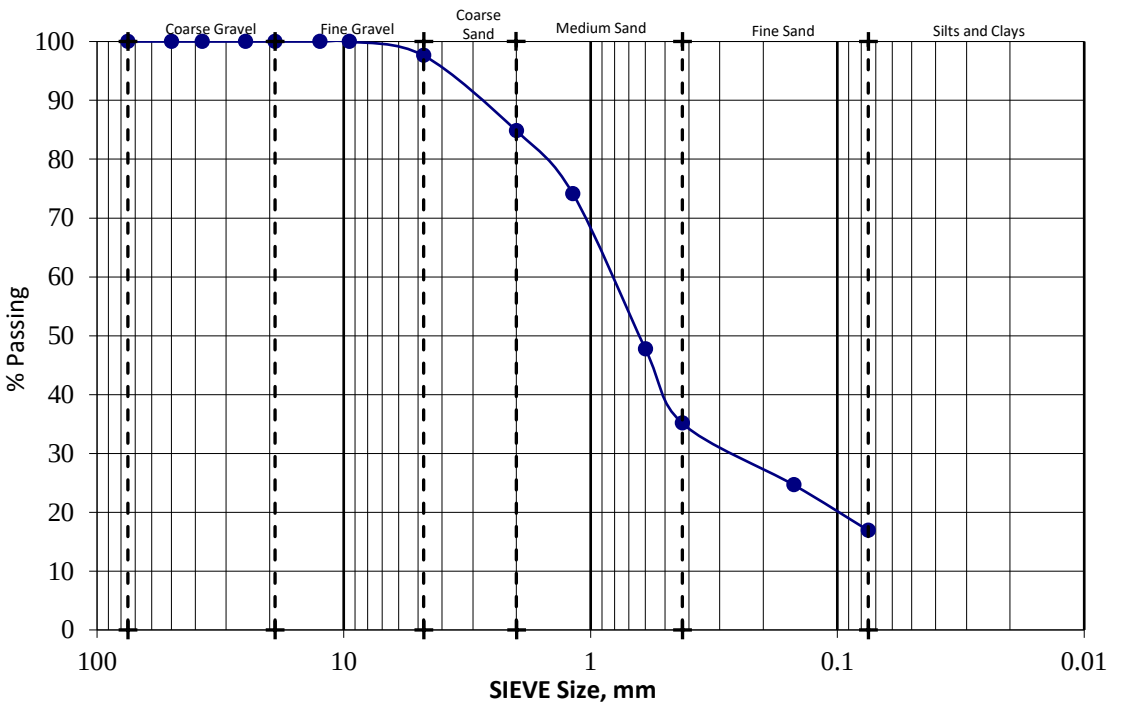
SIEVE ANALYSIS ASTM D6913

Job Name: Proposed ELOP Project

Sample ID: B-1 @ 0-5'

Description: Silty Sand (SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	98
#10	85
#16	74
#30	48
#40	35
#100	25
#200	16.9



FM= 2.42

% Coarse Gravel:	0	% Coarse Sand:	13			
% Fine Gravel:	2	% Medium Sand:	50	Cu:	NA	
		% Fine Sand:	18	Cc:	NA	Gradation
% Total Gravel	2	% Total Sand	81	% Fines:	16.9	NA

File No.: 307083-004 12/3/2025

Lab No.: 25-303

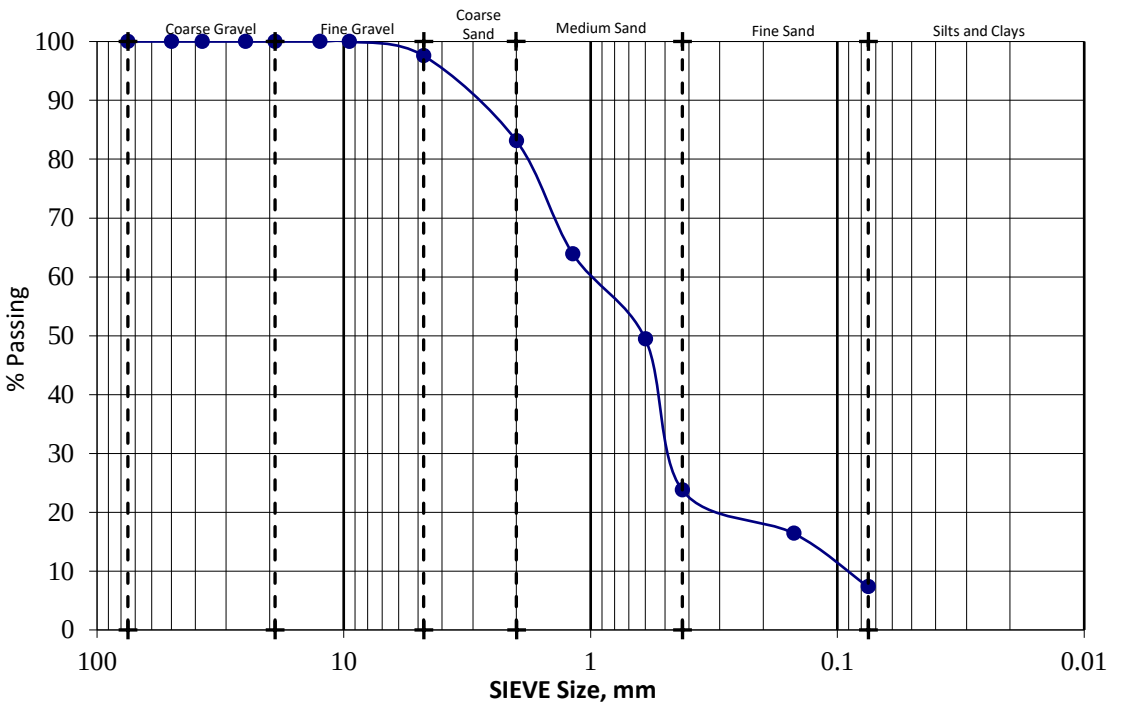
SIEVE ANALYSIS ASTM D6913

Job Name: Proposed ELOP Project

Sample ID: B-3 @ 5'

Description: Sand with Silt (SW-SM)

Sieve Size	% Passing
3"	100
2"	100
1-1/2"	100
1"	100
3/4"	100
1/2"	100
3/8"	100
#4	98
#10	83
#16	64
#30	49
#40	24
#100	16
#200	7.3



FM= 2.70

% Coarse Gravel:	0	% Coarse Sand:	14			
% Fine Gravel:	2	% Medium Sand:	59		Cu: 10.69	
		% Fine Sand:	16		Cc: 2.36	Gradation
% Total Gravel	2	% Total Sand	90	% Fines:	7.3	Well Graded

File No.: 307083-004 December 3, 2025

Job Name: Proposed ELOP Project

Lab Number: 25-303

ASTM D-1140 or Earth Systems Method (circle one)

AMOUNT PASSING NO. 200 SIEVE (Earth Systems Method Transfers Sample until water runs clear)

Sample Location	Depth (feet)	Fines Content (%)	USCS Group Symbol	Soaking Time
B-1	2.5	10.3	SP-SM	10
B-2	5	7.6	SP-SM	10
B-4a	7.5	6.8	SP-SM	10
B-5a	5	7.7	SP-SM	10

File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-1 @ 12.5'

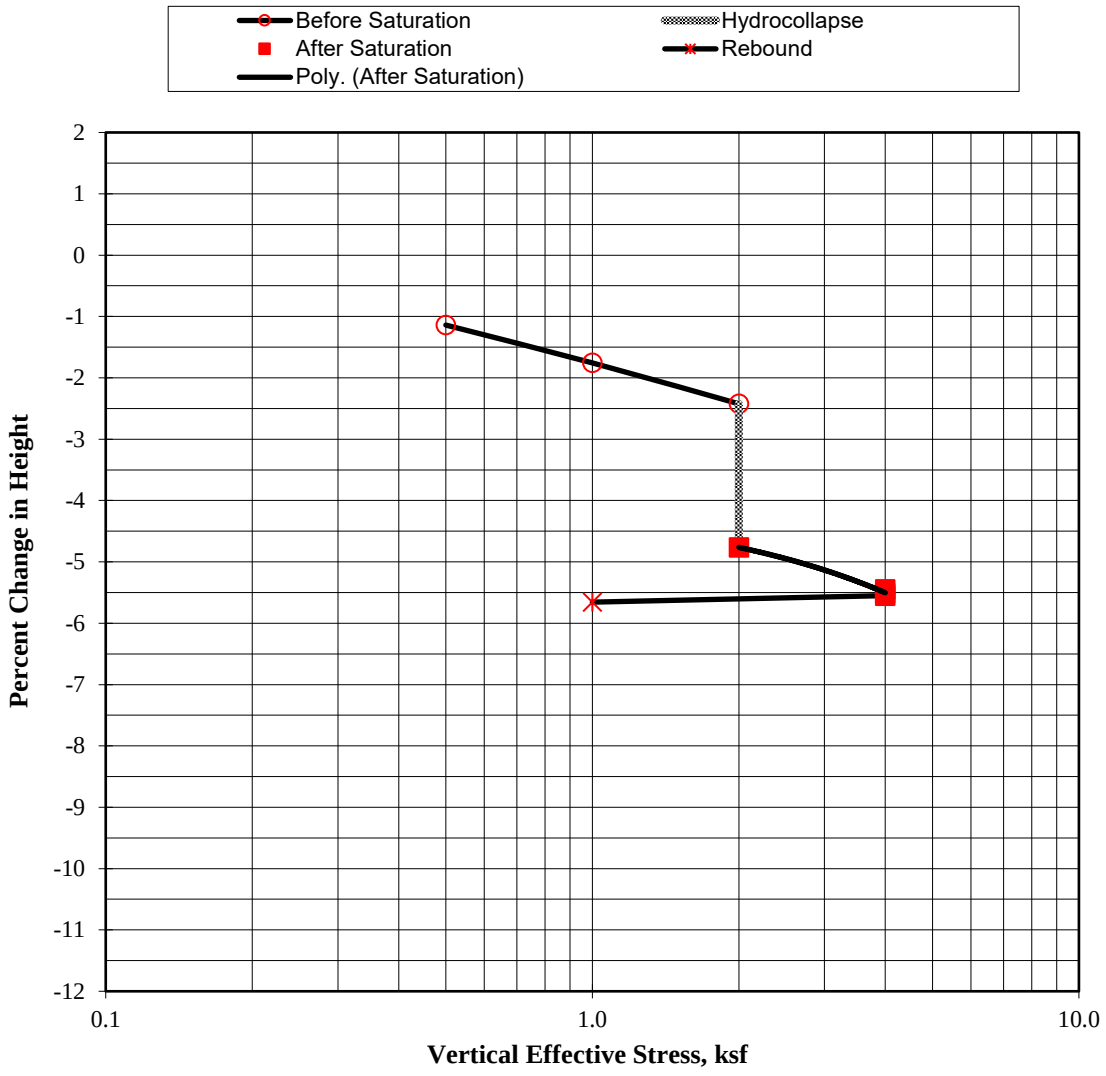
Silty Sand (SM)

Ring Sample

Initial Dry Density: 107.7 pcf
Initial Moisture: 0.6%
Specific Gravity: 2.67
Initial Void Ratio: 0.548

Hydrocollapse: 2.3% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-2 @ 10'

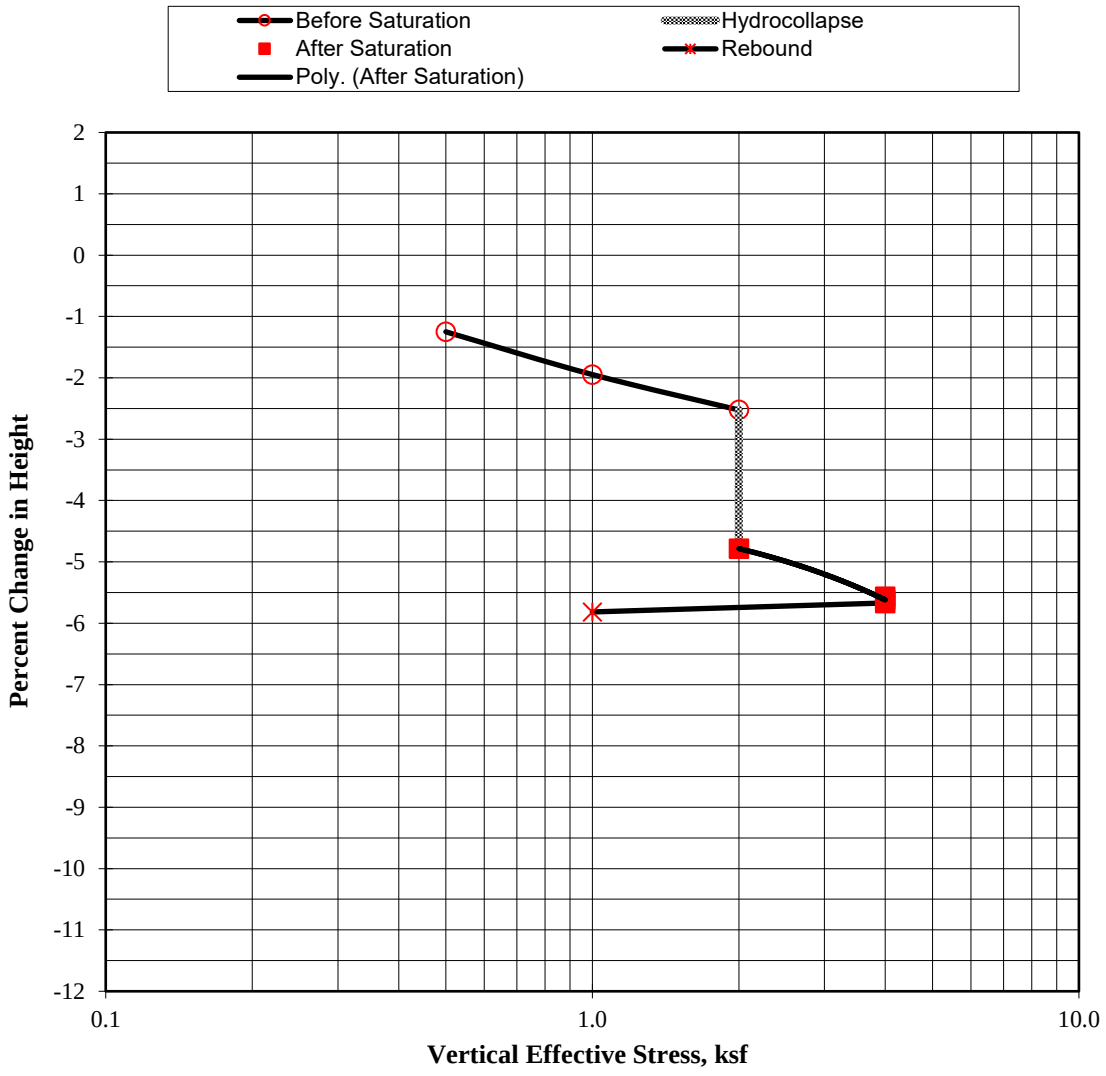
Silty Sand (SM)

Ring Sample

Initial Dry Density: 109.9 pcf
Initial Moisture: 0.7%
Specific Gravity: 2.67
Initial Void Ratio: 0.517

Hydrocollapse: 2.3% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-2 @ 15'

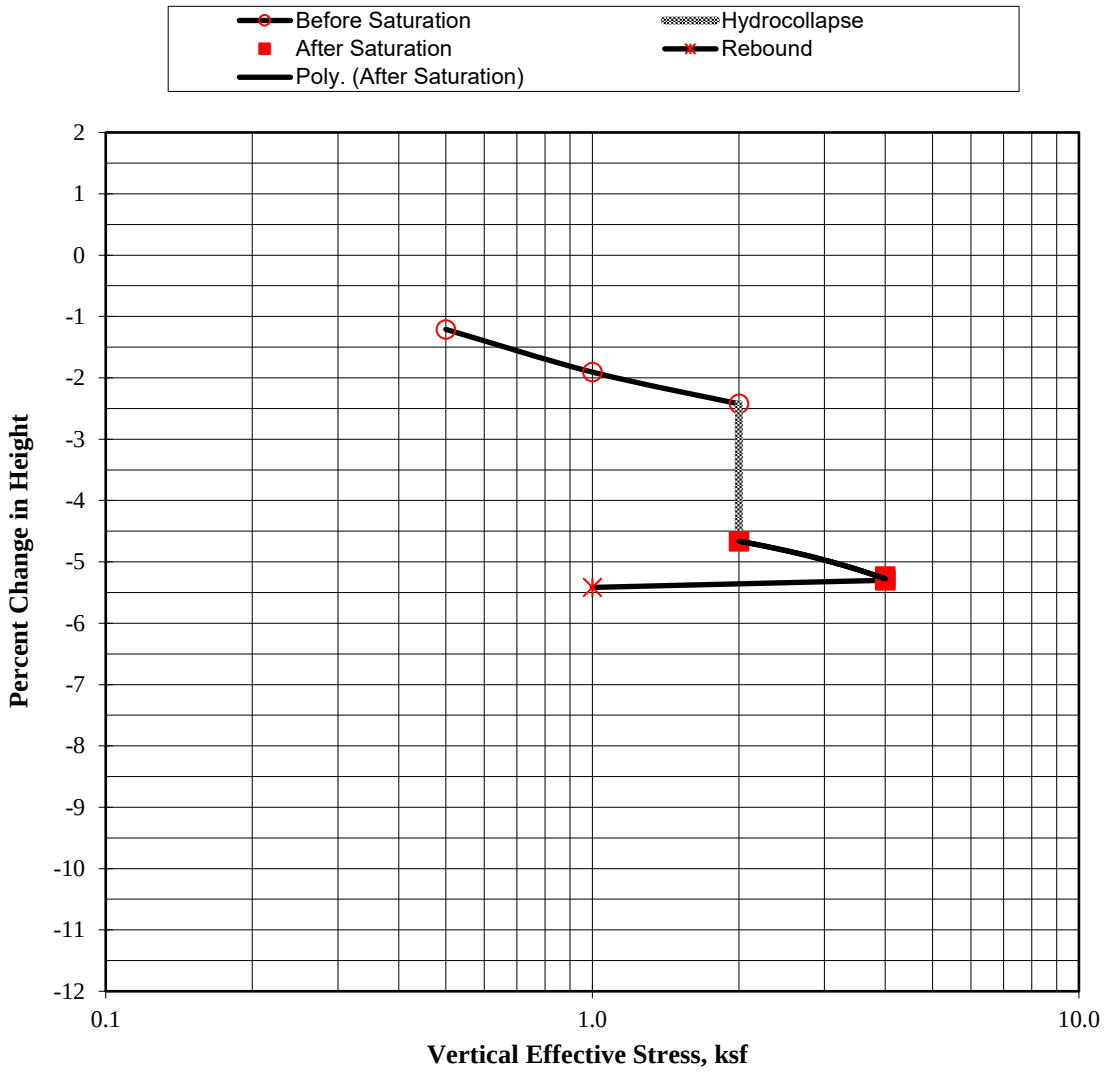
Poorly Graded Sand (SP)

Ring Sample

Initial Dry Density: 113.1 pcf
Initial Moisture: 0.4%
Specific Gravity: 2.67
Initial Void Ratio: 0.475

Hydrocollapse: 2.2% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-3 @ 7.5'

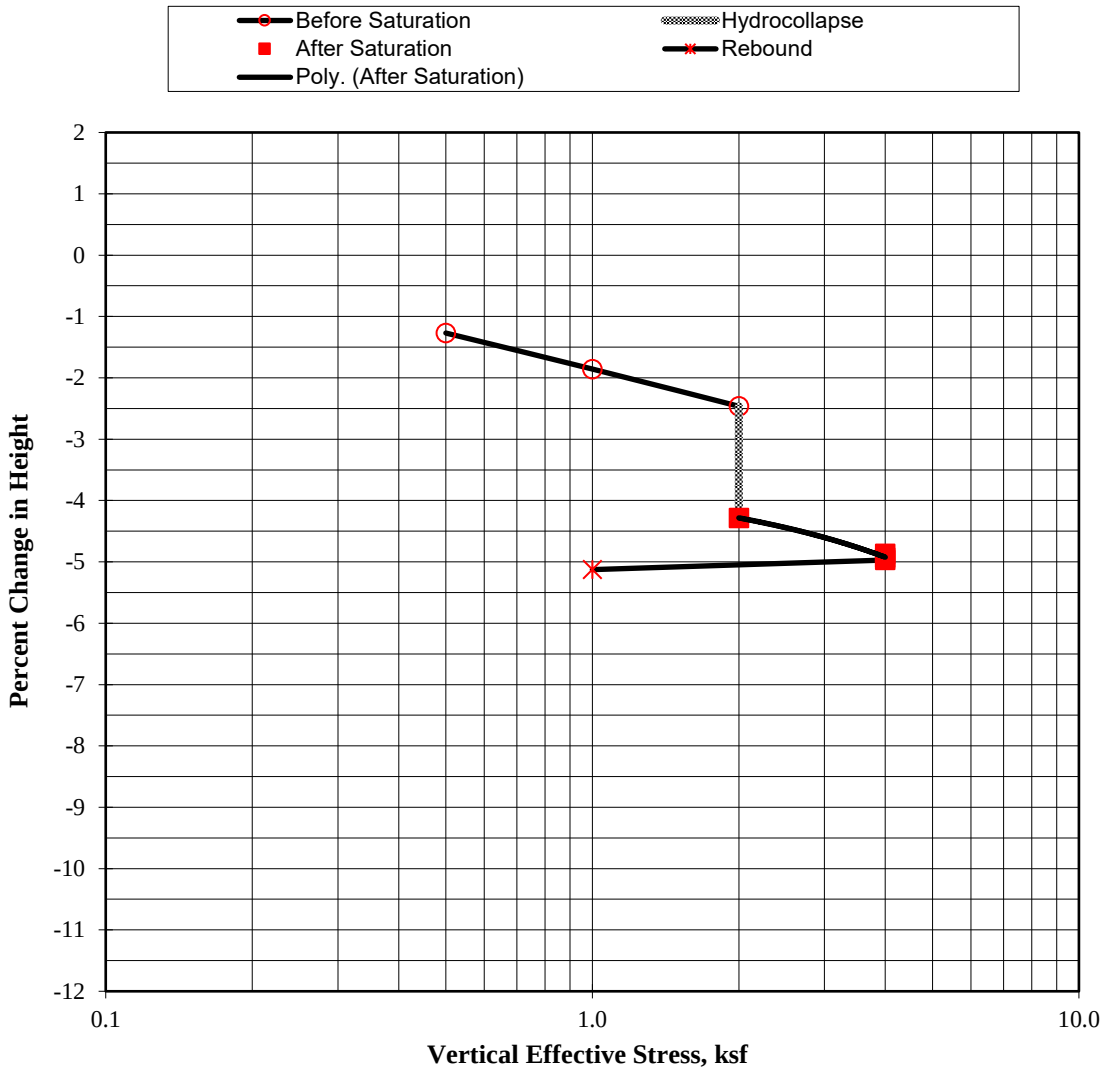
Silty Sand (SM)

Ring Sample

Initial Dry Density: 111.0 pcf
Initial Moisture: 0.5%
Specific Gravity: 2.67
Initial Void Ratio: 0.502

Hydrocollapse: 1.8% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-4 @ 5'

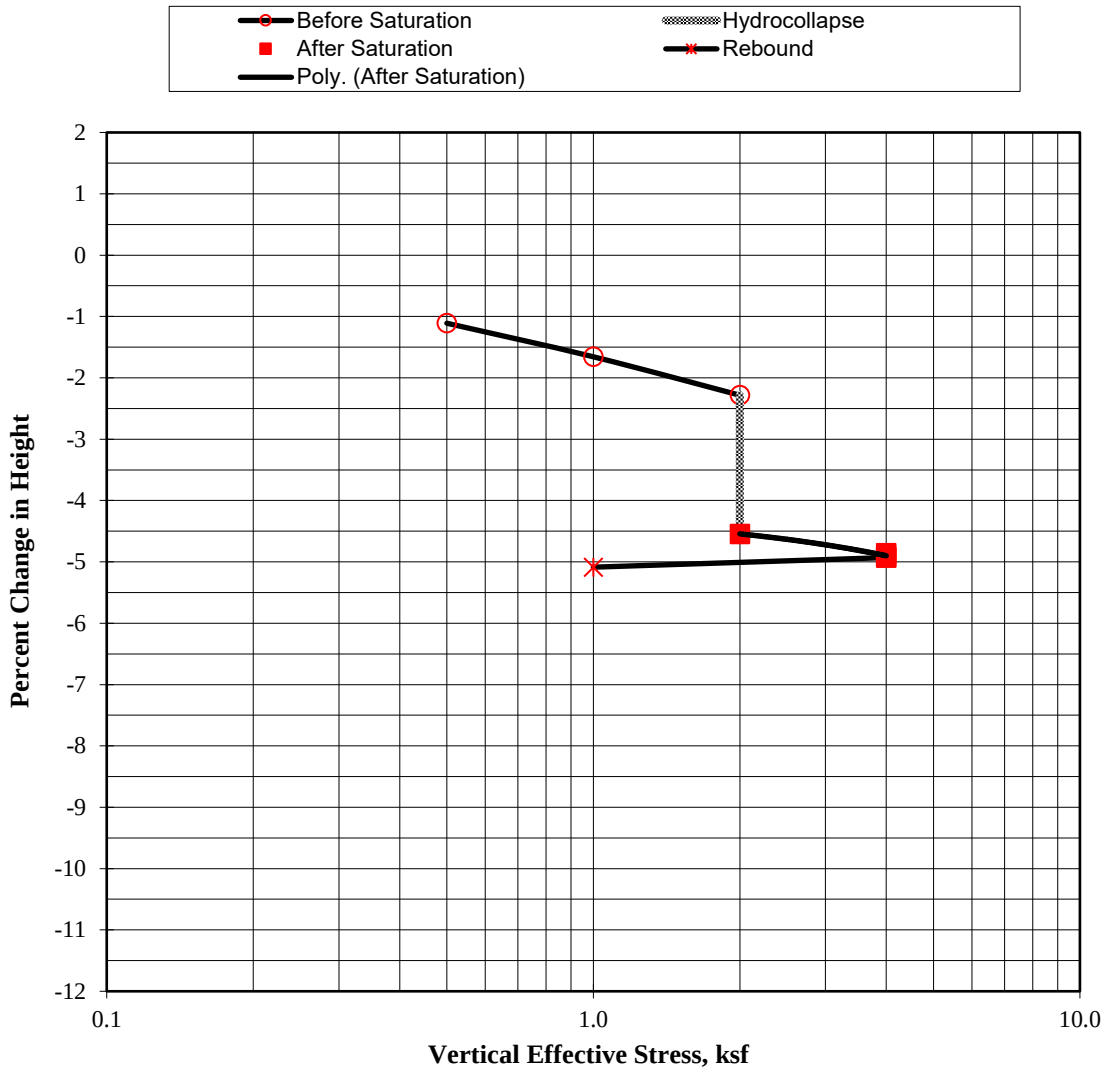
Silty Sand (SM)

Ring Sample

Initial Dry Density: 105.8 pcf
Initial Moisture: 0.5%
Specific Gravity: 2.67
Initial Void Ratio: 0.576

Hydrocollapse: 2.3% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-6 @ 2.5'

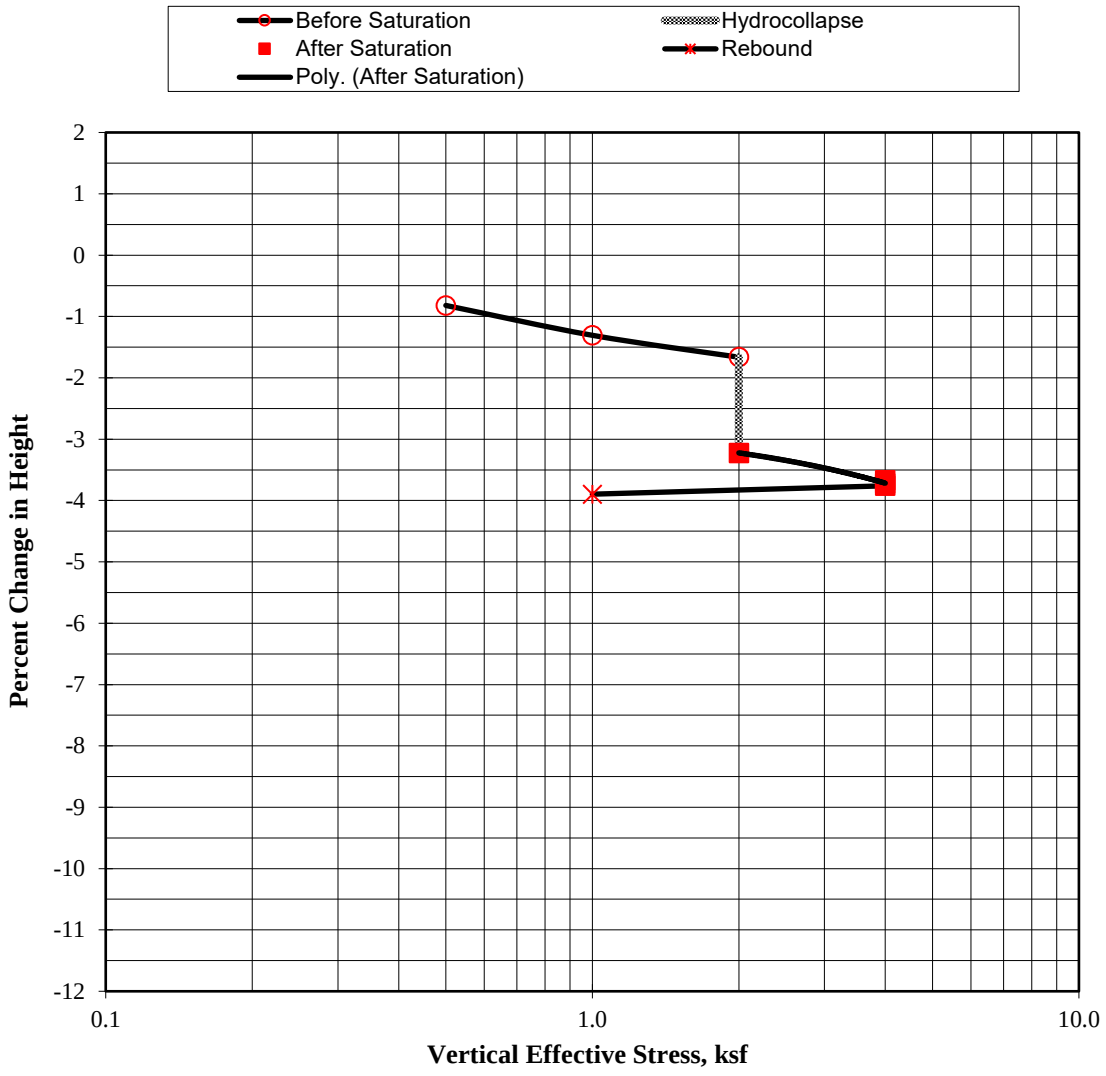
Silty Sand (SM)

Ring Sample

Initial Dry Density: 105.6 pcf
Initial Moisture: 0.9%
Specific Gravity: 2.67
Initial Void Ratio: 0.579

Hydrocollapse: 1.6% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-4a @ 2.5'

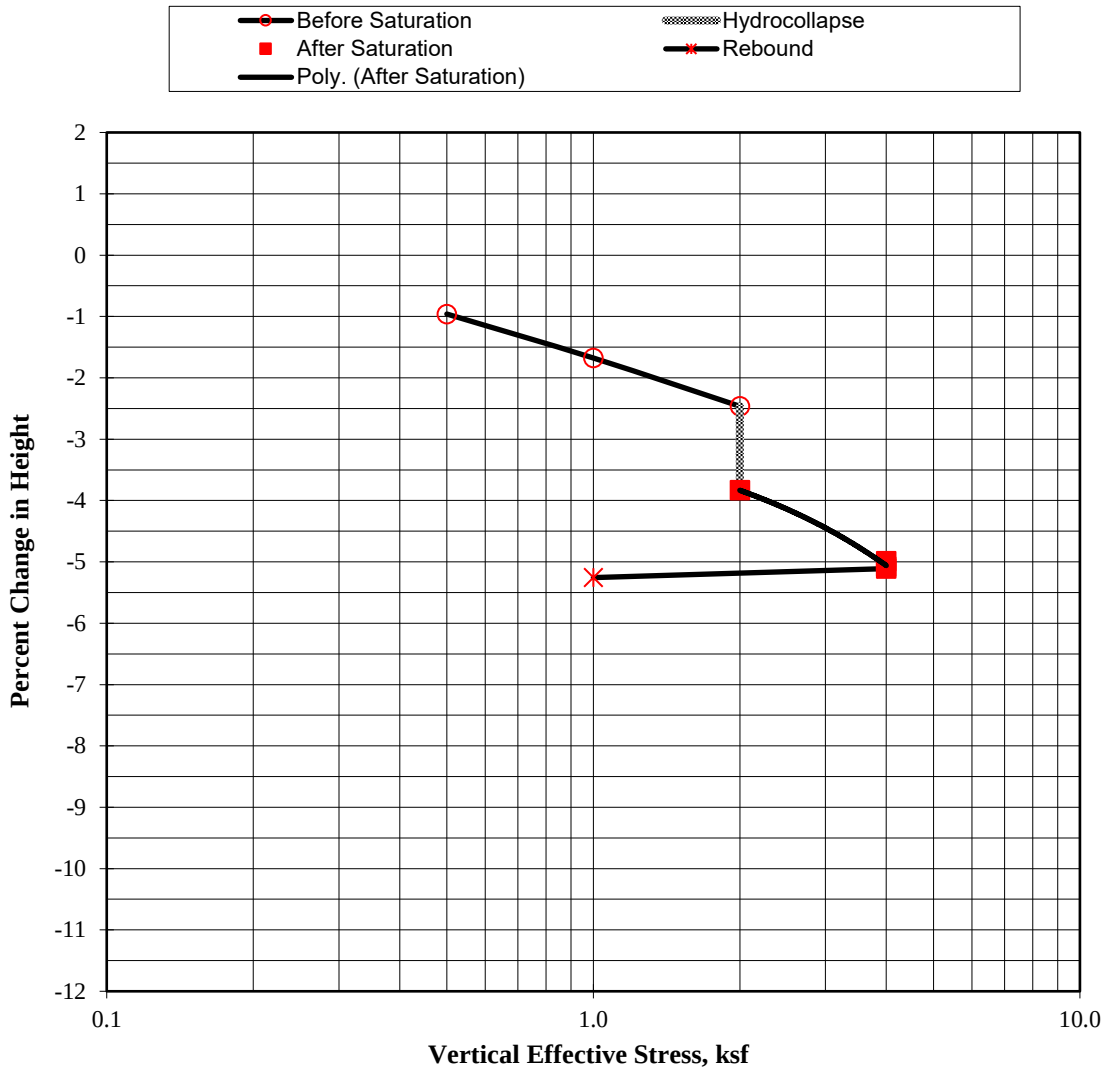
Silty Sand (SM)

Ring Sample

Initial Dry Density: 107.3 pcf
Initial Moisture: 1.9%
Specific Gravity: 2.67
Initial Void Ratio: 0.553

Hydrocollapse: 1.4% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-7 @ 5'

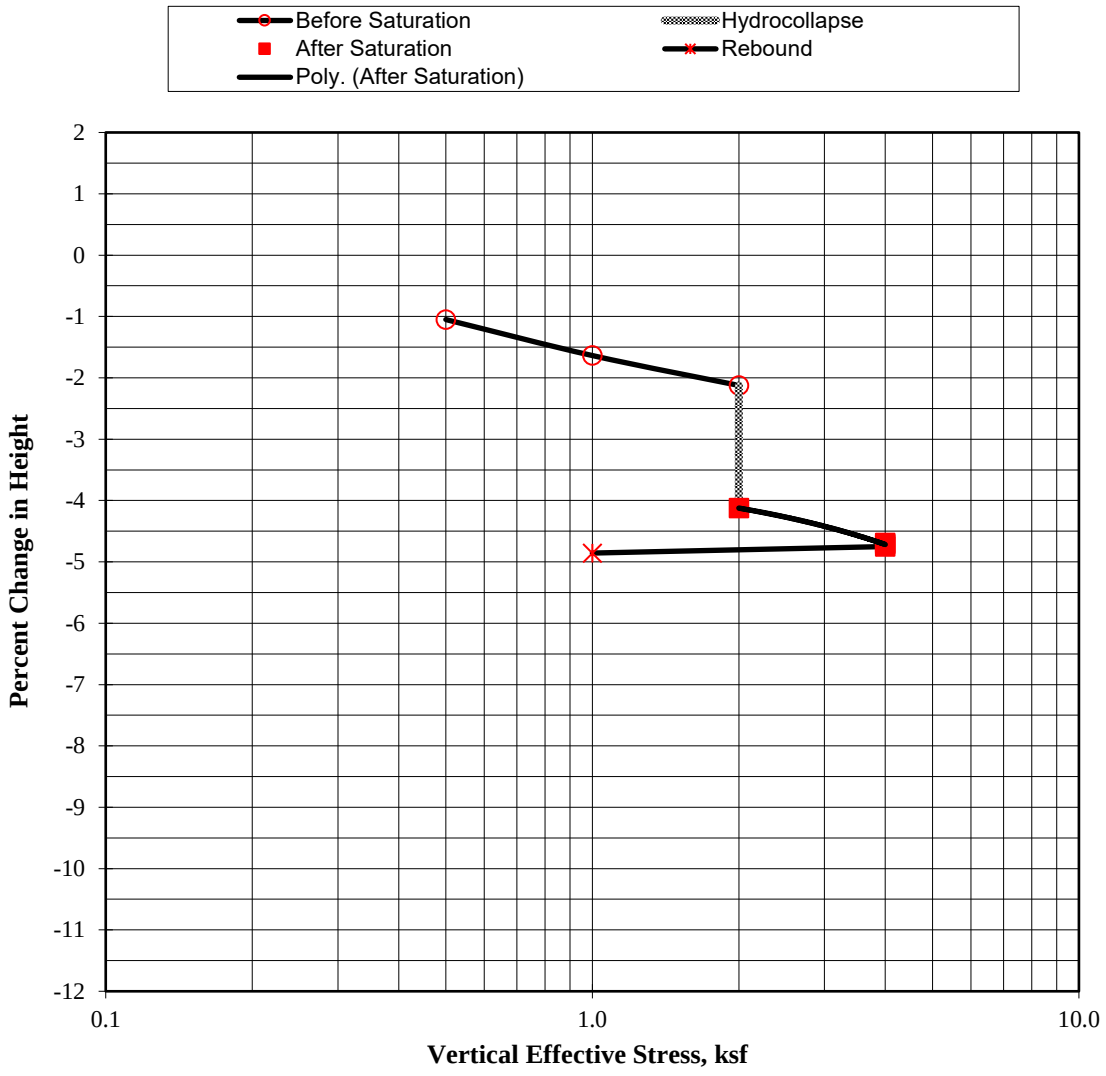
Well Graded Sand (SW)

Ring Sample

Initial Dry Density: 109.3 pcf
Initial Moisture: 2.8%
Specific Gravity: 2.67
Initial Void Ratio: 0.525

Hydrocollapse: 2.0% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-7 @ 12'

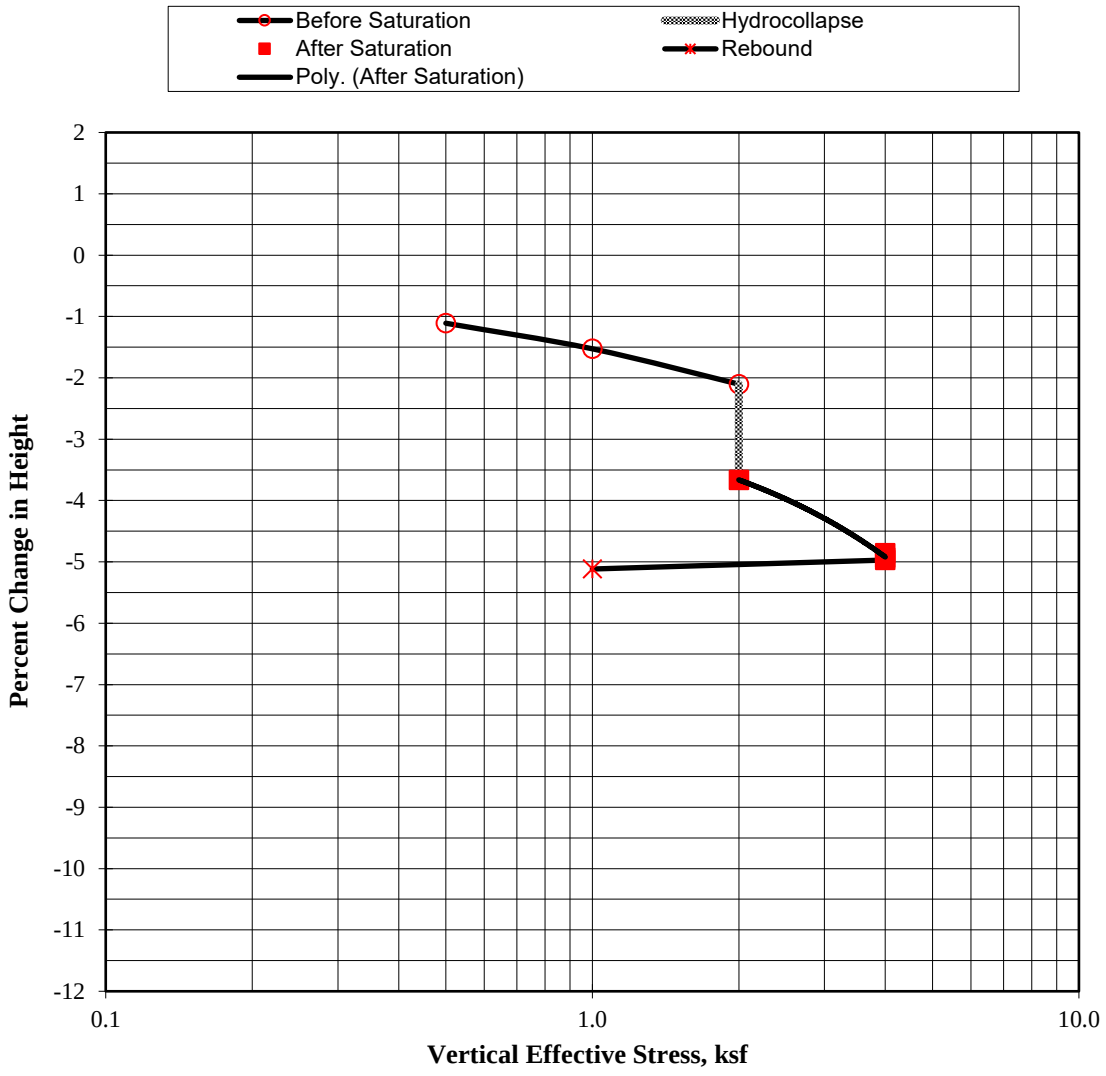
Silty Sand (SM)

Ring Sample

Initial Dry Density: 116.8 pcf
Initial Moisture: 2.0%
Specific Gravity: 2.67
Initial Void Ratio: 0.427

Hydrocollapse: 1.6% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

CONSOLIDATION TEST **ASTM D 2435 & D 5333**

Proposed ELOP Project
B-9 @ 7.5'

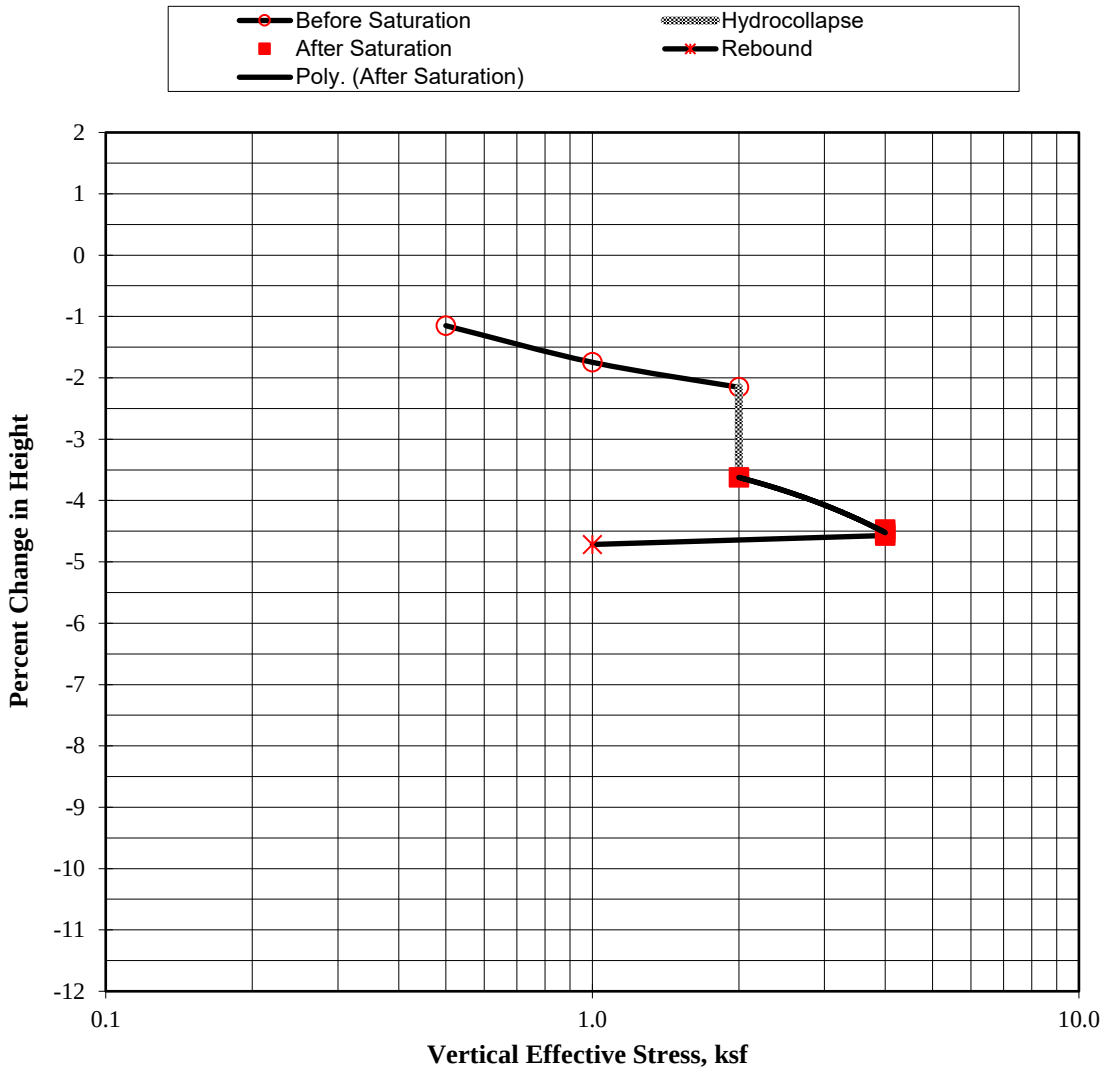
Poorly Graded Sand (SP)

Ring Sample

Initial Dry Density: 99.5 pcf
Initial Moisture: 2.5%
Specific Gravity: 2.67
Initial Void Ratio: 0.676

Hydrocollapse: 1.5% @ 2.0 ksf

% Change in Height vs Normal Pressure Diagram



File No.: 307083-004 December 3, 2025
Lab No.: 25-303

EXPANSION INDEX **ASTM D-4829**

Job Name: Proposed ELOP Project
Sample ID: B-2 @ 2.5'
Soil Description: Silty Sand (SM)

Initial Moisture, %:	9.5	
Initial Compacted Dry Density, pcf:	109.7	
Initial Saturation, %:	48	*
Final Moisture, %:	21.8	
Volumetric Swell, %:	0.1	
Expansion Index, EI:	**0**	**Very Low**

EI	ASTM Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

File No.: 307083-004
Lab No.: 25-303

December 3, 2025

MAXIMUM DRY DENSITY / OPTIMUM MOISTURE

ASTM D 1557 (Modified)

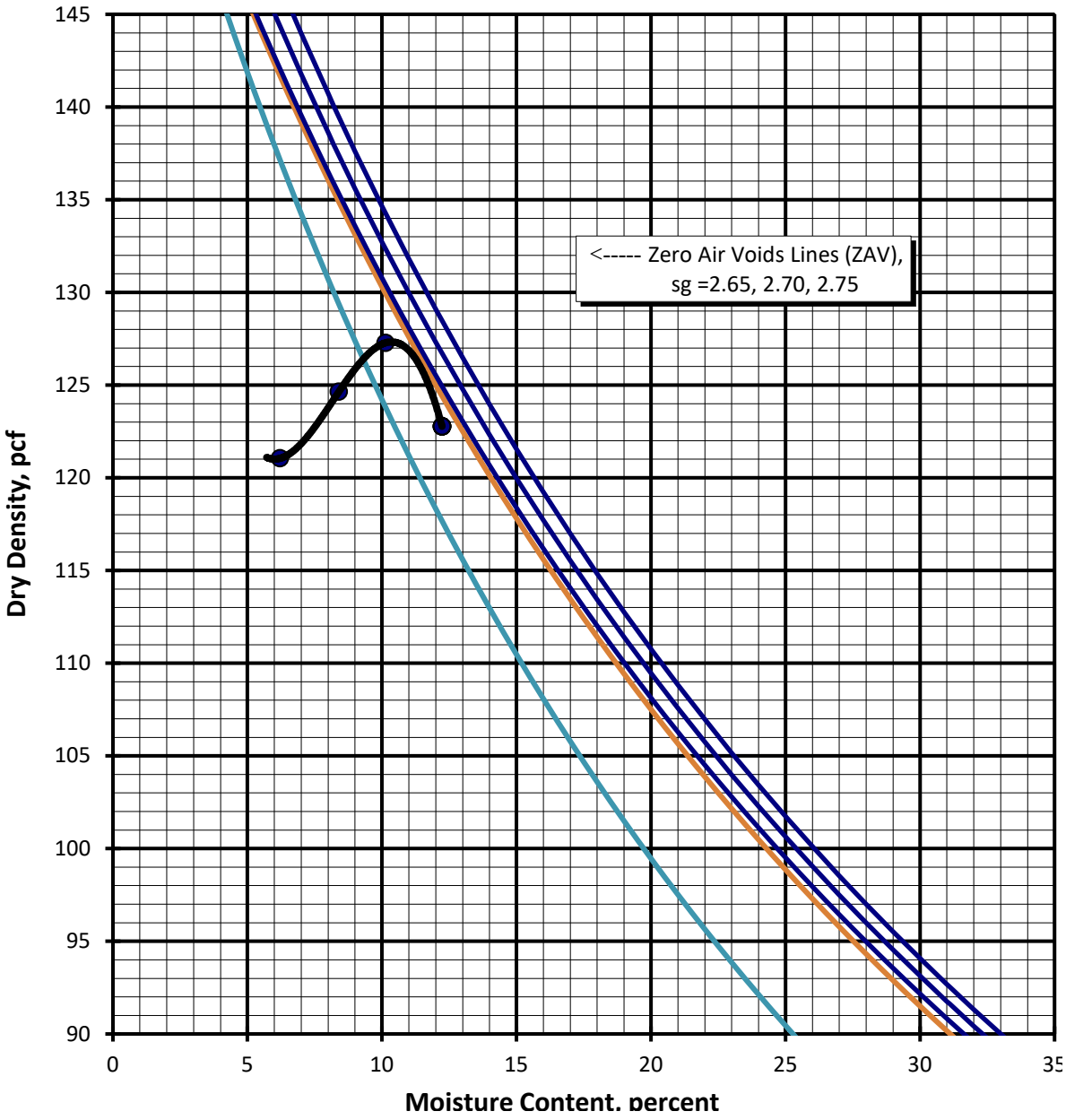
Job Name: Proposed ELOP Project
Sample ID: 0
Location: B-1 @ 0-5'

Procedure Used: A
Preparation Method: Moist
Rammer Type: Mechanical

Description: Silty Sand (SM)

Maximum Dry Density: **127.3 pcf**
Optimum Moisture: **10.4%**

Sieve Size	% Retained (Cumulative)
3/4"	0.0
3/8"	0.1
#4	0.8



File No.: 307083-004
Lab No.: 25-303

December 3, 2025

MAXIMUM DRY DENSITY / OPTIMUM MOISTURE

ASTM D 1557 (Modified)

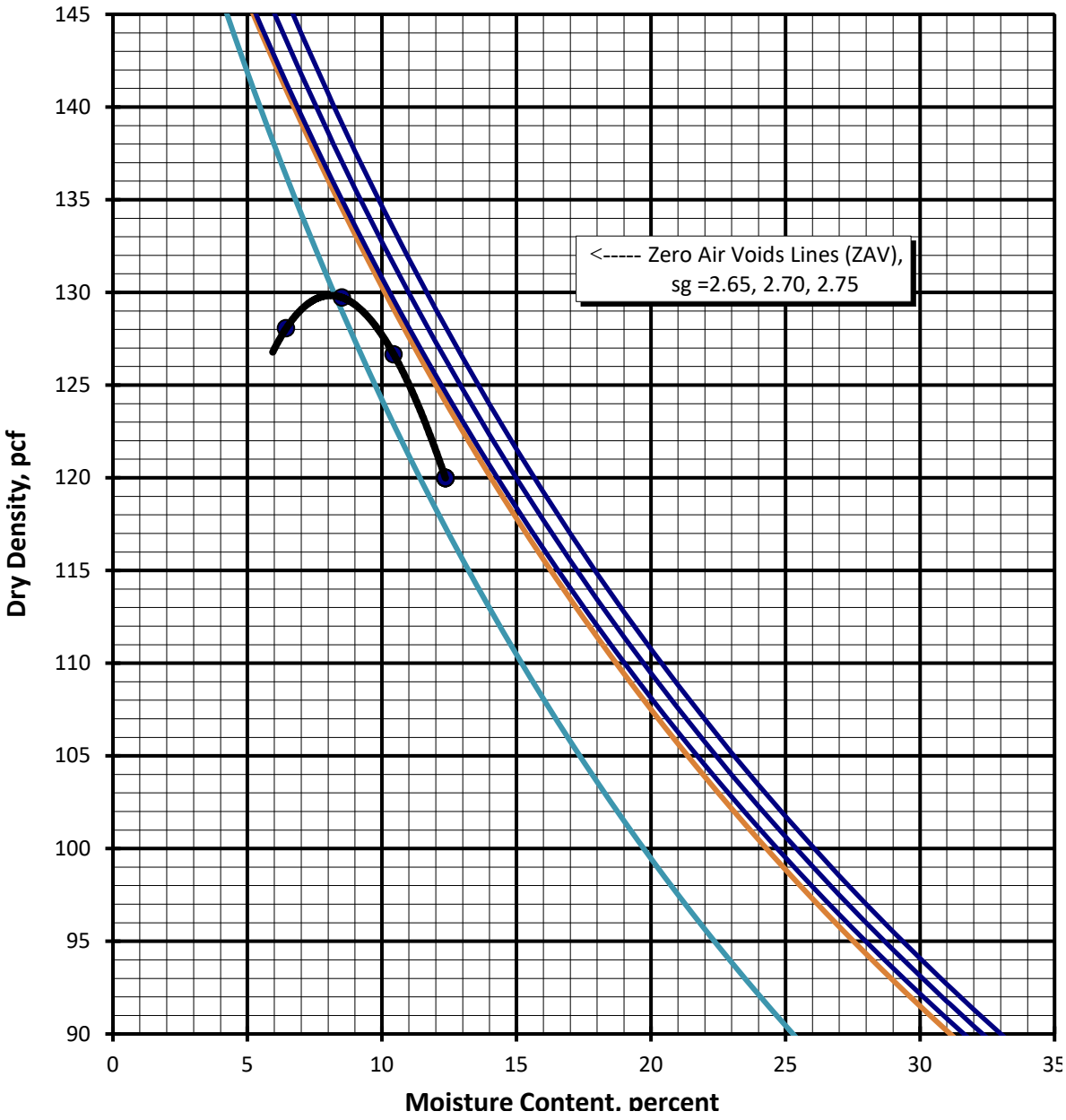
Job Name: Proposed ELOP Project
Sample ID: 0
Location: B-4 @ 0-5'

Description: Silty Sand (SM)

Procedure Used: A
Preparation Method: Moist
Rammer Type: Mechanical

Maximum Dry Density: **129.8 pcf**
Optimum Moisture: **8.1%**

Sieve Size	% Retained (Cumulative)
3/4"	0.0
3/8"	0.5
#4	2.2



Earth Systems
79-811 Country Club Drive, Suite B | Bermuda Dunes, CA 92203 | Ph: 760.345.1588 | www.earthsystems.com

SAND EQUIVALENT/DURABILITY INDEX

Cal Test 217

JOB NUMBER:	307083-004	DATE:	12/3/2025
PROJECT NAME:	Proposed ELOP Project	TECH:	
CLIENT:		LAB NUMBER:	25-303

CONTRACTOR:

SUPPLIER:

SAMPLE I.D.: B-5a @ 20'

SAMPLE LOCATION:

SAMPLE DESCRIPTION: Well Graded Sand (SW)

TEST NUMBER:	1	2	3
START SOAK:	4:50:00 AM	4:53:00 AM	4:56:00 AM
START SHAKE:	5:00:00 AM	5:03:00 AM	5:06:00 AM
FINISH IRRIGATION:	5:09:00 AM	5:12:00 AM	5:15:00 AM
FINAL READING:	5:29:00 AM	5:32:00 AM	5:35:00 AM
CLAY READING:	4.8	4.6	4.6
SAND READING:	3.9	3.9	3.9
SAND EQUIVALENT:	82	85	85

SE = Sand Reading/Clay Reading x 100

AVERAGE OF 3 POINTS: 84

File No.: 307083-004 12/3/2025

Lab No.: 25-303

SOIL CHEMICAL ANALYSES

Job Name: Proposed ELOP Project

Job No.: 307083-004

Sample ID:				
Sample Location:	B-1 @ 0-5'	B-4 @ 0-5'	B-1a @ 2.5'	B-7 @ 0-5'
Resistivity (Units)				
as-received (ohm-cm)	3,080,000	>4,400,000		
saturated (ohm-cm)	4,000	3,960		
pH	7.3	6.7		
Electrical Conductivity (mS/cm)	0.09	0.12		
Chemical Analyses				
Cations				
calcium Ca^{2+} (mg/kg)	68	91		
magnesium Mg^{2+} (mg/kg)	10	13		
sodium Na^{1+} (mg/kg)	21	25		
potassium K^{1+} (mg/kg)	25	25		
ammonium NH41+ (mg/kg)	ND	ND		
Anions				
carbonate CO_3^{2-} (mg/kg)	ND	ND		
bicarbonate HCO_3^{1-}(mg/kg)	311	372		
fluoride F^{1-} (mg/kg)	12	17		
chloride Cl^{1-} (mg/kg)	4	5		
sulfate SO_4^{2-} (mg/kg)	12	13		
nitrate NO31- (mg/kg)	3	3		
phosphate PO_4^{3-} (mg/kg)	8	8		
Other Tests				
% moisture H_2O (%)	na	na		
total acidity H^{1+} (mmol/kg)	na	na		
sulfide S^{2-} (qual)	na	na		
Redox (mV)	na	na		

Note: Tests performed by Subcontract Laboratory:
HDR Engineering, Inc.
431 West Baseline Road
Claremont, California 91711 Tel: (909) 962-5485

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

na = not analyzed

T.O.P. = top of pipe

Resistivity per ASTM G187, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B. Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

General Guidelines for Soil Corrosivity

Chemical Agent	Amount in Soil	Degree of Corrosivity
Soluble Sulfates[1]	0 -1,000 mg/Kg (ppm) [0-.1%]	Low
	1,000 - 2,000 mg/Kg (ppm) [0.1-0.2%]	Moderate
	2,000 - 20,000 mg/Kg (ppm) [0.2-2.0%]	Severe
	> 20,000 mg/Kg (ppm) [>2.0%]	Very Severe
Resistivity[2] (Saturated)	0- 900 ohm-cm	Very Severely Corrosive
	900 to 2,300 ohm-cm	Severely Corrosive
	2,300 to 5,000 ohm-cm	Moderately Corrosive
	5,000-10,000 ohm-cm	Mildly Corrosive
	10,000+ ohm-cm	Progressively Less Corrosive

1 - General corrosivity to concrete elements. American Concrete Institute (ACI) Water Soluble Sulfate in Soil by Weight, ACI 318, Tables 4.2.2 - Exposure Conditions and Table 4.3.1 - Requirements for Concrete Exposed to Sulfate-Containing Solutions. It is recommended that concrete be proportioned in accordance with the requirements of the two ACI tables listed above (4.2.2 and 4.3.1). The current ACI should be referred to for further information.

2 - General corrosivity to metallic elements (iron, steel, etc.). Although no standard has been developed and accepted by corrosion engineering organizations, it is generally agreed that the classification shown above, or other similar classifications, reflect soil corrosivity. Source: Corrosionsource.com. The classification presented is excerpted from ASTM STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February, 1989)

3 - Earth Systems does not practice corrosion engineering. Results should be reviewed by an engineer competent in corrosion evaluation, especially in regard to nitrites and ammonium.

Appendix I. Phase 1 Environmental and Phase II Testing and Sampling

Palmdale School District
39139 10th St E
Palmdale, California 93550

Report of Phase I
Environmental Site Assessment
AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

March 31, 2025
Revised May 6, 2025

Submitted By:
Earth Systems Pacific
79811B Country Club Drive
Bermuda Dunes, California 92203

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File No. 307083-001
Doc. No.: 25-03-705R

EARTH SYSTEMS
79-811B Country Club Drive | Bermuda Dunes, CA 92203-1244 | (760) 345-1588 | www.earthsystems.com

March 31, 2025
Revised May 6, 2025

File No. 307083-001
Doc. No.: 25-03-705R

Palmdale School District
39139 10th St E
Palmdale, California 93550

Attention: Al Tsai, Maintenance & Operations Administrator

Subject: **Report of Phase I Environmental Site Assessment**

Project: **AINs 3025-026-001, 002, 007, 008 and 011**
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

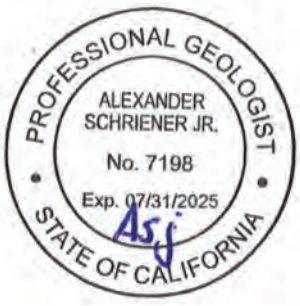
As you requested, Earth Systems Pacific [Earth Systems] has completed this Phase I Environmental Site Assessment [ESA] of the site referenced above. This report was prepared for your exclusive use. It was prepared to stand as a whole, and no part should be excerpted or used in exclusion of any other part. This project was conducted in accordance with our proposal dated February 12, 2025. Thank you for this opportunity to be of service. If you have any questions regarding this report, or the information contained herein, please contact this office at your convenience.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10. I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject site. I have endeavored to perform this project in conformance with the standards and practices set forth in 40 CFR 312.

Respectfully Submitted,
EARTH SYSTEMS PACIFIC



Alexander Schriener, Jr., PG 7198
Associate Geologist



ESA/asj/cgj

Distribution: 6/Palmdale School District
1/PAL
1/BER

Report of Phase I
Environmental Site Assessment
AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

March 31, 2025
Revised May 6, 2025

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1.0 INTRODUCTION

1.1 Project Information

This report presents the findings of the Phase I Environmental Site Assessment [ESA] conducted by Earth Systems Pacific [Earth Systems] for AINs 3025-026-001, 002, 007, 008 and 011, located at the northeast corner of 40th Street East & East Avenue Q, in Palmdale, Los Angeles County, California [the site]. This project was conducted for the Palmdale School District in accordance with our proposal dated February 12, 2025. We are not aware of future development plans for the site. This project has been performed at the request of the client for due diligence purposes. We are not aware of special requirements for this ESA.

1.2 Purpose and Scope of Work

The purpose of an ESA is to evaluate the potential for the presence of soil or groundwater contamination that may be present because of the past use, handling, storage, or disposal of hazardous materials or petroleum products on or near the property. The scope of work for this evaluation is based on the United States Environmental Protection Agency Final All Appropriate Inquiry Rule (2006) [US EPA AAI]; and, the ASTM Standard E1527-21, *Standard Practice for Environmental Site Assessments,* and consisted of the tasks listed below.

Site Reconnaissance: This involved a visual reconnaissance of the site, noting physical evidence of potential contamination or possible sources of contamination; and observation of adjacent properties to identify readily observable visual evidence of possible impacts to the subject site. Figures depicting the site location and layout are presented in Appendix A. Significant onsite features were photographed to document current conditions. Selected site photographs are presented in Appendix B.

Records Review: Records regarding the regulatory status and history of the site were evaluated regarding the possible presence of Recognized Environmental Conditions [REC]. Regulatory agency records were reviewed by obtaining a report listing known sites that generate, store, use, and/or have released hazardous materials from a firm that specializes in maintaining a database of this type of information. A copy of the agency database search report is presented in Appendix C and is discussed in Section 5.1. The search radius for the agency database search was in accordance with the US EPA AAI and ASTM standard E1527-21 as measured from the site boundary. Other sources of information are listed in the references section of this report and may include the following categories of information (note that each category is utilized at the discretion of Environmental Professional [EP] until, in the EP's opinion, sufficient data has been obtained):

- Historical aerial photographs
- Topographic maps
- California Department of Oil, Gas, and Geothermal Resources maps
- Fire insurance maps
- Land title information
- Local street directories

- Zoning/land use records
- Engineering and institutional controls, such as deed restrictions and restrictive zoning to a radius of ¼ mile, if contained in publicly available lists/registries
- Tribal records of subject property and adjoining properties (if tribal land)
- Local government records such as building department files
- Environmental cleanup liens

If the property was not previously developed, sources such as building department files and street directories were not reviewed. Relevant supporting documents are provided in Appendix D.

Interviews: Persons familiar with the site were interviewed (if possible) regarding the potential presence of RECs on the site or in a position to affect the site, including the site owner/operator/occupant, former site owners/operators/occupants (if reasonably accessible), neighboring property occupants (if the site is abandoned), and selected government personnel likely to have information regarding environmental conditions at or near the site. Information from persons who were successfully contacted is presented in Section 6.

Report Preparation: This report was prepared to present our findings, conclusions, and recommendations.

1.3 Definitions

ASTM E1527-21 provides definitions for 102 terms and 27 acronyms used in the ESA process. Earth Systems endeavors to use these terms and acronyms within the meaning provided by ASTM E1527-21. The majority of these terms are either obvious in their meaning or are seldom used in this report, but a few are significant enough to warrant defining here, as follows:

Site: The term "site" is used in place of the term "property" as defined by ASTM E1527-21 and is the physical location that is the subject of the assessment. The site can include more than one parcel of land, or only a portion of a parcel of land, depending on the needs of the client. ESAs focus primarily on activities that occur within the boundaries of the site, or that could potentially affect conditions and activities within the boundaries of the site. RECs on offsite properties that are not likely to affect the site are not considered to be RECs for the subject site.

Recognized Environmental Condition [REC]: the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to a release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The term does not include *de minimis* conditions.

Controlled Recognized Environmental Condition [CREC]: An REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction

of the applicable regulatory authority, with hazardous substances or petroleum projects allowed to remain in place subject to the implementation of required controls.

Historical Recognized Environmental Condition [HREC]: A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (such as use restriction). HRECs are no longer RECs for a site.

De minimus: A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Environmental Professional [EP]: An EP is defined by US EPA AAI as "a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (of hazardous substances) on, at, in, or to a property, sufficient to meet the objectives and performance factors (of the rule)." Specific minimum credentials are required by US EPA AAI and ASTM E1527-21 to be identified as an EP.

User: The "user" of the report is defined by ASTM Practice E1527-21 as the party for whom the assessment is being conducted (the "client"), not the EP.

1.4 Qualifications

Work on this project was performed under the direct supervision of an Environmental Professional [EP], in accordance with the US EPA AAI and ASTM E1527-21 requirements. Mr. Alexander Schriener, Jr. (PG) was the lead EP and the project manager, provided senior review and conducted historical aerial photograph review, other historical review, and agency database review. Ms. Renee Morales (PE, GE), Senior Engineer, conducted the site reconnaissance.

1.5 Exclusions and Data Gaps

The scope of work for this ESA did not include testing the air, groundwater, soil, or building materials for the presence of hazardous constituents.

The US EPA AAI and ASTM E1527-21 require that gaps in the data used in evaluating the site be identified. Data gaps encountered in this project, and their significance to the project, are summarized below.

- As stated in the proposal, land title information would only be reviewed if furnished by the Client. Land title information was not provided to Earth Systems, and therefore was not reviewed. Because of the availability of other data sources, the lack of title information is not considered to be significant.

- Prior owners, operators, or employees of the site could not be contacted to be interviewed. This data gap is considered significant, since a prior owner may have information about agricultural practices intermittently onsite by 1952 and as late as 1985.

- City building department records were not requested since the site is located outside the boundaries of neighboring cities. Los Angeles County Assessor's records for the site indicate that improvements are not present onsite. Therefore, this data gap is not considered significant.

- Historical street directories were not requested since a street address is needed for that research. This data gap is not considered significant due to the rural location of the site and vicinity.

- Sanborn maps were not available for the site. This data gap is not considered to be significant due to the remote location of the site and the lack of evidence that a commercial business was located onsite or in the vicinity.

Recommendations concerning these data gaps are presented in the Recommendations section of this report.

1.6 Limitations and Reliance

This report has been prepared for the exclusive use of the Palmdale School District. Other parties participating in the transaction for which this project was conducted may also use the information presented in this report, provided said parties agree that Earth Systems shall have no additional liability arising from such use than described in the contract under which this project was conducted. Any other use of or reliance on the information and opinions contained in this report without the written authorization of Earth Systems is at the sole risk of the user (to apply for written authorization to rely on this report, please complete and submit the application provided in Appendix F).

Note that the conclusions and recommendations rendered in this report are opinions based on readily available information obtained to date within the scope of the work authorized by the client and apply only to site conditions as of the date of the site visit. The scope of work for this project was developed to address the needs of the client as part of a property transaction (purchase, sale, refinance, etc.) and may not meet the needs of other users.

It should be noted that any level of assessment cannot ascertain that a property is completely free of chemical or toxic substances. We believe the scope of work has been appropriate to allow the client to make an informed business decision. According to US EPA AAI and ASTM E1527-21: the "shelf life" of an ESA report is six months; an "Update" can be provided to the client within the first year of the report's publication (at an additional cost); and if the report is older than one year, the ESA should be re-conducted. Changes in site conditions can render this report obsolete within a shorter period of time. Use of this report outside of these time frames or after site conditions have changed is at the sole risk of the user and without liability and legal exposure to Earth Systems.

The results contained in this report are based upon the information acquired during the assessment, including information obtained from third parties. Earth Systems makes no claim as to the accuracy of the information obtained from others. In addition, it is possible that variations exist beyond or between points evaluated during this assessment, and that changes in conditions can occur in the future due to the works of man, contaminant migration, variations in rainfall or temperature, a broadening of knowledge, changes in regulatory standards, and/or other factors not apparent at the time of the field investigation. It should also be noted that in blow-sand areas, sand can accumulate quickly behind windbreaks. Consequently, materials can be buried out of view by natural wind-blown sand in a relatively short period of time under favorable conditions.

The services performed by Earth Systems have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the site vicinity. No warranty, express or implied, is offered.

2.0 GENERAL SITE INFORMATION

2.1 Size, Location, and Name

The site consists of five legal parcels totaling approximately 67 acres located at the northeast corner of 40th Street East & East Avenue Q, in Palmdale, Los Angeles County, California. The site location is depicted in Figure 1. The site layout is depicted in Figure 2.

2.2 Assessor's Parcel Number(s)

The site is identified as Assessor's Identification Numbers [AINs] 3025-026-001, 002, 007, 008 and 011. Copies of the Assessor's Parcel Map, Los Angeles County GIS aerial map of the site AINs, and of the report from the Los Angeles County Office of the Assessor [LACOA] website are included in Appendix D.

2.3 Township, Range, Section

The site is located in the southwest quarter of the southwest quarter of Section 21, Township 6 North, Range 11 West, San Bernardino Principal Meridian.

2.4 Site Boundaries

The site is bound by a tamarisk tree windbreak and 40th Street E to the west, E Avenue Q to the South, unpaved dirt road (45th Street E projected) to the east, and by unmarked property boundary to the north.

2.5 Current Development and Access

The site is currently undeveloped former agricultural land accessed from 40th Street E parallel to the west boundary, and by E Avenue Q parallel to the south boundary, and by dirt road parallel to the east boundary.

2.6 Zoning/Land Use Records

Zoning/Land Use information was obtained from the City of Palmdale Planning, Zoning Lookup portal, which indicated the following the property zoning by AIN:

AIN	Zoning Class
3025-026-001	Office Flex (OF)
3025-026-002	Light Industrial (LI)
3025-026-007	Regional Commercial
3025-026-008	Office Flex (OF)
3025-026-011	Regional Commercial

2.7 Site Topography

The surface of the site slopes uniformly to the southeast at a slight angle. The elevation of the site ranges from about 2,581 feet above mean sea level in the northwest corner to about 2,594 feet above mean sea level in the southeast corner. Significant hills, gullies, or streams were not present on the site.

2.8 Surface Water Bodies

Surface water bodies are not present on the site, either as lakes or streams. Lake Palmdale is located approximately 4.5 miles southwest of the site and Little Rock Wash is located approximately 4.5 miles east of the site. Rainwater appears to infiltrate within the site. Water bodies are not located in a position to transport contaminants onto the site or be readily affected by contaminants released at the site.

2.9 Geology and Hydrogeology

The site is located in the Mojave Desert geomorphic province of the Antelope Valley of Southern California. This part of the Antelope Valley is bounded by the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the southwest. These mountain ranges, and the basement rock underlying the Antelope Valley, are primarily composed of granitic and marine rock. Within the Valley, the basement complex is overlain by a series of unconsolidated and semi-consolidated continental clastic sediments eroded from the surrounding mountain ranges and lacustrine deposits (DWR, 2004). The site is located on alluvium from the mountains to the southwest.

The Antelope Valley Groundwater Basin, comprised of West Antelope Basin (Kern County) and East Antelope Basin (Los Angeles County), underlies the Antelope Valley. Major groundwater barriers to the basin are the San Andreas Fault zone to the southwest, and the Garlock fault zone to the northwest. Multiple other faults within the Valley, in part, define eleven groundwater subbasins. Based on a 2013 Los Angeles County Department of Public Works [LACDPW] water management report, and GoogleEarth Earth Point tool, the site is located within the West Antelope subbasin.

The depth to groundwater at the site was evaluated via data available on the California Statewide Groundwater Elevation Monitoring System [CASGEM] database. A Groundwater Elevation Data Report for CASGEM Well No. 06N11W36G001S, located approximately 3.7 miles southeast of the site, was 2,563 feet on 8/7/2024. Based on a ground surface elevation of 2,679 feet, the depth to groundwater at that location was 115.67 feet below ground surface [bgs] (Appendix D).

3.0 SITE RECONNAISSANCE

3.1 Onsite Observations

Earth Systems personnel visited the site on February 28, 2025, to observe current site conditions and adjacent land use. Photographs of selected onsite features are presented in Appendix B. A summary of our findings is presented below.

3.2 Site Vicinity Observations

Overall, the site is currently undeveloped. The western part of the site was former agricultural usage whereas the eastern part of the site has been generally undeveloped. Debris varied across the site but consisted mainly of scattered household garbage, tires, roofing debris, concrete debris and asphalt concrete debris. No electronic debris, drums or tanks were observed. The western portion of the site has soil berms along the margins of the site. These soil berms range in height from 3 to 5 feet. The soil appears to have been randomly placed and is uncompacted. There is an undermined amount of concrete irrigation piping under the surface. It is exposed in a few locations, but the exact amount, depth of burial and locations are unknown.

AIN 3025-026-001: A wire fence exists along the southern part of this parcel. The southeast portion of the parcel has uneven ground and concrete debris, likely from the former structures in this area (Photo 1). There is a probable water well (Photo 2) and a concrete irrigation standpipe (Photo 3) in this area. The southwest portion of the parcel has a former irrigation sump pond (Photo 4). It has a low berm around the pond, a former water well, and the center of the former pond is over-grown with vegetation. The western boundary has a row of trees and piles of uncompacted soil. Non-hazardous debris was observed on both sides of the trees. The northeast part of the parcel has a concrete pipe at ground-level surrounded by a chain-link fence (Photo 5).

AIN 3025-026-002: This parcel was former agricultural usage. The western and northern part of the parcel is lined with an uncompacted berm consisting of piles of soil. Some concrete debris was observed on the northern part of the parcel along the soil berm. The western boundary is tree lined with soil berm (Photo 6). Concrete debris was found on both sides of trees. Concrete piping, probably related to an underground irrigation system, was exposed along the eastern margin of the parcel (Photo 7).

AIN 3025-026-007: This parcel has been largely undeveloped or used for agricultural purposes, except for the western quarter of the parcel. A berm of uncompacted soil piles is found on the northern and western portion of the western quarter of the parcel. A manhole cover was present only the eastern boundary of the parcel (Photo 8). The eastern portion of the parcel is mostly clear with sparse brush and Joshua Trees. Some dumping of tires and plastic debris was noted (Photo 9).

AIN 3025-026-008: This parcel has been under former agricultural usage. A berm of uncompacted soil piles, approximately 4-feet high, extends north-south across the center of the parcel. Concrete debris was found along the soil pile (Photo 10). Debris is non-hazardous.

AIN 3025-026-011: This parcel is in the southeast portion of the site. A soil berm extends along the southern portion of the property line and extends north for a few hundred feet just outside the eastern property line. The soil berm does not appear to be compacted. Various amounts of non-hazardous debris, such as concrete, has been dumped along the berm (Photo 11). A manhole cover was noted along the eastern boundary (Photo 12). The parcel has only light vegetation and a few Joshua Trees noted. Evidence was not observed that the site was adversely affected by activities on properties in the site vicinity.

4.0 HISTORICAL INFORMATION

Information regarding the history of the site was obtained from various sources, as listed in the references section of this report. The results of this research are summarized chronologically in the following table. Footnotes regarding the sources of historical information are provided following the table.

Table 1 – Summary of Historical Site Usage

Date	Source	Discussion
1928	Fairchild	The west half of the site featured active agricultural orchard development including residential and maintenance structures near the south boundary. The east half featured cleared/graded undeveloped desert. Residential structures were featured south and east of the site. The active agricultural orchard development extended offsite on surrounding properties to the north and northwest.
1940	Agricultural Stabilization & Conservation Service	By 1940, the west half of the site, formerly an orchard, now featured row crops. A dirt access road was observed located in the center of the site, oriented from north to south. The east half of the site was undeveloped, with portions appearing to have been recently cleared/graded. Possible excavation activity was observed near the northeast corner. 40th Street East along the west boundary of the site, appears to have been re-paved. Agricultural development continued in the vicinity. The residential property located south of the site appears to have expanded.
1948	United States Geologic Survey	By 1948, the west half of the site was unchanged. Agricultural development expanded to the east half of the site, featuring additional row crops. The vicinity was generally unchanged.
1959	Agricultural Stabilization & Conservation Service	By 1959, the site was generally unchanged. Agricultural development expanded in the vicinity to the north. Recent grading/clearing was observed to the northwest. Improvements were made to the residential property located south of the site. Improvements to East Avenue Q were made to the west.
1968	Teledyne	By 1968, agricultural development continued onsite. A retention pond was constructed on the southwest portion of the site. Agricultural development continued in the vicinity. Significant improvements were made to the agricultural development north of the site, featuring a large commercial building.
1974	United States Geologic Survey	By 1974, the site was generally unchanged. The dirt access roads observed in the center of the site was expanded. The vicinity was generally unchanged.

1980	United States Department of Agriculture	By 1980, the west half of the site appeared to have been partially cleared, with the residential/maintenance structures remaining on site. The east half of the site appears to be generally unchanged. Agricultural development in the vicinity appears to have ceased.
1987	United States Geologic Survey	After 1980, agricultural activity appears to have resumed, however, prior to 1987, it appears that the site and surrounding agricultural developments were in the process of dewatering. In the vicinity, significant improvements were made to 40th Street East and to East Avenue P-8. The commercial building located north of the site appears to have been expanded with multiple added structures. The residential property located south of the site appears to have expanded.
1994	United States Geologic Survey	By 1994, most of the agricultural usage of the site and vicinity appeared to have ceased, except north of the site. The site was generally unchanged. Residential home developments were constructed in the vicinity to the south and southwest. Improvements to the commercial property located north of the site appear to be in progress.
2003	United States Department of Agriculture	By 2003, the site was generally unchanged except for a temporary structure observed near the center of the site. Additional residences were constructed in the developments located south and southwest of the site. Significant improvements were made to the commercial development located north of the site.
2005	United States Department of Agriculture	By 2005, the site was observed to feature multiple additional dirt "access" roads throughout the site. Agricultural activity continued in the vicinity north of the site.
2009	United States Department of Agriculture	By 2009, the site had significant changes. All structures formerly located on the site were demolished/removed. A small portion of former agricultural land located north of the retention pond appears to have been cleared/graded. Multiple debris piles were observed located near the former retention pond, the west site boundary, significant amounts near the north site boundary, and near the center of the site from north to south. Possibly homeless dwellings were observed in the east half of the site. In the vicinity, a new residential subdivision was constructed south of the site.
2010	United States Department of Agriculture	By 2010, the site and vicinity were generally unchanged.
2012	United States Department of Agriculture	By 2012, the site and vicinity were generally unchanged.
2014	United States Department of Agriculture	By 2014, the site and vicinity were generally unchanged.
2016	United States Department of Agriculture	By 2016, the site and vicinity were generally unchanged.
2018	United States Department of Agriculture	By 2018, the site and vicinity were generally unchanged.
2020	United States Department of Agriculture	By 2020, the site and vicinity were generally unchanged.
2022	United States Department of Agriculture	By 2022, the site and vicinity were generally unchanged.

2024	Maxar Technologies	By 2024, the site and vicinity were generally unchanged.

Historical information footnotes:

We attempted to obtain historical information from a standard set of resources, including historical aerial photographs, historical USGS topographic maps, Sanborn fire insurance maps, historical street directories, chain-of-title documents, city building permit files, and personnel interview. However, historical information was not obtained from some sources, as follows:

Sanborn Fire Insurance maps: Sanborn maps for the site and vicinity were requested from ERIS, a firm that specializes in maintaining this type of information. They indicated that Sanborn Fire Insurance maps are not available for the site.

Historical City Directories: Actual addresses are required to conduct searches using historical street directories. The Los Angeles County Assessor's website indicates that addresses have not been assigned to the site.

Chain of Title documents: Chain of title documents were not provided prior to publication of this report and, therefore, were not reviewed.

City Building Permits: Permits for the demolition and removal of structures onsite were attained circa 2009. Copies were not readily available at the time of this publication.

County Building Permits: The Los Angeles County Assessor's website indicates that there are no improvements on file for the site.

5.0 RECORDS REVIEW

5.1 Agency Database Search Report

A report summarizing the information available from regulatory agencies regarding sites that generate, store, use, and/or have released hazardous materials was obtained from a firm that specializes in maintaining a database of this type of information. The publications reviewed in the database search are referenced in the database report, presented in Appendix C. The search radii used for each list were in accordance with the US EPA AAI and ASTM E1527-21 guidelines as measured from the site boundary. Significant information obtained in the database search is summarized below.

- The site is not listed in the database report.
- Six sites within the search radii were identified in the database report and are summarized as follows:
  - **TGJ TRANSPORT, Palmdale, CA (Map Key 1)**, located 0.16 miles south of the site, is included in the PFAS Industry Sectors (PFAS IND) database of per- and polyfluoroalkyl substances known as PFAS, with a compliance status of "No Violation Identified". This is not a REC for the site.
  - **Eduardo Ruiz Ruiz Trucking, Palmdale, CA (Map Key 2)**, located 0.16 miles west-southwest of the site, is included in the PFAS Industry Sectors (PFAS IND) database of per- and polyfluoroalkyl substances known as PFAS, with a compliance status of "No Violation Identified". This is not a REC for the site.
  - **Eduardo Ruiz Ruiz Trucking, 38733 Roma Ct, Palmdale, CA (Map Key 3)**, located 0.18 miles west-southwest of the site, is included in the Resource Conservation and Recovery

Act (RCRA NON GEN) database. As of Oct 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID). This is not a REC for the site.

- **TGJ TRANSPORT, 4146 Bolton Avenue, Palmdale, CA (Map Key 4)**, located 0.18 miles south of the site, is included in the Resource Conservation and Recovery Act (RCRA NON GEN) database. As of Oct 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID). This is not a REC for the site.

- **VRZ Transportation, 38651 Frontier Ave, Palmdale, CA (Map Key 6)**, located 0.99 miles west of the site, is included in the EnviroStor Inspection, Compliance, and Enforcement (INSP COMP ENF) database, a list of permitted facilities with inspections and enforcements tracked by the California Department of Toxic Substance Control's (DTSC) EnviroStor data management system. No Violations were reported as of 6/27/2022. This is not a REC for the site.

- ***V & T Trucking*, 38651 Frontier Ave, Palmdale, CA (Map Key 6)**, located 0.99 miles west of the site, is included in the EnviroStor Inspection, Compliance, and Enforcement (INSP COMP ENF) database, a list of permitted facilities with inspections and enforcements tracked by the California Department of Toxic Substance Control's (DTSC) EnviroStor data management system. No Violations were reported as of 7/31/2023. This is not a REC for the site.

- The database search report did not identify any listings categorized as unmapped within the search radii.

The sites identified in the agency database review do not appear to be RECs for the subject site due to the distance, direction, status, or nature of the issue at these sites.

5.2 California EPA, State Water Resources Control Board

The California Environmental Protection Agency [EPA], State Water Resources Control Board [SWRCB] GeoTracker website was accessed to research records on file regarding known problems at the site address. Other than the issues discussed in Section 5.1, the database search found six results for the site or properties in the vicinity, and are summarized below:

- Rau/Suzuki Property, located 3505 Palmdale Blvd E approximately 0.66 miles southwest of the site, is a LUST cleanup site with a status of “Completed – Case Closed”. That site is not a REC.

5.3 California Department of Toxic Substances Control

The California Department of Toxic Substances Control [DTSC] EnviroStor website was accessed to research records on file regarding known problems at the site address or in the site vicinity. The database search found no results for the site or properties within the radii of concern.

5.4 Tribal Records

This site is not within ¼ mile of tribal land, and therefore tribal records for the subject property or adjoining properties were not reviewed.

5.5 Engineering and Institutional Controls

Engineering and Institutional Controls [EICs] (e.g., deed restrictions and restrictive zoning) were not identified for the subject site in the agency database search report. Engineering and Institutional Controls to a radius of ¼ mile were not identified.

5.6 Environmental Cleanup Liens

Recorded Environmental Cleanup Liens [ECLs] on a property are indicators that contamination exists or existed at the site. ECLs are "encumbrances on a property for the recovery of incurred cleanup costs on the part of a state, tribal, or federal government agency or other third party" (EPA 2005). In the EP's judgment, an ECL is not likely to be an issue onsite due to lack of evidence that a release has occurred onsite.

5.7 California Department of Conservation, Geologic Energy Management Division

The California Department of Conservation, Geologic Energy Management Division [CalGEM] maps on the CalGEM website were reviewed for information regarding historic oil-well or geothermal drilling activities near the site. The maps and databases did not depict permitted oil or geothermal wells within 1 mile of the site.

6.0 INTERVIEWS, GENERAL RESEARCH, AND PRIOR REPORTS

6.1 Current Owners/Occupants/Operators

Based on information provided by the current owner's liaison, Mr. James Vose, title to the site is held by multiple owners. Mr. James Vose was interviewed at the time of the site visit regarding the history of the site. Mr. Vose provided the following information:

- Mr. Vose indicated that the property had been owned by the same family for multiple generations. He was not aware of who the prior owners were.
- Mr. Vose was not aware of underground storage tanks [USTs] or above-ground storage tanks [ASTs] on site now or in the past. He was aware of the prior use of the site for agricultural cultivation.
- Mr. Vose indicated that the former buildings located on site were permitted to be demolished circa 2009.
- Mr. Vose was not aware of environmental impairments to the site.

A questionnaire regarding the history of the site was submitted to each of the owners by Mr. James Vose. The following responses were provided:

Mr. Robert Yellen, a partial owner, provided the following information:

- Mr. Yellen indicated that the prior occupant practiced farming.
- Mr. Yellen was not aware of underground storage tanks [USTs] or above-ground storage tanks [ASTs] on site now or in the past. He was aware of the prior use of the site for agricultural cultivation.
- Mr. Yellen was not aware of environmental impairments to the site.

Mr. Jerry Jacobson, a partial owner, provided the following information:

- Mr. Jacobson indicated that the prior occupancy occurred possibly as far back as 1927.
- Mr. Jacobson was not aware of underground storage tanks [USTs] or above-ground storage tanks [ASTs] on site now or in the past. He was aware of the prior use of the site for agricultural cultivation.
- Mr. Jacobson was not aware of environmental impairments to the site.

Mr. Michael Levitt, a partial owner, provided the following information:

- Mr. Levitt was not aware of underground storage tanks [USTs] or above-ground storage tanks [ASTs] on site now or in the past. He was aware of the prior use of the site for agricultural cultivation.
- Mr. Levitt was not aware of environmental impairments to the site.

6.2 Past Owners/Occupants/Operators

Contact information for prior owners/occupants/operators was not readily available.

6.3 Owners/Occupants of Neighboring Properties

The US EPA recommends that interviews with persons on adjoining properties be conducted for properties that are “abandoned.” The site is currently inactive former agricultural land and maintained as necessary. Therefore, the site is not considered to be abandoned and interviews of owners/occupants of neighboring properties were not conducted.

6.4 Common Farm Irrigation Materials

Mr. Tom Brickley with Brickley Environmental, an asbestos removal contractor, was contacted during a previous project regarding the use of asbestos piping in irrigation systems. Mr. Brickley indicated that they have been involved in the removal of asbestos-containing irrigation piping at numerous sites, and that finding this type of piping common. He also stated that these pipes are not considered a hazardous material and can be left in place but are often removed due to engineering and site development considerations. If the pipes are removed, the removal needs to be performed by a licensed asbestos-removal contractor and disposed to a permitted landfill following appropriate protocols. The costs to remove and dispose of the asbestos pipe is dependent upon its condition.

Mr. Bob Sheppard with CV Grading, a contractor that installs irrigation systems, was contacted during a previous project for information regarding typical uses of asbestos-cement [AC] pipe. He indicated that AC pipe is used in irrigation systems when the pressure is anticipated to exceed the design strength of common concrete pipe. Commonly-used concrete pipe has a design

strength sufficient for a hydrostatic head of about 20 feet, while AC pipe can have design strengths of 50 to 100 feet of hydrostatic head. AC pipe is more expensive than common concrete pipe, and therefore AC pipe is usually used only when the head is anticipated to exceed 20 feet of head. Non-pressurized, gravity-feed irrigation systems are usually constructed of non-asbestos concrete pipe.

6.5 Prior Experience Regarding Pesticides at Farms

The potential presence of pesticide residues is an issue affecting land used for agriculture prior to 1990. Of primary concern are OCPs, which includes DDT, DDE, DDD, Gamma-BHC (Lindane), Technical Chlordane, Dieldrin, Endosulfan II, Endrin, Endrin Aldehyde, Lindane, and Toxaphene. These compounds are notable for both their toxicity and their longevity in the soil. As such, residues of these compounds can be found at concentrations of concern well after usage of the material has ceased. Some of these chemicals were widely used well into the 1980's.

Most OCPs are listed in the California Code of Regulations [CCR] governing the classification of hazardous waste (CCR Title 22). The Total Threshold Limit Concentration [TTLC] for DDT and its breakdown by-products is 1 mg/kg, which is the concentration of DDT which would classify a waste as hazardous. The US EPA Regional Screening Level for a residential setting [RSL-r] for DDT is 1.9 mg/kg, for Toxaphene is 0.49 mg/kg; and for Dieldrin is 0.034 mg/kg (US EPA 2016). The RSL-r is based on health risks from exposure to the substance in a residential setting for 70 years and would be an appropriate comparison criterion for assessing the risks posed by pesticide residues to residential occupants of a property.

Earth Systems has conducted numerous Phase II investigations of agricultural sites. OCPs have been found at concentrations of concern at about ¼ of these sites. The most common pesticides found at concentrations of concern are DDT, DDE, Toxaphene, and Dieldrin, which were de-registered for use between 1972 and 1990. We have not identified a pattern indicative of where elevated levels of OCPs are found, though spills at storage areas are more frequent than elevated concentrations in field areas. The level of concern expressed by the regulatory agencies regarding the potential presence of pesticide residues has increased in the last few years, including the publication of a guidance document by the California Department of Toxic Substance Control [DTSC] concerning sampling of agricultural properties that are proposed to be developed as schools. That guidance document may become a basis for defining the "standard of care" for the evaluation of pesticide residues on agricultural land. Given our prior experience with pesticide residues and the increasing focus this issue has received by the regulatory agencies, we believe testing for the presence of OCP residues may appropriate for land that was in use for agriculture after the development of OCPs and prior to 1990, particularly if site usage changes to residential/schools.

7.0 SUMMARY AND CONCLUSIONS

This report presents the findings of the Phase I Environmental Site Assessment [ESA] conducted by Earth Systems Pacific [Earth Systems] for a site consisting of approximately 67.31 acres of currently undeveloped land located in Palmdale, California [the site]. We have endeavored to perform this ESA in general conformance with the scope and limitations of ASTM Practice E1527-

21. Exceptions to or deletions from this practice are described in Sections 1.5 and 1.6 of this report. The purpose of this assessment was to evaluate the site for the presence of Recognized Environmental Conditions [REC] related to the current or past use, handling, storage, or disposal of hazardous materials or petroleum products on or near the subject property. This assessment has revealed possible evidence of formal RECs in connection with this property presented below. Our findings and conclusions are summarized as follows:

1. AIN 3025-026-001 (at the southwest portion of the site) contains several potential environmental issues.
   a) At the southeast portion of the parcel at least 2 larger structures and several outbuildings existed from as early as 1928. A review of aerial photographs and owner interviews revealed the structures were removed by 2009 by permit. The structural debris was disposed of offsite according to permit. There was no evidence, according to the interview material ESP received, that any underground features such as USTs, septic systems, water wells, or underground piping existed. Currently one water well exists in this area. It is unknown if the well is abandoned properly. Currently that portion of the site has uneven ground and concrete piles. The former structures are not considered RECs but could be a geotechnical engineering concern.
   b) The structures in this area would have likely been painted with lead-based paint and asbestos used in the structures. The soil around the former structures could contain residues of lead-based paint, TPH, OCPs, and Heavy Metals. This is considered REC.
   c) The southwestern portion of the site contained a former irrigation sump pond. A review of aerial photographs reveals that the sump was constructed by 1968. Currently the sump has an unabandoned water well associated with it. Sumps commonly were locations where pesticides and other chemicals were mixed. Also, the sump was often a dumping pond for wastewater from the agricultural field. The soil in the sump and around the sump is considered a REC.

2. AIN 3025-026-001, AIN 3025-026-002, the western ¼ of AIN 3025-026-7 and AIN 3025-026-008 were used for agriculture since at least 1928. During that time OCPs were likely used. Trace amounts of these pesticides can still be present. This is considered a REC.

3. AIN 3025-026-001, AIN 3025-026-002, the western ¼ of AIN 3025-026-7 and AIN 3025-026-008 AINs have piles of uncompacted soil berm along the margin of the sites. A soil berm also is found on the south end of AIN 3025-026-011. There is no evidence of the source of these soil piles. These soil piles could have unknown materials dirt, gravel, rock, possible yard waste, and construction debris. The soil piles could contain asbestos, lead-based paint, TPH, OCPs, and heavy metals. This is considered an REC.

4. Evidence was found of concrete irrigation piping shallow below the surface on several locations on the site. It is undetermined where it is located. The concrete should be tested for presence of asbestos and heavy metals. Location and removal of the piping is more of a geotechnical engineering concern. The testing of the concrete piping is considered a REC.

5. Sites in the vicinity were not identified in the agency database review. The sites in the site vicinity do not appear to pose a risk to the subject site based on the status of those sites, the distance, or direction from the subject site, or the nature of the issue(s) at those sites.

8.0 RECOMMENDATIONS

Formal RECs were identified for this site. The following recommendations were made in points 1 through 4 above:

1) Several structures existed at the SE corner of AIN 3025-026-001. The structures existed as early as 1928 and were removed about 2009. It is recommended that the soils around where the buildings were located be tested for asbestos, TPH, OCPs, and Heavy Metals.

2) In the area of the structures there is some documentation as to how they were removed. It was reported that when the structures were removed in 2009, there was no evidence of underground features, such as septic tanks, USTs for fuel and water, buried water wells, (one water well is found in this area), underground piping and cellars for the buildings. It was reported that the demolition of the structures and removal of debris from site was done according to permit. However, if the possible presence of underground features are a concern, it is recommended that a geophysical survey, such as ground penetrating radar and metal detection, be conducted over this area to determine if any such features still exist. If these are found, then it is recommended that a soil gas probe survey and a shallow soil boring survey be done to collect possible evidence of contamination. This is not a REC.

3) The SW corner of AIN 3025-026-001 contains the remains of an agricultural sump. The soil around the sump and the soil in the bottom of the sump should be tested for OCPs, Heavy Metals, and TPH.

4) Two water wells are located in parcel AIN 3025-025-001. These wells should be abandoned according to County and State regulations.

5) AIN 3025-026-001, AIN 3025-026-002, the western ¼ of AIN 3025-026-7 and AIN 3025-026-008 were used for agriculture since at least 1928. During that time OCPs were likely used. It is recommended that the soils in the former agricultural potions of the fields be tested for OCPs and Heavy Metals.

6) AIN 3025-026-001, AIN 3025-026-002, the western ¼ of AIN 3025-026-7 and AIN 3025-026-008 AINs have piles of uncompacted soil berm along the margin of the sites. A soil berm also is found on the south end of AIN 3025-026-011. There is no evidence of the source of these soil piles. It is recommended that these soil piles be tested for asbestos, lead-based paint, TPH, OCPs, and heavy metals.

7) Cement concrete irrigation piping exists shallow below a unknow portion of the site. It is exposed in a few locations. It is recommended that a few samples of the concrete be tested for asbestos and heavy metals prior to removal from the site.

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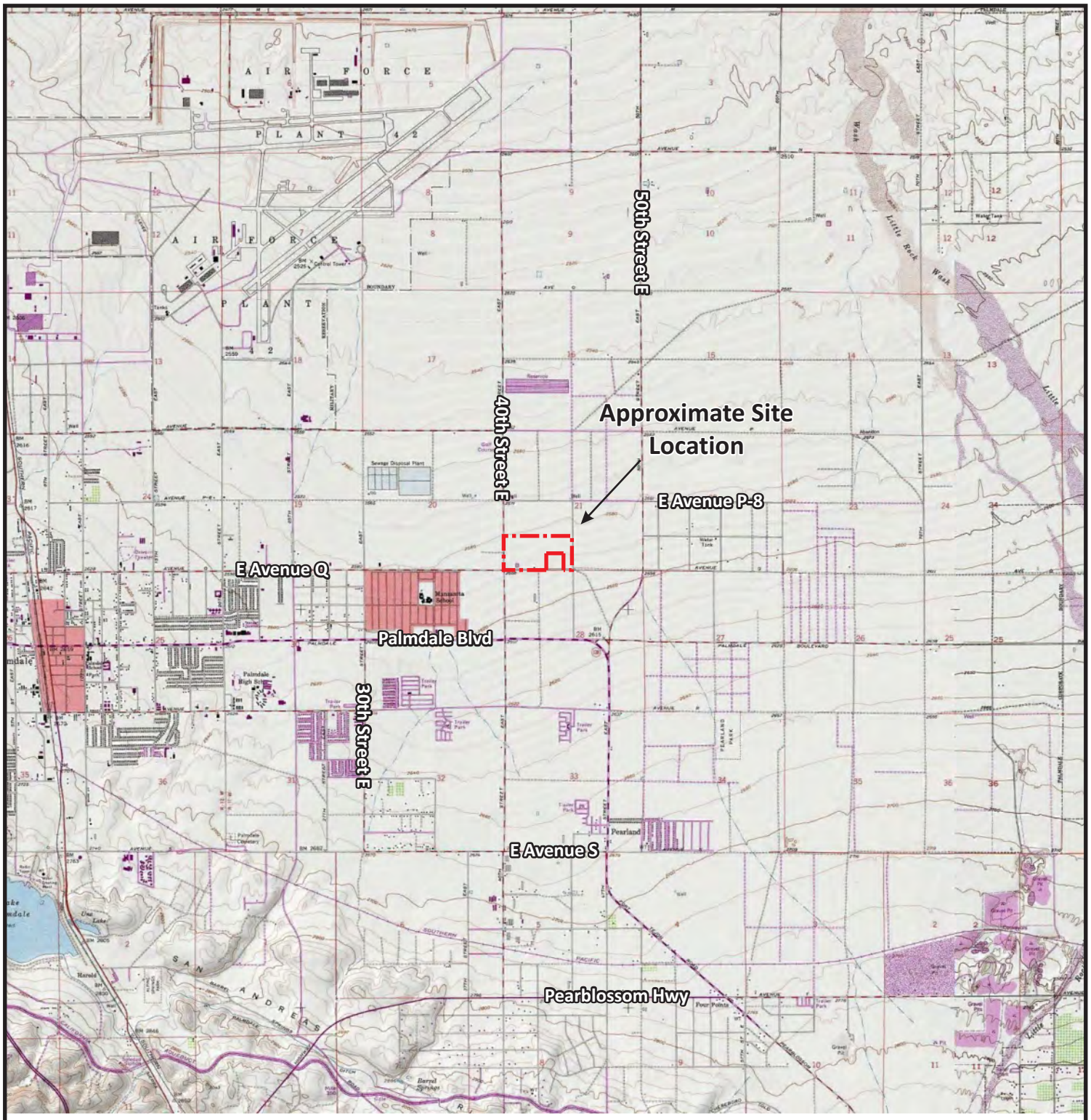
_____, County Office of the Assessor, *Property Details, AINs 3025-026-001, 002, 007, 008 and 011,* https://maps.assessor.lacounty.gov/m/, website accessed March 26, 2025.

United States Environmental Protection Agency, 2013, *40 CFR Part 312, Standards and Practices for All Appropriate Inquiries, Final Rule*, dated November 13, 2013.

United States Geologic Survey, 7.5 minute *Neenach School, CA* Quadrangle, 1995.

Appendix A

Figures



Base Map: USGS 7-1/2' Quadrangle, *La Liebre Ranch, CA,* 1995, *Neenach School, CA*, 1995.

LEGEND

Approximate Site Boundary

Approximate Scale: 1" = 1 Mile

0 1 Mile 2 Miles

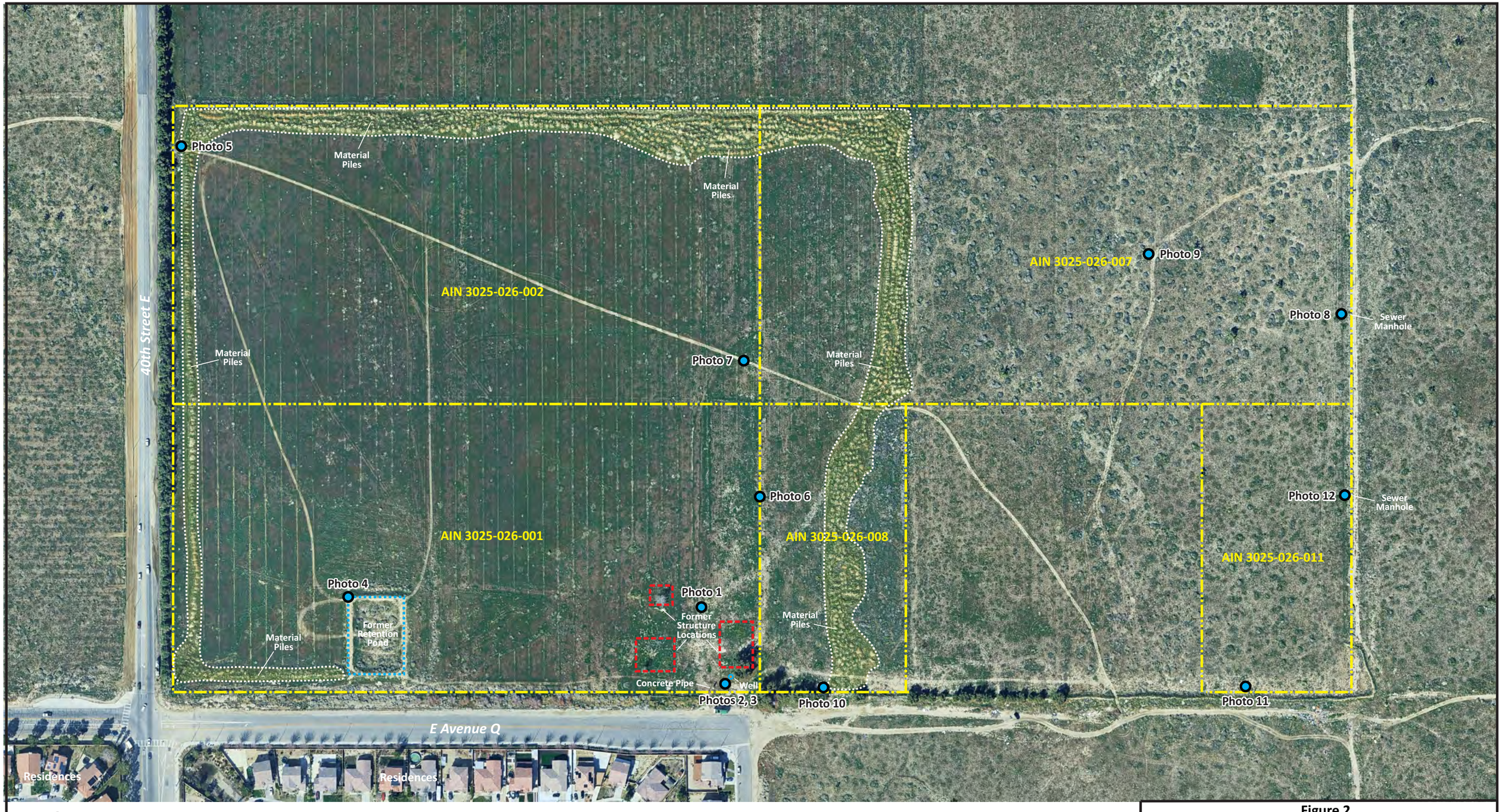
N

Figure 1
Site Location

AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

3/31/2025 | File No.: 307083-001



LEGEND

Approximate Site/AIN Boundaries

Photo 12 Photo Callout

Approximate Scale: 1" = 200’

0 200’ 400’

Reference: Google Earth, 2/14/2024.

Figure 2
Site Layout

AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

3/31/2025 | File No.: 307083-001

Appendix B

Photographs



Photo 1: View of concrete debris and uneven ground at site of former structures (AIN 3025-026-001).



Photo 2: View of water well nearby former structures (AIN 3025-026-001).



Photo 3: Approximate 12 ft high concrete irrigation riser (AIN 3025-026-001).



Photo 4: View of former irrigation sump pond looking south (AIN 3025-026-001).



Photo 5: View of non-Hazardous debris at tree-lined West boundary, looking south (AIN 3025-026-002).



Photo 6. View of concrete pipe at ground level surrounded by metal chain-link fence (AIN 3025-026-002).



Photo 7: View of exposed underground concrete pipe (AIN 3025-026-002).



Photo 8: View of sewer manhole with concrete debris (AIN 3025-026-007).



Photo 9: View of plastic and tires debris (AIN 3025-026-007).



Photo 10: View of concrete debris on edge of 4-ft high berm (AIN 3025-026-008).



Photo 11: View looking east of soil berm (AIN 3025-026-011).



Photo 12: Sewer manhole cover (AIN 3025-026-011).

Appendix C

Agency Database Search Report

DATABASE REPORT

Project Property:	*Approximately 67 Acres* *AINs 3025-026-001, 002, 007, 008 and 011* *Palmdale CA*
Project No:	*307083-001*
Report Type:	*Database Report*
Order No:	*25022000906*
Requested by:	*Earth Systems Pacific*
Date Completed:	*February 21, 2025*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property:		*Approximately 67 Acres* *AINs 3025-026-001, 002, 007, 008 and 011 Palmdale CA*
Project No:		*307083-001*
Coordinates:		
	Latitude:	*34.58947256*
	Longitude:	*-118.05432971*
	UTM Northing:	*3,828,023.73*
	UTM Easting:	*403,310.68*
	UTM Zone:	*11S*
Elevation:		*2,588 FT*

Order Information:

Order No:	*25022000906*
Date Requested:	*February 20, 2025*
Requested by:	*Earth Systems Pacific*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (with Project Boundaries)*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	**2**	-	-	**2**
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	0	0	0	0	0
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
SWRCB SWF	Y	0.5	0	0	0	0	-	0
WMUD	Y	0.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	0.5	0	0	0	0	-	0
C&D DEBRIS RECY	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
PROCESSORS	Y	0.5	0	0	0	0	-	0
CONTAINER RECY	Y	0.5	0	0	0	0	-	0
LDS	Y	0.5	0	0	0	0	-	0
LUST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
UST CLOSURE	Y	0.5	0	0	0	0	-	0
HHSS	Y	0.25	0	0	0	-	-	0
UST SWEEPS	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
AST SWRCB	Y	0.25	0	0	0	-	-	0
TANK OIL GAS	Y	0.25	0	0	0	-	-	0
DELISTED TNK	Y	0.25	0	0	0	-	-	0
CERS TANK	Y	0.25	0	0	0	-	-	0
DELISTED CTNK	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	0	-	-	0
LUR	Y	0.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
CALSITES	Y	0.5	0	0	0	0	-	0
HLUR	Y	0.5	0	0	0	0	-	0
DEED	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
CLEANUP SITES	Y	0.5	0	0	0	0	-	0
DELISTED CLEANUP	Y	0.5	0	0	0	0	-	0
DELISTED COUNTY	Y	0.25	0	0	0	-	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0
County								
SML LA	Y	0.5	0	0	0	0	-	0
SWF LA COUNTY	Y	0.5	0	0	0	0	-	0
CUPA LA COUNTY	Y	0.25	0	0	0	-	-	0
HMS LA	Y	0.25	0	0	0	-	-	0
AOCONCERN	Y	0.5	0	0	0	0	-	0
UST SANTAFESP	Y	0.25	0	0	0	-	-	0
UST LONGB	Y	0.25	0	0	0	-	-	0
CUPA BURBANK	Y	0.25	0	0	0	-	-	0
UST ELSEGUNDO	Y	0.25	0	0	0	-	-	0
UST SANTA MONICA	Y	0.25	0	0	0	-	-	0
AST SANTAMON	Y	0.25	0	0	0	-	-	0
CUPA SANTAMON	Y	0.25	0	0	0	-	-	0
UST TORRANCE	Y	0.25	0	0	0	-	-	0
UST VERNON	Y	0.25	0	0	0	-	-	0
CUPA VERNON	Y	0.25	0	0	0	-	-	0
UST LA CITY	Y	0.25	0	0	0	-	-	0
AST LA CITY	Y	0.25	0	0	0	-	-	0
HAZMAT LA CITY	Y	0.125	0	0	-	-	-	0
Additional Environmental Records								
Federal								
PFAS GHG	Y	0.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
OSC RESPONSE	Y	0.125	0	0	-	-	-	0
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
PFAS ERNS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	0	**2**	0	-	**2**
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
LM SITES	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
POWER PLANTS	Y	0.125	0	0	-	-	-	0
State								
PFAS SAMPLING	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DRYC GRANT	Y	0.25	0	0	0	-	-	0
PFAS GT CLEANUPS	Y	0.5	0	0	0	0	-	0
PFAS GW	Y	0.5	0	0	0	**1**	-	**1**
PFAS INVEST	Y	0.5	0	0	0	0	-	0
HWSS CLEANUP	Y	0.5	0	0	0	0	-	0
TOXIC PITS	Y	1	0	0	0	0	0	0
DTSC HWF	Y	0.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	**2**	**2**
SCH	Y	1	0	0	0	0	0	0
CHMIRS	Y	PO	0	-	-	-	-	0
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HAZNET	Y	PO	0	-	-	-	-	0
HAZ GEN	Y	PO	0	-	-	-	-	0
HAZ TSD	Y	0.5	0	0	0	0	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HW TRANSPORT	Y	0.125	0	0	-	-	-	0
WASTE TIRE	Y	PO	0	-	-	-	-	0
MEDICAL WASTE	Y	0.25	0	0	0	-	-	0
HIST CORTESE	Y	0.5	0	0	0	0	-	0
CDO/CAO	Y	0.5	0	0	0	0	-	0
CERS HAZ	Y	0.125	0	0	-	-	-	0
DELISTED HAZ	Y	0.5	0	0	0	0	-	0
GEOTRACKER	Y	0.125	0	0	-	-	-	0
MINE	Y	1	0	0	0	0	0	0
LIEN	Y	PO	0	-	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
WASTE DISCHG	Y	0.25	0	0	0	-	-	0
EMISSIONS	Y	0.25	0	0	0	-	-	0
CDL	Y	0.125	0	0	-	-	-	0
Tribal								
No Tribal additional environmental record sources available for this State.								
County								
HAZMAT SANTAMON	Y	0.125	0	0	-	-	-	0
HAZ WST SANTAMON	Y	0.125	0	0	-	-	-	0
Total:			0	0	**4**	**1**	**2**	**7**

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	PFAS IND	TGJ TRANSPORT	PALMDALE CA	S	0.16 / 856.29	9	19
2	PFAS IND	EDUARDO RUIZ RUIZ TRUCKING	PALMDALE CA	WSW	0.16 / 861.72	3	19
3	RCRA NON GEN	EDUARDO RUIZ RUIZ TRUCKING	38733 ROMA CT PALMDALE CA 93550	WSW	0.18 / 924.39	3	20
			EPA Handler ID | Recycler Activity?: CAR000183541 | NO				
4	RCRA NON GEN	TGJ TRANSPORT	4146 BOLTON AVE PALMDALE CA 93552	S	0.18 / 939.98	10	22
			EPA Handler ID | Recycler Activity?: CAR000180877 | NO				
5	PFAS GW		CA	E	0.50 / 2,625.83	2	23
6	INSP COMP ENF	VRZ TRANSPORTATION LLC	38651 FRONTIER AVE PALMDALE CA 93550	W	0.99 / 5,241.53	2	33
6	INSP COMP ENF	V & T TRUCKING	38651 FRONTIER AVE PALMDALE CA 93550	W	0.99 / 5,241.53	2	34

Executive Summary: Summary by Data Source

Standard

Federal

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Oct 21, 2024 has found that there are 2 RCRA NON GEN site(s) within approximately 0.25miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
EDUARDO RUIZ RUIZ TRUCKING	38733 ROMA CT PALMDALE CA 93550	WSW	0.18 / 924.39	3
	***EPA Handler ID	Recycler Activity?**: CAR000183541	NO*		
TGJ TRANSPORT	4146 BOLTON AVE PALMDALE CA 93552	S	0.18 / 939.98	4
	***EPA Handler ID	Recycler Activity?**: CAR000180877	NO*		

Non Standard

Federal

PFAS IND - PFAS Industry Sectors

A search of the PFAS IND database, dated Dec 16, 2024 has found that there are 2 PFAS IND site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
TGJ TRANSPORT	PALMDALE CA	S	0.16 / 856.29	1
EDUARDO RUIZ RUIZ TRUCKING	PALMDALE CA	WSW	0.16 / 861.72	2

State

PFAS GW - PFOA/PFOS Groundwater

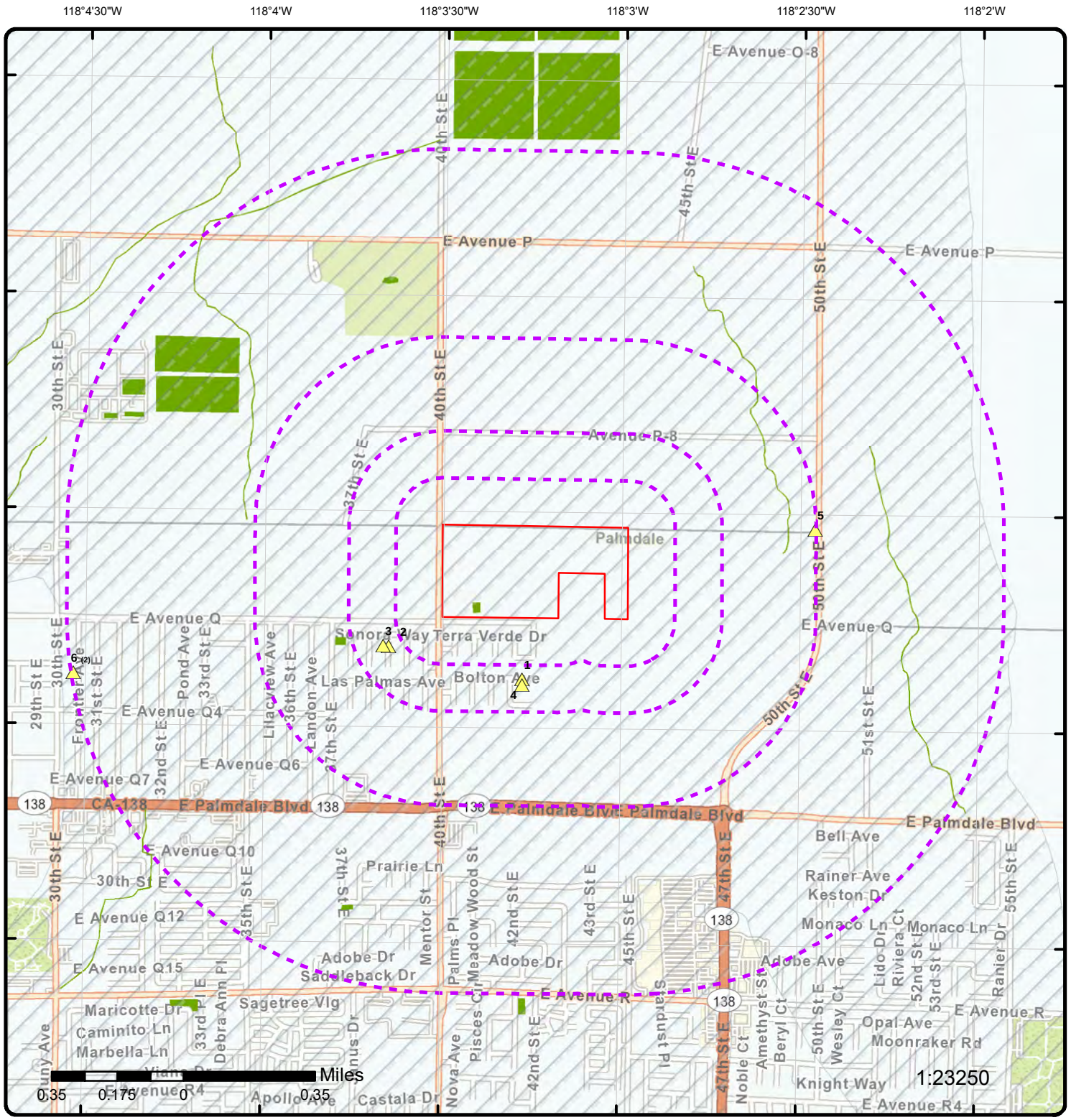
A search of the PFAS GW database, dated Dec 1, 2024 has found that there are 1 PFAS GW site(s) within approximately 0.50miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	CA	E	0.50 / 2,625.83	5

INSP COMP ENF - EnviroStor Inspection, Compliance, and Enforcement

A search of the INSP COMP ENF database, dated Nov 23, 2023 has found that there are 2 INSP COMP ENF site(s) within approximately 1.00miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
VRZ TRANSPORTATION LLC	38651 FRONTIER AVE PALMDALE CA 93550	W	0.99 / 5,241.53	6
V & T TRUCKING	38651 FRONTIER AVE PALMDALE CA 93550	W	0.99 / 5,241.53	6



Map: 1.0 Mile Radius

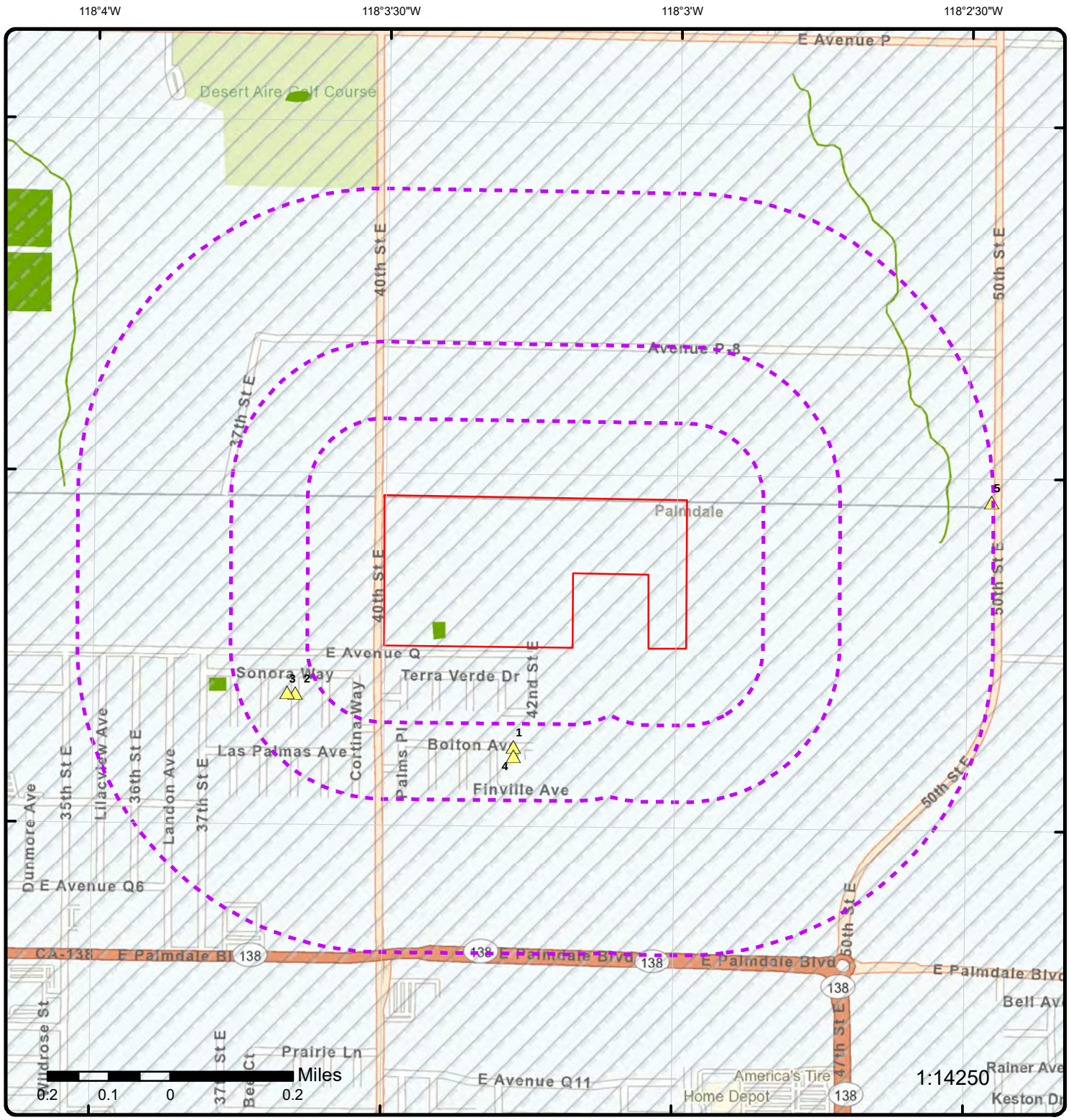
Order Number: 25022000906

Address: AINs 3025-026-001, 002, 007, 008 and 011, Palmdale, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

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Map: 0.5 Mile Radius

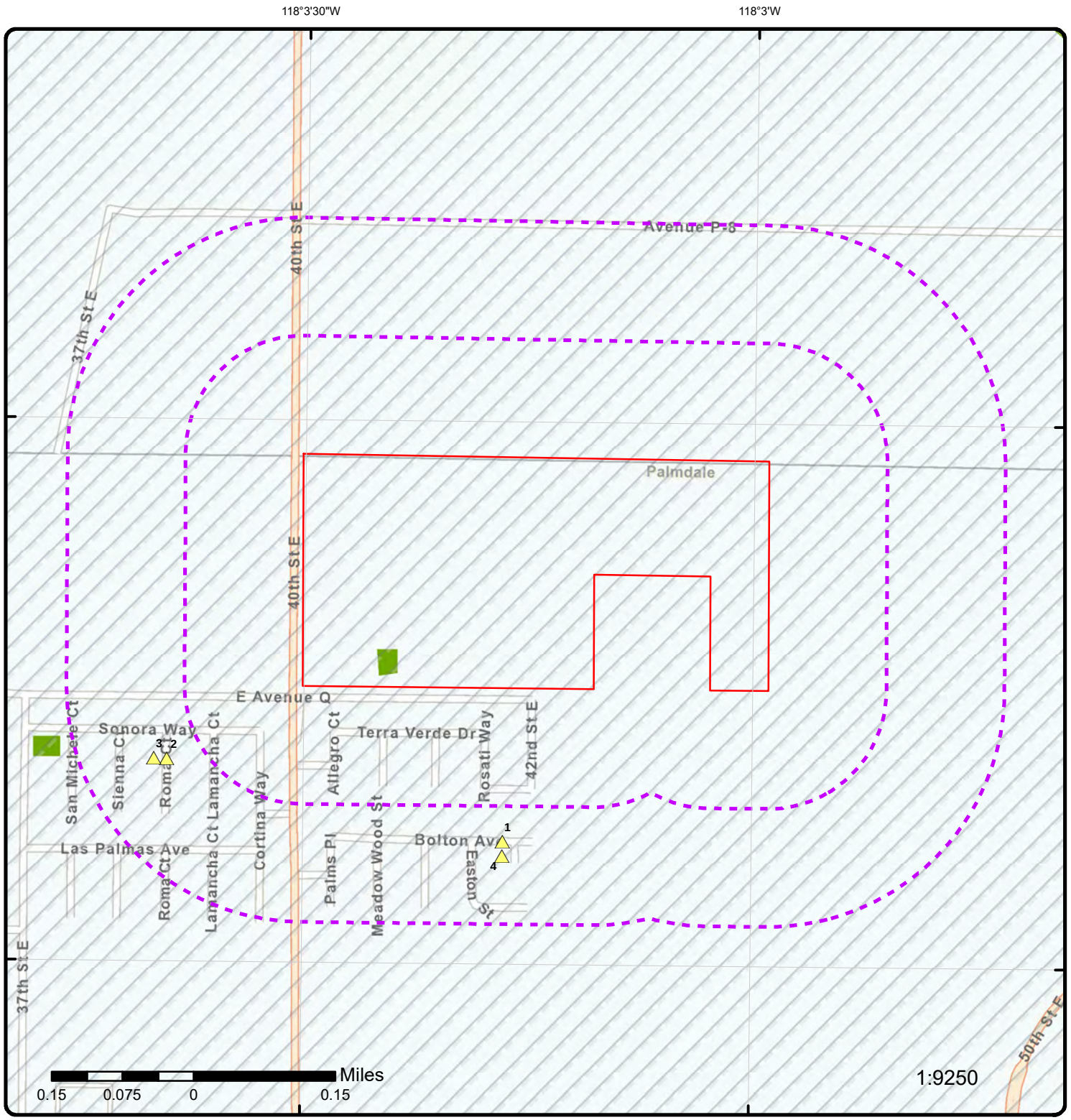
Order Number: 25022000906

Address: AINs 3025-026-001, 002, 007, 008 and 011, Palmdale, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

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Map: 0.25 Mile Radius

Order Number: 25022000906

Address: AINs 3025-026-001, 002, 007, 008 and 011, Palmdale, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

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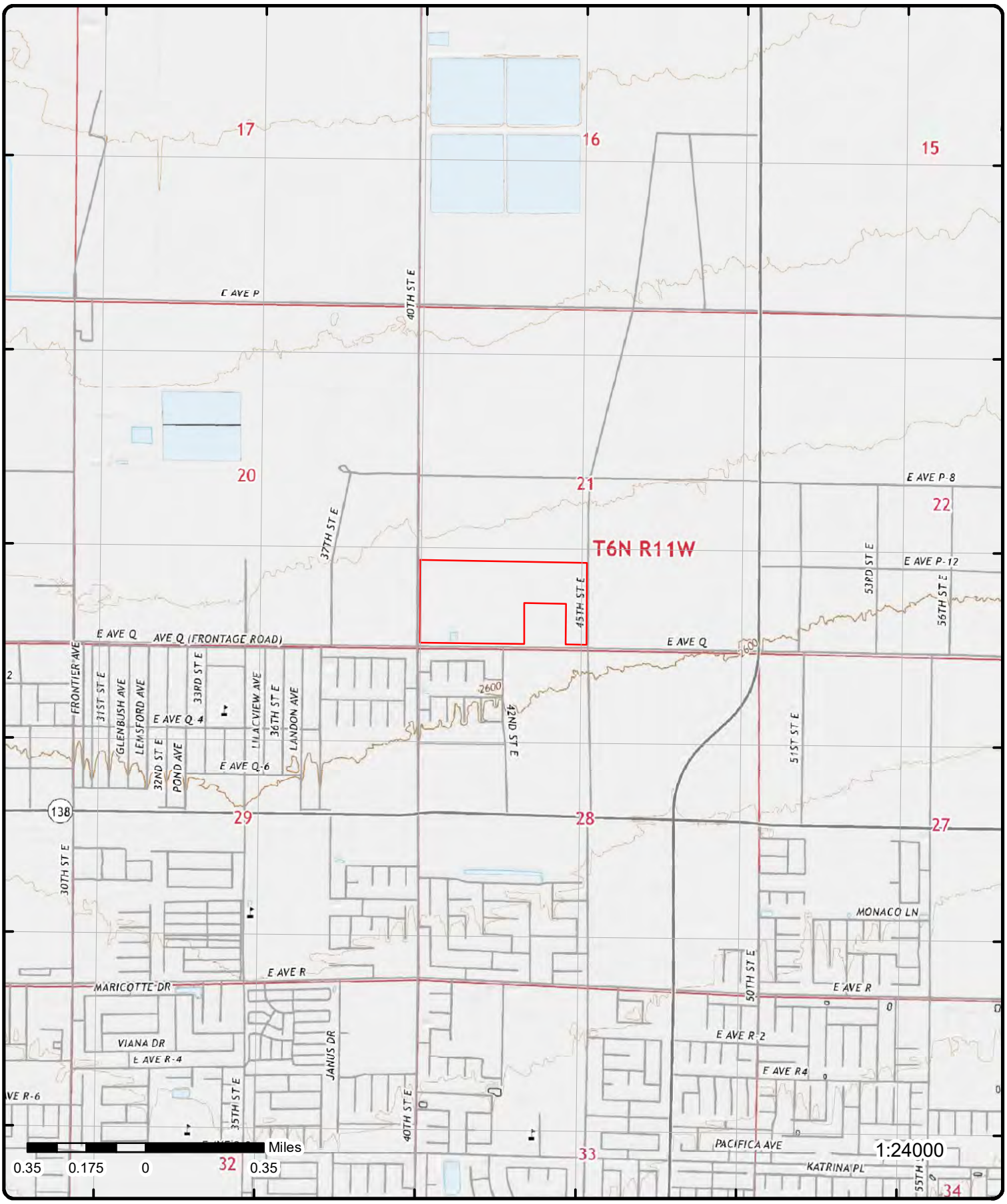
Aerial **Year: 2024**

Order Number: 25022000906

Address: AINs 3025-026-001, 002, 007, 008 and 011, Palmdale, CA

Source: ESRI World Imagery

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Topographic Map

Year: 2021

Order Number: 25022000906

Address: AINs 3025-026-001, 002, 007, 008 and 011, CA

Quadrangle(s): Palmdale CA

Source: USGS Topographic Map

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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of1	S	0.16 / 856.29	2,597.71 / 9	TGJ TRANSPORT PALMDALE CA	PFAS IND

Status:	Active	**Fac Fips Code:**	06037
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified
Fac Derived Huc:	18090206	**EPA Programs:**	RCRA
Fac Derived Wbd:	180902061501	**Federal Facility:**	No
Fac Derived Cd113:	25	**Federal Agency:**	-
Fac Derived Cb2010:	060379101011094	**Fac Snc Flg:**	No
Fac Informal Count:	0	**AIR Flag:**	No
Last Informal Action:	-	**NPDES Flag:**	No
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	-	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	No
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	-	**TRI IDs:**	-
Last Penalty Amt:	-	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	83.045	**TRI Reporter:**	-
Fac Pop Den:	2906.5	**Fac Imp Water Flg:**	-
Count:	1	**Fac Major Flag:**	-
Fac County:	LOS ANGELES	**Fac Active Flag:**	Yes
State Other :		**Fac Inspection Count:**	0
Region:	09	**Date Last Inspection:**	-
Latitude:	34.58522	**Days Last Inspection:**	-
Longitude:	-118.05459		

Fac Derived Tribes:	-
AIR IDs:	-
CAA Permit Types:	-
CAA NAICS:	-
CAA SICS:	-
NPDES IDs:	-
CWA Permit Types:	-
CWA NAICS:	-
CWA SICS:	-
RCRA IDs:	CAR000180877
RCRA Permit Types:	Transporter
RCRA NAICS:	562111 562112
SDWA IDs:	-
SDWA System Types:	-
SDWA Compliance Status:	-
SDWA Snc Flag:	No
Fac Collection Meth:	ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:	Yes
EJSCREEN Report:	https://ejscreen.epa.gov/mapper/mobile/EJSCREEN_mobile.aspx?geometry=%7B%22x%22:-118.05459,%22y%22:34.58522,%22spatialReference%22:%7B%22wkid%22:4326%7D%7D&unit=9035&areatype=&areaid=&basemap=streets&distance=1
ECHO Facility Report:	https://echo.epa.gov/detailed-facility-report?fid=110031426080
Industry:	Waste Management

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of1	WSW	0.16 / 861.72	2,591.36 / 3	EDUARDO RUIZ RUIZ TRUCKING PALMDALE CA	PFAS IND

Status:	Active	**Fac Fips Code:**	06037
Fac Indian Cntry Flg:	No	**Compliance Status:**	No Violation Identified

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Fac Derived Huc:	18090206	**EPA Programs:**	RCRA
Fac Derived Wbd:	180902061501	**Federal Facility:**	No
Fac Derived Cd113:	25	**Federal Agency:**	-
Fac Derived Cb2010:	060379106013015	**Fac Snc Flg:**	No
Fac Informal Count:	0	**AIR Flag:**	No
Last Informal Action:	-	**NPDES Flag:**	No
Formal Action Count:	0	**SDWIS Flag:**	No
Last Formal Action:	-	**RCRAFlag:**	Yes
Fac Total Penalties:	0	**TRI Flag:**	No
Fac Penalty Count:	-	**GHG Flag:**	No
Date Last Penalty:	-	**TRI IDs:**	-
Last Penalty Amt:	-	**TRI Releases Trnsfrs:**	-
Fac Qtrs With Nc:	0	**TRI on Site Releases:**	-
Programs With Snc:	0	**TRI off Site Trnsfrs:**	-
Fac Percent Minority:	83.084	**TRI Reporter:**	-
Fac Pop Den:	3042.67	**Fac Imp Water Flg:**	-
Count:	1	**Fac Major Flag:**	-
Fac County:	LOS ANGELES	**Fac Active Flag:**	Yes
State Other :		**Fac Inspection Count:**	0
Region:	09	**Date Last Inspection:**	-
Latitude:	34.58644	**Days Last Inspection:**	-
Longitude:	-118.06084		

Fac Derived Tribes:	-
AIR IDs:	-
CAA Permit Types:	-
CAA NAICS:	-
CAA SICS:	-
NPDES IDs:	-
CWA Permit Types:	-
CWA NAICS:	-
CWA SICS:	-
RCRA IDs:	CAR000183541
RCRA Permit Types:	Transporter
RCRA NAICS:	562112
SDWA IDs:	-
SDWA System Types:	-
SDWA Compliance Status:	-
SDWA Snc Flag:	No
Fac Collection Meth:	ADDRESS MATCHING-HOUSE NUMBER
EJSCREEN Flag Us:	Yes
EJSCREEN Report:	https://ejscreen.epa.gov/mapper/mobile/EJSCREEN_mobile.aspx?geometry=%7B%22x%22:-118.06084,%22y%22:34.58644,%22spatialReference%22:%7B%22wkid%22:4326%7D%7D&unit=9035&areatype=&areaid=&basemap=streets&distance=1
ECHO Facility Report:	https://echo.epa.gov/detailed-facility-report?fid=110031355307
Industry:	Waste Management

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of1	WSW	0.18 / 924.39	2,591.16 / 3	EDUARDO RUIZ RUIZ TRUCKING 38733 ROMA CT PALMDALE CA 93550	RCRA NON GEN

EPA Handler ID:	CAR000183541
Gen Status Universe:	No Report
Contact Name:	EDUARDO RUIZ
Contact Address:	38733 ROMA CT , , PALMDALE , CA, 93550 , US
Contact Phone No and Ext:	661-810-9408
Contact Email:	ELCHIVAS63@YAHOO.COM
Contact Country:	US
County Name:	LOS ANGELES
EPA Region:	09
Land Type:	Private
Receive Date:	20121211
Location Latitude:	34.586451
Location Longitude:	-118.060866
Recycler Activity?:	NO
Recycler Activity Note:	This facility has no indication of Recycling Activity.

Violation/Evaluation Summary

Note: NO RECORDS: As of Oct 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No
Recycler Activity:	No
Recycler Activity Without Storage:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20070420
Handler Name:	EDUARDO H RUIZ RUIZ TRUCKING
Source Type:	Notification
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Hazardous Waste Handler Details

Sequence No:	2
Receive Date:	20121211
Handler Name:	EDUARDO RUIZ RUIZ TRUCKING
Source Type:	Notification
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	38733 ROMA CT
Name:	ALFREDO ALVARADO	***Street 2:***	
Date Became Current:	20080501	***City:***	PALMDALE
Date Ended Current:		***State:***	CA
Phone:	661-810-9408	***Country:***	US
Source Type:	Notification	***Zip Code:***	93550
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	37748 SWEETBRUSH ST
Name:	EDUARDO H RUIZ	***Street 2:***	
Date Became Current:	19961001	***City:***	PALMDALE
Date Ended Current:		***State:***	CA
Phone:		***Country:***	US
Source Type:	Notification	***Zip Code:***	93552
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Name:	EDUARDO H RUIZ	**Street 2:**	
Date Became Current:	19961001	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Notification	**Zip Code:**	
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	EDUARDO RUIZ	**Street 2:**	
Date Became Current:	20070101	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	US
Source Type:	Notification	**Zip Code:**	

Historical Handler Details

Receive Dt:	20070420
Generator Code Description:	Not a Generator, Verified
Handler Name:	EDUARDO H RUIZ RUIZ TRUCKING

4	1 of1	S	0.18 / 939.98	2,598.64 / 10	**TGJ TRANSPORT** **4146 BOLTON AVE** **PALMDALE CA 93552**	**RCRA NON GEN**

EPA Handler ID:	CAR000180877
Gen Status Universe:	No Report
Contact Name:	SALVADOR G CLAROS
Contact Address:	4146 BOLTON AVE , , PALMDALE , CA, 93552 , US
Contact Phone No and Ext:	818-523-0094
Contact Email:	
Contact Country:	US
County Name:	LOS ANGELES
EPA Region:	09
Land Type:	Private
Receive Date:	20070123
Location Latitude:	34.585198
Location Longitude:	-118.054587
Recycler Activity?:	NO
Recycler Activity Note:	This facility has no indication of Recycling Activity.

Violation/Evaluation Summary

Note:	NO RECORDS: As of Oct 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No
Recycler Activity:	No
Recycler Activity Without Storage:	No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20070123
Handler Name:	TGJ TRANSPORT
Source Type:	Notification
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	
Name:	SALVADOR G CLAROS	***Street 2:***	
Date Became Current:	20070119	***City:***	
Date Ended Current:		***State:***	
Phone:		***Country:***	
Source Type:	Notification	***Zip Code:***	
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	4146 BOLTON AVE
Name:	SALVADOR G CLAROS	***Street 2:***	
Date Became Current:	20070119	***City:***	PALMDALE
Date Ended Current:		***State:***	CA
Phone:		***Country:***	US
Source Type:	Notification	***Zip Code:***	93552

5	*1 of1*	*E*	*0.50 / 2,625.83*	*2,590.69 / 2*		***PFAS GW***
				CA		

Well ID:	WDR100030237-MW-01	***SRS Latitude:***	34.591113
Gm Dataset Name:	WB_CLEANUP	***SRS Longitude:***	-118.04097400000001
Gm Data Source:	GeoTracker	***Latitude:***	34.591113
Gm Well Category:	Monitoring	***Longitude:***	-118.04097400000001
SRS Datum:	NAD83		
Gm Altwell Id1:	MW-01		
Gm Altwell Id2:			
Gm Altwell Id3:			

Well Details

Gm Cas No:		***SRC Chemical:***	4:2FTS
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	4:2FTS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	4:2 Fluorotelomer sulfonic acid (1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid) (4:2 FTS)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:
Gm Result: 2.03
Gm Result Modifier: =
Gm Chemical Units: NG/L
Gm Chemical Vvl: PFNDCA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorodecanoic acid (PFDA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Analysis Date:
SRC Well Category:
SRC Chemical: PFNDCA
SRC Result: 2.03
SRC Result Modifie: =
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 8
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: MEFOSE
Gm Reporting Limit: 8
Gm Well Depth Ft:
Gm Chemical Name: N-Methyl perfluorooctane sulfonamide ethanol (MeFOSE)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:
SRC Chemical: MEFOSE
SRC Result: 8
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 8
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 2
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: 11ClPF3OUDS
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:
SRC Chemical: 11ClPF3OUDS
SRC Result: 2
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
SRC Chemical: PFHA

Gm Result:	10.5	**SRC Result:**	10.5
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFHA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorohexanoic acid (PFHxA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFBSA
Gm Result:	2.13	**SRC Result:**	2.13
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFBSA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorobutane sulfonic acid (PFBS)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFNA
Gm Result:	13.6	**SRC Result:**	13.6
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFNA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorononanoic acid (PFNA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFPA
Gm Result:	9.94	**SRC Result:**	9.94
Gm Result Modifier:	=	**SRC Result Modifie:**	=

Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFPA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluoropentanoic acid (PFPeA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFTEDA
Gm Result:	2	**SRC Result:**	2
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFTEDA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorotetradecanoic acid (PFTeDA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	ETFOSA
Gm Result:	8	**SRC Result:**	8
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	ETFOSA	**SRC Report Limit:**	8
Gm Reporting Limit:	8	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	N-Ethyl perfluorooctane sulfonamide (EtFOSA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFHXSA
Gm Result:	2.78	**SRC Result:**	2.78
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFHXSA	**SRC Report Limit:**	2

Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorohexanesulfonic acid (PFHxS)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:			
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		***SRC Chemical:***	PFOS
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	PFOS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	Perfluorooctane sulfonate (PFOS)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		***SRC Chemical:***	MEFOSA
Gm Result:	8	***SRC Result:***	8
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	MEFOSA	***SRC Report Limit:***	8
Gm Reporting Limit:	8	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	
Gm Chemical Name:	N-Methyl perfluorooctane sulfonamide (MeFOSA)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		***SRC Chemical:***	NMEFOSAA
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	NMEFOSAA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name:	N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
Gm Samp Collection Date:	05/18/2021
Gm Screen Top Depth Ft:	
Gm Screen Bottom Depth Ft:	
SRC Samp Collection Date:	05/18/2021
SRC Samp Collection Time:	1012
SRC Screen Top Depth Ft:	
SRC Screen Bottom Depth Ft:	
SRC Lab Note:	U
SRC Analysis Date:	
SRC Well Category:	

Well Details

Gm Cas No:		**SRC Chemical:**	PFDSA
Gm Result:	2.75	**SRC Result:**	2.75
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFDSA	**SRC Report Limit:**	2.75
Gm Reporting Limit:	2.75	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorodecane sulfonic acid (PFDS)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	ETFOSE
Gm Result:	8	**SRC Result:**	8
Gm Result Modifier:	ND	**SRC Result Modifie:**	ND
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	ETFOSE	**SRC Report Limit:**	8
Gm Reporting Limit:	8	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	N-Ethyl perfluorooctane sulfonamide ethanol (EtFOSE)		
Gm Samp Collection Date:	05/18/2021		
Gm Screen Top Depth Ft:			
Gm Screen Bottom Depth Ft:			
SRC Samp Collection Date:	05/18/2021		
SRC Samp Collection Time:	1012		
SRC Screen Top Depth Ft:			
SRC Screen Bottom Depth Ft:			
SRC Lab Note:	U		
SRC Analysis Date:			
SRC Well Category:			

Well Details

Gm Cas No:		**SRC Chemical:**	PFBTA
Gm Result:	4.01	**SRC Result:**	4.01
Gm Result Modifier:	=	**SRC Result Modifie:**	=
Gm Chemical Units:	NG/L	**Src Chemical Units:**	NG/L
Gm Chemical Vvl:	PFBTA	**SRC Report Limit:**	2
Gm Reporting Limit:	2	**SRC Analytic Meth:**	QSMPFAS
Gm Well Depth Ft:		**SRC Well Depth Ft:**	
Gm Chemical Name:	Perfluorobutyric acid (PFBA)		
Gm Samp Collection Date:	05/18/2021		

Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:
Gm Result: 10.2
Gm Result Modifier: =
Gm Chemical Units: NG/L
Gm Chemical Vvl: PFUNDCA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroundecanoic acid (PFUnDA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Analysis Date:
SRC Well Category:
SRC Chemical: PFUNDCA
SRC Result: 10.2
SRC Result Modifie: =
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 2.5
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: PFHPSA
Gm Reporting Limit: 2.5
Gm Well Depth Ft:
Gm Chemical Name: Perfluoroheptane sulfonic acid (PFHpS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:
SRC Chemical: PFHPSA
SRC Result: 2.5
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2.5
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 2
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: ADONA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Chemical: ADONA
SRC Result: 2
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No: ***SRC Chemical:*** PFHPA
Gm Result: 3.36 ***SRC Result:*** 3.36
Gm Result Modifier: = ***SRC Result Modifie:*** =
Gm Chemical Units: NG/L ***Src Chemical Units:*** NG/L
Gm Chemical Vvl: PFHPA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluoroheptanoic acid (PFHpA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note:
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No: ***SRC Chemical:*** HFPA-DA
Gm Result: 2 ***SRC Result:*** 2
Gm Result Modifier: ND ***SRC Result Modifie:*** ND
Gm Chemical Units: NG/L ***Src Chemical Units:*** NG/L
Gm Chemical Vvl: HFPA-DA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: 2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) propanoic acid (HFPO-DA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No: ***SRC Chemical:*** PFDOA
Gm Result: 2 ***SRC Result:*** 2
Gm Result Modifier: ND ***SRC Result Modifie:*** ND
Gm Chemical Units: NG/L ***Src Chemical Units:*** NG/L
Gm Chemical Vvl: PFDOA ***SRC Report Limit:*** 2
Gm Reporting Limit: 2 ***SRC Analytic Meth:*** QSMPFAS
Gm Well Depth Ft: ***SRC Well Depth Ft:***
Gm Chemical Name: Perfluorododecanoic acid (PFDoDA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012

SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:
Gm Result: 2
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: PFTRIDA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorotridecanoic acid (PFTrDA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:
SRC Chemical: PFTRIDA
SRC Result: 2
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 2.25
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: 8:2FTS
Gm Reporting Limit: 2.25
Gm Well Depth Ft:
Gm Chemical Name: 8:2 Fluorotelomer sulfonic acid (1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid) (8:2 FTS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:
SRC Chemical: 8:2FTS
SRC Result: 2.25
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2.25
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

Well Details

Gm Cas No:
Gm Result: 2
Gm Result Modifier: ND
Gm Chemical Units: NG/L
Gm Chemical Vvl: PFOSA
Gm Reporting Limit: 2
Gm Well Depth Ft:
Gm Chemical Name: Perfluorooctane sulfonamide (PFOSAm)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Chemical: PFOSA
SRC Result: 2
SRC Result Modifie: ND
Src Chemical Units: NG/L
SRC Report Limit: 2
SRC Analytic Meth: QSMPFAS
SRC Well Depth Ft:

SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:		***SRC Chemical:***	PFPES
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	PFPES	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: Perfluoropentane sulfonoic acid (PFPeS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:		***SRC Chemical:***	NETFOSAA
Gm Result:	2.62	***SRC Result:***	2.62
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	NETFOSAA	***SRC Report Limit:***	2.62
Gm Reporting Limit:	2.62	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:		***SRC Chemical:***	9ClPF3ONS
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	9ClPF3ONS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

SRC Well Category:

Well Details

Gm Cas No:		***SRC Chemical:***	PFOA
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	PFOA	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: Perfluorooctanoic acid (PFOA)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Well Details

Gm Cas No:		***SRC Chemical:***	6:2FTS
Gm Result:	2	***SRC Result:***	2
Gm Result Modifier:	ND	***SRC Result Modifie:***	ND
Gm Chemical Units:	NG/L	***Src Chemical Units:***	NG/L
Gm Chemical Vvl:	6:2FTS	***SRC Report Limit:***	2
Gm Reporting Limit:	2	***SRC Analytic Meth:***	QSMPFAS
Gm Well Depth Ft:		***SRC Well Depth Ft:***	

Gm Chemical Name: 6:2 Fluorotelomer sulfonic acid (1H,1H,2H,2H-Perfluorooctanesulfonic acid) (6:2 FTS)
Gm Samp Collection Date: 05/18/2021
Gm Screen Top Depth Ft:
Gm Screen Bottom Depth Ft:
SRC Samp Collection Date: 05/18/2021
SRC Samp Collection Time: 1012
SRC Screen Top Depth Ft:
SRC Screen Bottom Depth Ft:
SRC Lab Note: U
SRC Analysis Date:
SRC Well Category:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	1 of2	W	0.99 / 5,241.53	2,590.15 / 2	VRZ TRANSPORTATION LLC 38651 FRONTIER AVE PALMDALE CA 93550	INSP COMP ENF

EPA ID: CAL000460142
County: LOS ANGELES
Geotracker Address:
Geotracker Lat:
Geotracker City:
Geotracker Long:
Report URL: https://www.envirostor.dtsc.ca.gov/public/eerp_profile_report?global_id=3004767

Inspection Information

Inspection Type: Compliance Evaluation Inspection - Transporter
Violations: No Violations
Inspection Date: 6/27/2022
Return to Compliance:
Report Sent Date: 6/27/2022

Site Details (Download)

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Envirostor ID: 3004767 **Status:** No Action
Site Type: INSPECTION

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	2 of2	W	0.99 / 5,241.53	2,590.15 / 2	V & T TRUCKING 38651 FRONTIER AVE PALMDALE CA 93550	INSP COMP ENF

EPA ID: CAR000183632 **County:** LOS ANGELES
Geotracker Address: **Geotracker Lat:**
Geotracker City: **Geotracker Long:**
Report URL: https://www.envirostor.dtsc.ca.gov/public/eerp_profile_report?global_id=3003892

Inspection Information

Inspection Type: Compliance Evaluation Inspection - Transporter
Violations: No Violations
Inspection Date: 7/31/2023
Return to Compliance:
Report Sent Date: 8/21/2023

Site Details (Download)

Envirostor ID: 3003892 **Status:** No Action
Site Type: INSPECTION

Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID

No unplottable records were found that may be relevant for the search criteria.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

The U.S. Environmental Protection Agency (EPA)'s National Priorities List (NPL) includes the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program, based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. This data includes NPL sites represented as polygons, where available, that can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. As site investigation and remediation progress, OUs may be added, modified or refined. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Sep 25, 2024

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the U.S. Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites represented as polygons, where available, can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Sep 25, 2024

Deleted NPL: DELETED NPL

Sites deleted from the U.S. Environmental Protection Agency (EPA)'s National Priorities List (NPL). The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites represented as polygons, where available, can be sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). These site boundaries represent the footprint of a whole site, the sum of all the Operable Units (OUs) and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Sep 25, 2024

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the EPA's Facility Registry Service map tool.

Government Publication Date: Oct 24, 2024

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Oct 24, 2024

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Oct 21, 2024

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites that have indicated engagement in the treatment, storage, or disposal of hazardous waste which requires a RCRA hazardous waste permit.

Government Publication Date: Oct 21, 2024

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Oct 21, 2024

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Oct 21, 2024

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Oct 21, 2024

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Oct 21, 2024

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Oct 21, 2024

Federal Engineering Controls-ECs: FED ENG

List of Engineering controls (ECs) made availabe by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Nov 20, 2024

Federal Institutional Controls- ICs: FED INST

List of Institutional controls (ICs) made available by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Nov 20, 2024

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

These boundaries of Institutional Control areas at sites on the U.S. Environmental Protection Agency's (EPA) National Priorities List (NPL), or as Proposed or Deleted, are sourced from the EPA NPL Superfund Site Boundaries dataset, refreshed by the Shared Enterprise Geodata and Services (SEGS). The EPA's NPL includes the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Data provided by external parties is not independently verified by EPA. This boundary data is made available to the public strictly for informational purposes.

Government Publication Date: Sep 25, 2024

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Oct 15, 2024

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Feb 7, 2024

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: Jan 9, 2024

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Jan 9, 2024

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

This list of petroleum refineries is sourced from the U.S. Energy Information Administration (EIA), Refinery Capacity Report. The listing includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year. The geographic area the report covers is the 50 States, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, and other U.S. possessions. Per the EIA, the facility location data represents the approximate location based on research of publicly available information from sources such as Federal agencies, company websites, and satellite images on public websites.

Government Publication Date: Oct 31, 2024

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

A list of petroleum product and crude oil rail terminals from the U.S. Energy Information Administration (EIA), as well as petroleum terminals sourced from Oak Ridge National Laboratory hosted by the Homeland Infrastructure Foundation-Level Database. Data includes operable bulk petroleum product terminals with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil with activity between 2017 and 2018. EIA petroleum product terminal data comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings.

Government Publication Date: Oct 31, 2024

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Oct 24, 2024

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Oct 24, 2024

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database serves a purpose similar to that of the federal NPL, functioning as a state-level counterpart for prioritizing cleanup efforts at hazardous substance release sites.

Government Publication Date: Dec 10, 2025

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database serves a purpose similar to that of the federal Superfund Enterprise Management System (SEMS), functioning as a state-level counterpart for tracking potential hazardous substance release sites.

Government Publication Date: Dec 10, 2025

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Jan 31, 2025

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Oct 26, 2024

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Waste Management Unit Database: WMUD

The Waste Management Unit Database System tracks and inventories waste management units. CCR Title 27 contains criteria stating that Waste Management Units are classified according to their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology, and other factors relating to the ability of the Unit to protect water quality. Water Code Section 13273.1 requires that operators submit a water quality solid waste assessment test (SWAT) report to address leak status. The WMUDS was last updated by the State Water Resources control board in 2000.

Government Publication Date: Jan 1, 2000

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Dec 10, 2025

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Construction and Demolition Debris Recyclers: C&D DEBRIS RECY

This listing of Construction and Demolition Debris Recyclers is maintained by the California Intergrated Waste Management Board-common C&D materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development.

Government Publication Date: Jun 20, 2018

Recycling Centers: RECYCLING

This list of Certified Recycling Centers that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jan 2, 2025

Listing of Certified Processors: PROCESSORS

This list of Certified Processors that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jan 2, 2025

Listing of Certified Dropoff, Collection, and Community Service Programs: CONTAINER RECY

This list of Certified Dropoff, Collection, and Community Service Programs (non-buyback) operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jan 2, 2025

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Sep 25, 2024

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Sep 25, 2024

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Jan 15, 2025

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Nov 17, 2024

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

This listing includes Proposed Closure of Underground Storage Tank (UST) Cases which are being considered for closure by either the State Water Resources Control Board at a Future Board Meeting or the Executive Director that have been posted for a 60-day public comment period, and Closure of UST Cases with Closure Denials and Approved Orders. The lists are provided by the California Water Boards.

Government Publication Date: Oct 26, 2024

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Statewide Environmental Evaluation and Planning System: UST SWEEPS

The Statewide Environmental Evaluation and Planning System (SWEEPS) is a historical listing of active and inactive underground storage tanks made available by the California State Water Resources Control Board (SWRCB).

Government Publication Date: Oct 1, 1994

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

SWRCB Historical Aboveground Storage Tanks: AST SWRCB

A list of aboveground storage tanks made available by the California State Water Resources Control Board (SWRCB). Effective January 1, 2008, the Certified Unified Program Agencies (CUPAs) are vested with the responsibility and authority to implement the Aboveground Petroleum Storage Act (APSA).

Government Publication Date: Dec 1, 2007

Oil and Gas Facility Tanks: TANK OIL GAS

Locations of oil and gas tanks that fall under the jurisdiction of the Geologic Energy Management Division of the California Department of Conservation (CalGEM) (CCR 1760). CalGEM was formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR).

Government Publication Date: Nov 14, 2024

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Nov 14, 2024

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Oct 28, 2024

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Oct 28, 2024

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Dec 10, 2025

CALSITES Database: CALSITES

This historical database was maintained by the Department of Toxic Substance Control (DTSC) for more than a decade. CALSITES contains information on Brownfield properties with confirmed or potential hazardous contamination. In 2006, DTSC introduced EnviroStor as the latest Brownfields site database.

Government Publication Date: May 1, 2004

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Feb 18, 2021

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Jan 15, 2025

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Dec 10, 2025

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Sep 25, 2024

Delisted Cleanup Program Sites: DELISTED CLEANUP

A list of Cleanup Program sites which were once included - and have since been removed from - the list of Cleanup Program Sites in GeoTracker. GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Government Publication Date: Jan 15, 2025

Delisted County Records: DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Oct 28, 2024

Tribal

Leaking Underground Storage Tanks on Tribal/Indian Lands: INDIAN LUST

This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 7, 2024

Underground Storage Tanks on Tribal/Indian Lands: INDIAN UST

This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 7, 2024

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST

Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 7, 2025

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST

Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 7, 2025

County

Los Angeles County - Site Mitigation List: SML LA

A Site Mitigation List in the County of Los Angeles. The list is made available by Los Angeles County Fire Department. Site mitigation is handled by the Site Mitigation Unit (SMU) which facilitates completion of site clean-up projects of contaminated sites in an expeditious manner in all cities of the Los Angeles County except El Segundo, Glendale, Long Beach, Santa Fe Springs, and Vernon.

Government Publication Date: Jul 11, 2023

Los Angeles County - Solid Waste Sites: SWF LA COUNTY

List of permitted solid waste facilities, closed landfills, historical dumpsites and other solid waste sites in Los Angeles County, made available by the Department of Public Works in Los Angeles County.

Government Publication Date: Sep 11, 2024

Los Angeles County - CUPA Program Records: CUPA LA COUNTY

A list of inspection and enforcement records for active and inactive CUPA Program facilities, made available by the Health Hazardous Materials Division (HHMD) of the County of Los Angeles Fire Department. Includes Hazardous Materials Business Plan (HMBP), California Accidental Release Prevention Plan (CalARP), Hazardous Waste Generator (HWG), and the Aboveground Petroleum Storage Act Programs (APSA). Inactive programs include facilities that are out of business or no longer regulated by the HHMD.

Government Publication Date: Mar 25, 2020

Los Angeles County - HMS List: HMS LA

List of sites in the Los Angeles County Department of Public Works Hazardous Materials System (HMS) Database which have or have had permits for Industrial Waste, Underground Storage Tanks, or Stormwater in the county of Los Angeles.

Government Publication Date: Jan 16, 2024

Los Angeles County - San Gabriel Valley Areas of Concern: AOCONCERN

The San Gabriel Valley Superfund sites include multiple areas of contaminated groundwater in the 170-square-mile San Gabriel Valley. The contaminated areas underlie significant portions of the cities of Alhambra, Arcadia, Azusa, Baldwin Park, Industry, Irwindale, El Monte, La Puente, Monrovia, Rosemead, South El Monte, and West Covina. The groundwater contamination was first detected in 1979. Following this discovery, the California Department of Health Services (CDHS) initiated a well sampling program to assess the extent of contamination. By 1984, when EPA added four areas of contamination to the National Priorities List (NPL), 59 wells were known to be contaminated with high levels of volatile organic compounds (VOCs). These data, made available by the Region 9 Environmental Protection Agency (EPA) office, include operable units for the 4 NPL sites, as well as deep and shallow plumes.

Government Publication Date: Aug 26, 2015

Los Angeles County - Santa Fe Springs Underground Storage Tank: UST SANTAFESP

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Fe Springs. This list is made available by Santa Fe Springs Department of Fire-Rescue.

Government Publication Date: Feb 11, 2022

Los Angeles County - Long Beach UST List: UST LONGB

List of registered Underground Storage Tanks (USTs) in the City of Long Beach, Los Angeles County, made available by the Long Beach Certified Unified Program Agency (CUPA). The Long Beach CUPA operates under oversight shared by the Long Beach Fire Department and Health Department.

Government Publication Date: Jul 9, 2018

Los Angeles County - Burbank City CUPA List: CUPA BURBANK

A list of facilities associated with various Certified Unified Program Agency (CUPA) programs in the City of Burbank. This list is made available by the City of Burbank Fire Department.

Government Publication Date: Aug 21, 2019

Los Angeles County - El Segundo City Underground Storage Tanks List: UST ELSEGUNDO

List of registered Underground Storage Tanks (USTs) in the City of El Segundo of Los Angeles County, made available by El Segundo City Fire Department.

Government Publication Date: Jan 17, 2017

Los Angeles County - Santa Monica City Underground Storage Tank List: UST SANTA MONICA

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Monica made available by Santa Monica Fire Prevention Division.

Government Publication Date: Dec 3, 2020

Los Angeles County - Santa Monica City Aboveground Storage Tank List: AST SANTAMON

List of registered Aboveground Storage Tanks (ASTs) made available by the Santa Monica Fire Department in the City of Santa Monica of Los Angeles County, California.

Government Publication Date: Jan 20, 2023

Los Angeles County - Santa Monica City CUPA Facilities List: CUPA SANTAMON

The Santa Monica Fire Department's office maintains a list of CUPA Facilities located in Santa Monica city.

Government Publication Date: Jan 14, 2022

Los Angeles County - Torrance City Underground Storage Tanks: UST TORRANCE

A list of registered Underground Storage Tank (UST) sites in Torrance City of Los Angeles County. This list is made available by Torrance City Office of Clerk.

Government Publication Date: Apr 20, 2022

Los Angeles County - Vernon City UST List: UST VERNON

A list of Underground Storage Tanks (UST) in Vernon City provided by the Vernon City Fire Department.

Government Publication Date: Aug 25, 2022

Los Angeles County - Vernon City CUPA List: CUPA VERNON

The Vernon City Fire Department's office maintains a list of CUPA Facilities located in Vernon city.

Government Publication Date: Aug 25, 2022

Los Angeles County - City of Los Angeles UST List: UST LA CITY

A list of active and inactive underground storage tank facilities made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Oct 3, 2024

Los Angeles County - City of Los Angeles AST List: AST LA CITY

A list of active and inactive above ground petroleum storage tanks made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Jun 1, 2019

Los Angeles County - City of Los Angeles Hazardous Materials Facilities: HAZMAT LA CITY

A list of active and inactive hazardous materials facilities made available by the Los Angeles Fire Department CUPA.

Government Publication Date: Jun 1, 2019

Additional Environmental Record Sources

Federal

PFAS Greenhouse Gas Emissions Data: PFAS GHG

The U.S. Environmental Protection Agency's Greenhouse Gas Reporting Program (GHGRP) collects Greenhouse Gas (GHG) data from large emitting facilities (25,000 metric tons of carbon dioxide equivalent (CO2e) per year), and suppliers of fossil fuels and industrial gases that results in GHG emissions when used. Includes GHG emissions data for facilities that emit or have emitted since 2010 chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures by DSSTox. PFAS emissions data has been identified for facilities engaged in the following industrial processes: Aluminum Production (GHGRP Subpart F), HCFC-22 Production and HFC-23 Destruction (Subpart O), Electronics Manufacturing (Subpart I), Fluorinated Gas Production (Subpart L), Magnesium Production (Subpart T), Electrical Transmission and Distribution Equipment Use (Subpart DD), and Manufacture of Electric Transmission and Distribution Equipment (Subpart SS). Over time, other industrial processes with required GHGRP reporting may include PFAS emissions data and the list of reportable gases may change over time.

Government Publication Date: Aug 5, 2024

On-Scene Coordinator Response Sites: OSC RESPONSE

This list of On-Scene Coordinator (OSC) Response Sites is provided by the U.S. Environmental Protection Agency (EPA). OSCs are the federal officials responsible for monitoring or directing responses to all oil spills and hazardous substance releases reported to the federal government. OSCs coordinate all federal efforts with, and provide support and information to local, state, and regional response communities. An OSC is an agent of either EPA or the U.S. Coast Guard (USCG), depending on where the incident occurs. EPA's OSCs have primary responsibility for spills and releases to inland areas and waters. USCG OSCs have responsibility for coastal waters and the Great Lakes. In general, an OSC has the following key responsibilities during and after a response: Assessment, Monitoring, Response Assistance, and Evaluation.

Government Publication Date: Apr 4, 2024

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Aug 1, 2024

Toxics Release Inventory (TRI) Program: TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment. This database includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

PFOA/PFOS Contaminated Sites: PFAS NPL

This list of Superfund Sites with Per- and Polyfluoroalkyl Substances (PFAS) detections is made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data, previously the list was obtained by EPA FOIA requests. EPA's Office of Land and Emergency Management and EPA Regional Offices maintain what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment. Limitations: Detections of PFAS at National Priorities List (NPL) sites do not mean that people are at risk from PFAS, are exposed to PFAS, or that the site is the source of the PFAS. The information in the Superfund NPL and Superfund Alternative Agreement (SAA) PFAS detection site list is years old and may not be accurate today. Site information such as site name, site ID, and location has been confirmed for accuracy; however, PFAS-related information such as media sampled, drinking water being above the health advisory, or mitigation efforts has not been verified. For Federal Facilities data, the other Federal agencies (OFA) are the lead agency for their data and provided them to EPA.

Government Publication Date: Dec 17, 2024

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

This list of federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS) is made available by the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools data. The EPA outlines that these data are gathered from several federal entities, such as the federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration (NASA), Department of Transportation (DOT), and Department of Energy (DOE). The dates this data was extracted for the PFAS Analytic Tools range from 2022 to 2024. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: Oct 24, 2024

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the PFAS Project Lab, part of the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map by the PFAS-REACH team, credited to PFAS Project Lab, Silent Spring Institute, and PFAS Exchange. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: https://pfasproject.com/pfas-sites-and-community-resources/

Government Publication Date: Jun 27, 2024

National Response Center PFAS Spills: PFAS ERNS

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, is the designated federal point of contact for reporting all oil, chemical, and other discharges into the environment, for the United States and its territories. This dataset contains NRC spill information from 1990 to the present that is restricted to records associated with PFAS and PFAS-containing materials. Incidents are filtered to include only records with a "Material Involved" or "Incident Description" related to Aqueous Film Forming Foam (AFFF). The keywords used to filter the data included "AFFF," "Fire Fighting Foam," "Aqueous Film Forming Foam," "Fire Suppressant Foam, "PFAS," "PERFL," "PFOA," "PFOS," and "Genx." Limitations: The data from the NRC website contains initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Dec 9, 2024

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Dec 16, 2024

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment. This listing includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

PFAS Water Quality Portal Sampling Data: PFAS WATER

This Per- and Poly-Fluoroalkyl Substances (PFAS) Environmental Media Sampling Data is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The Water Quality Portal (WQP), as a cooperative service sponsored by the United States Geological Survey, the EPA, and the National Water Quality Monitoring Council, is part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations, and individuals submit project details and sampling results to this public repository. Limitations: EPA did not carry out the sampling or testing of a majority of the data in the WQP PFAS dataset. EPA can only speak to the accuracy and completeness of the data from projects like the National Aquatic Resource Surveys for which EPA is the data owner/organization. Data may exist within the file on Quality Assurance Project Plans (QAPPs) and the approving agency of the QAPP, if a QAPP is entered.

Government Publication Date: Jul 22, 2024

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest : PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Dec 15, 2024

PFAS Industry Sectors: PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Dec 16, 2024

Hazardous Materials Information Reporting System: HMIRS

The Hazardous Materials Incident Reporting System (HMIRS) database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Government Publication Date: May 29, 2024

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Nov 30, 2023

Toxic Substances Control Act: TSCA

The U.S. Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule. The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI). EPA CDR collections occur approximately every four years and reporting requirements change per collection.

Government Publication Date: May 12, 2022

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Nov 20, 2024

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The Integrated Compliance Information System (ICIS) database contains integrated enforcement and compliance information across most of U.S. Environmental Protection Agency's (EPA) programs. The vision for ICIS is to replace EPA's independent databases that contain enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions and a subset of the Permit Compliance System (PCS), which supports the National Pollutant Discharge Elimination System (NPDES). This information is maintained by the EPA Headquarters and at the Regional offices. A future release of ICIS will completely replace PCS and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities that support compliance and enforcement programs, including incident tracking, compliance assistance, and compliance monitoring.

Government Publication Date: Apr 13, 2024

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: May 5, 2024

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: May 5, 2024

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset which applies to the Fiscal Year 2021 FUDS Inventory.

Government Publication Date: May 15, 2023

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: May 15, 2023

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

This list of flagged pipeline incidents is made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types. Accidents reported on hazardous liquid gravity lines (§195.13) and reporting-regulated-only hazardous liquid gathering lines (§195.15) and incidents reported on Type R gas gathering (§192.8(c)) are not included in the flagged incident file data.

Government Publication Date: May 6, 2024

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United States Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Feb 5, 2024

Surface Mining Control and Reclamation Act Sites: SMCRA

This inventory of land and water impacted by past mining (primarily legacy coal mining operations) is maintained by the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSMRE), as it provides information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This inventory contains information on the type and extent of Abandoned Mine Land (AML) Problems, as well as information on the cost associated with the reclamation of those problems. The data is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed. Disclaimer: Per the OSMRE, States and tribes who enter their data into e-AMLIS (AML Inventory System) may truncate their latitude and longitude so the precise location of usually dangerous AMLs is not revealed in an effort to protect the public from searching for these AMLs, most of which are on private property. If more precise location information is needed, please contact the applicable state/tribe of interest.

Government Publication Date: May 20, 2024

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: Dec 12, 2023

Alternative Fueling Stations: ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.

Government Publication Date: Aug 29, 2024

Superfunds Consent Decrees: CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Cases filed since 2010 limited to the following: Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS); and applicable ENRD's Environmental Defense Section (EDS) CERCLA Cases with "Consent" in History Note. CMS may not reflect the latest developments in a case, nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Jun 26, 2024

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Feb 29, 2024

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: May 23, 2024

Power Plants: POWER PLANTS

This list of power plants is provided by the U.S. Energy Information Administration (EIA). The listing includes operable electric generating plants in the United States by energy source, originating from the EIA-860, Annual Electric Generator Report; EIA-860M, Monthly Update to the Annual Electric Generator Report; and EIA-923, Power Plant Operations Report. It includes all operable plants by energy source with a combined nameplate capacity of 1 megawatt or more that are operating, are on standby, or out of service for short- or long-term.

Government Publication Date: Apr 15, 2024

State

PFAS Sampling Locations: PFAS SAMPLING

This data is sourced from the State Water Board's GeoTracker Per- and Polyfluoroalkyl Substances (PFAS) Map tool which contains individual sampling points (i.e., soil boring, groundwater monitoring well, drinking water well for municipal drinking water systems, etc.) or a site location with PFAS analytical data. Includes analytical results that are finalized and submitted electronically by the Responsible Parties via GeoTracker's Electronic Submittal of Information Portal, and after it's accepted by a Regional Water Quality Control Board.

Government Publication Date: Dec 6, 2024

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Dec 20, 2021

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Jan 31, 2022

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Jan 31, 2022

PFAS GeoTracker Cleanup Sites: PFAS GT CLEANUPS

A list of applicable cleanup sites from the State Water Resources Control Board's (SWRCB) GeoTracker data management system where one or more of the potential contaminants of concern are identified in the PFAS Structure List and/or PFAS Chemicals Without Explicit Structure List made available by the United States Environmental Protection Agency (US EPA).

Government Publication Date: Jan 15, 2025

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Dec 1, 2024

PFAS Investigations: PFAS INVEST

This list of potential Per- and Polyfluoroalkyl Substance (PFAS) sites is compiled from the California State Water Resources Control Board's (SWRCB) PFAS Investigations Map tool. The SWRCB issued investigative orders, per California Water Code (CWC) Section 13267 and/or 13383, to these sites. Orders were also issued to the public water systems to sample wells in the vicinity of these locations. Military facilities have been identified by the Department of Defense (DOD) as part of their efforts to investigate PFAS per the Defense Environmental Restoration Program (DERP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The data includes locations for Airports, Chrome Plating Facilities, Landfills, Publicly Owned Treatment Works, Refineries and Bulk Terminals, DOD Facilities, and Monitored Drinking Water Wells being investigated for potential PFAS.

Government Publication Date: Jan 23, 2024

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Mar 15, 2023

Toxic Pit Cleanup Act Sites: TOXIC PITS

The Toxic Pits Cleanup Act (TPCA) list identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. This list was maintained by the State Water Resources Control Board (SWRCB), is not longer maintained, and updates are not planned.

Government Publication Date: Jul 1, 1995

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked by the California Department of Toxic Substance Control's (DTSC) EnviroStor data management system.

Government Publication Date: Nov 23, 2023

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Dec 10, 2025

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This listing has been made available by the California Governor's Office of Emergency Services (Cal OES).

Government Publication Date: Oct 21, 2024

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Handlers from Hazardous Waste Manifest Data: HAZNET

A list of handlers not otherwise classified as Treatment, Storage, Disposal facilities (TSDF) or generators from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Oct 24, 2016

Generators from Hazardous Waste Manifest Data: HAZ GEN

List of handlers listed as having generated waste from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

TSDF from Hazardous Waste Manifest Data: HAZ TSD

List of Treatment, Storage, and Disposal Facilities (TSDFs) from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

DTSC Registered Hazardous Waste Transporters: HW TRANSPORT

The California Department of Toxic Substances Control (DTSC) maintains this list of Registered Hazardous Waste Transporters.

Government Publication Date: Jan 2, 2025

Registered Waste Tire Haulers: WASTE TIRE

This list of registered waste tire haulers is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Feb 13, 2025

California Medical Waste Management Program Facility List: MEDICAL WASTE

This list of Medical Waste Management Program Facilities is maintained by the California Department of Public Health. The Medical Waste Management Program (MWMP) regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (MWMA). The MWMP permits and inspects all medical waste off-site treatment facilities, medical waste transporters, and medical waste transfer stations. This list contains transporters, treatment, and transfer facilities.

Government Publication Date: Sep 5, 2024

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Dec 6, 2021

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Oct 28, 2024

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Sep 25, 2024

Mines Listing: MINE

This list includes mine site locations extracted from the Mines Online database, maintained by the California Department of Conservation. Mines Online (MOL) is an interactive web map designed with GIS features that provide information such as the mine name, mine status, commodity sold, location, and other mine specific data. Please note: Mine location information is provided to assist experts in determining the location of mine operators in accordance with California Civil Code section 1103.4 and reflects information reported by mine operators in annual reports provided under Public Resources Code section 2207. While the Division of Mine Reclamation (DMR) attempts to populate MOL with accurate location information, the DMR cannot guarantee the accuracy of operator reported location information.

Government Publication Date: Oct 3, 2024

Recorded Environmental Cleanup Liens: LIEN

The California Department of Toxic Substance Control (DTSC) maintains this list of liens placed upon real properties. A lien is utilized by the DTSC to obtain reimbursement from responsible parties for costs associated with the remediation of contaminated properties.

Government Publication Date: Dec 18, 2023

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Sep 25, 2024

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program.

Government Publication Date: Dec 31, 2021

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jan 19, 2021

Tribal

No Tribal additional environmental record sources available for this State.

County

Los Angeles County - Santa Monica City Hazardous Materials Facilities: HAZMAT SANTAMON

A list of Hazardous Materials Facilities in the City of Santa Monica, Los Angeles county. This list is made available by Santa Monica Fire Prevention Division which has been designated as the CUPA for the City.

Government Publication Date: Dec 17, 2021

Los Angeles County - Santa Monica City Hazardous Waste Facilities: HAZ WST SANTAMON

A list of Hazardous Waste Facilities in Los Angeles County, City of Santa Monica. This list is made available by Santa Monica Fire Prevention Division.

Government Publication Date: Jan 20, 2023

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

FIRE INSURANCE MAPS

Project Property: Approximately 67 Acres
AINs 3025-026-001, 002, 007, 008 and 011 Palmdale CA
Project No: 307083-001
Requested By: Earth Systems Pacific
Order No: 25022000906
Date Completed: February 21, 2025

Please note that no information was found for your site or adjacent properties.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

HISTORICAL AERIALS

Project Property: Approximately 67 Acres
AINs 3025-026-001, 002, 007, 008 and 011
Palmdale CA

Project No: 307083-001

Requested By: Earth Systems Pacific

Order No: 25022000906

Date Completed: February 25,2025

Aerial Maps included in this report are produced by the sources listed above and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property. ERIS provides no warranty of accuracy or liability. The information contained in this report has been produced using aerial photos listed in above sources by ERIS Information Inc. (in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS'. The maps contained in this report do not purport to be and do not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Scale	Comments
2024	Maxar Technologies	1" = 500'	
2022	United States Department of Agriculture	1" = 500'	
2020	United States Department of Agriculture	1" = 500'	
2018	United States Department of Agriculture	1" = 500'	
2016	United States Department of Agriculture	1" = 500'	
2014	United States Department of Agriculture	1" = 500'	
2012	United States Department of Agriculture	1" = 500'	
2010	United States Department of Agriculture	1" = 500'	
2009	United States Department of Agriculture	1" = 500'	
2005	United States Department of Agriculture	1" = 500'	
2003	United States Department of Agriculture	1" = 500'	
1994	United States Geological Survey	1" = 500'	
1987	United States Geological Survey	1" = 500'	
1980	United States Department of Agriculture	1" = 500'	
1974	United States Geological Survey	1" = 500'	
1968	Teledyne	1" = 500'	
1959	Agricultural Stabilization & Conserv. Service	1" = 500'	
1948	United States Geological Survey	1" = 500'	
1940	Agricultural Stabilization & Conserv. Service	1" = 500'	
1928	Fairchild	1" = 500'	



Year: 2024
Source: MAXAR
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS

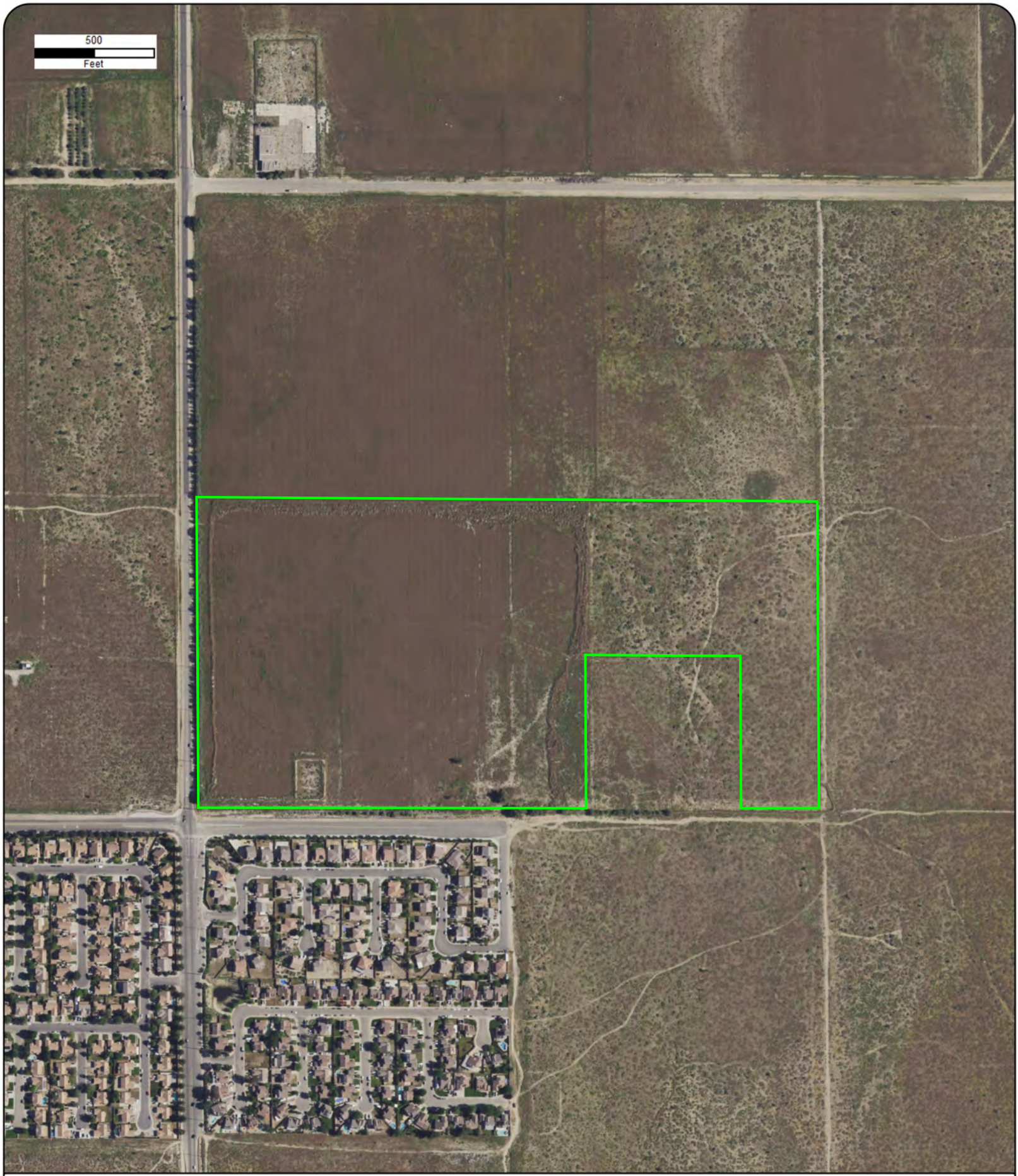


Year: 2022
Source: USDA
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS



Year: 2020
Source: USDA
Scale: 1" = 500'
Comment:

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Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS



Year: 2018
Source: USDA
Scale: 1" = 500'
Comment:

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Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS

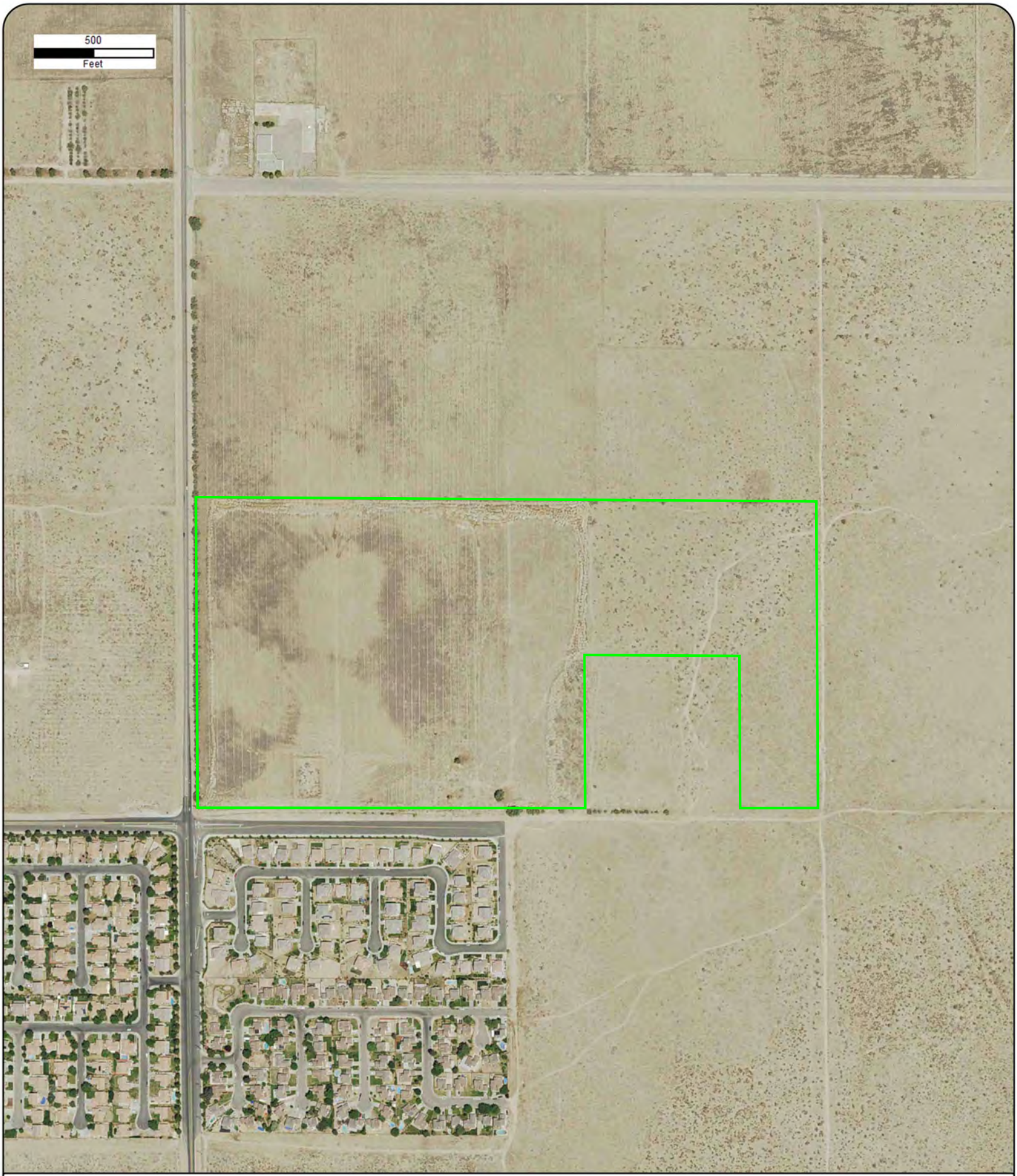


Year: 2016
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Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS



Year: 2014
Source: USDA
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS



Year: 2012
Source: USDA
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS



Year: 2010
Source: USDA
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
Approx Center: -118.05432971,34.58947256

Order No: 25022000906

ERIS

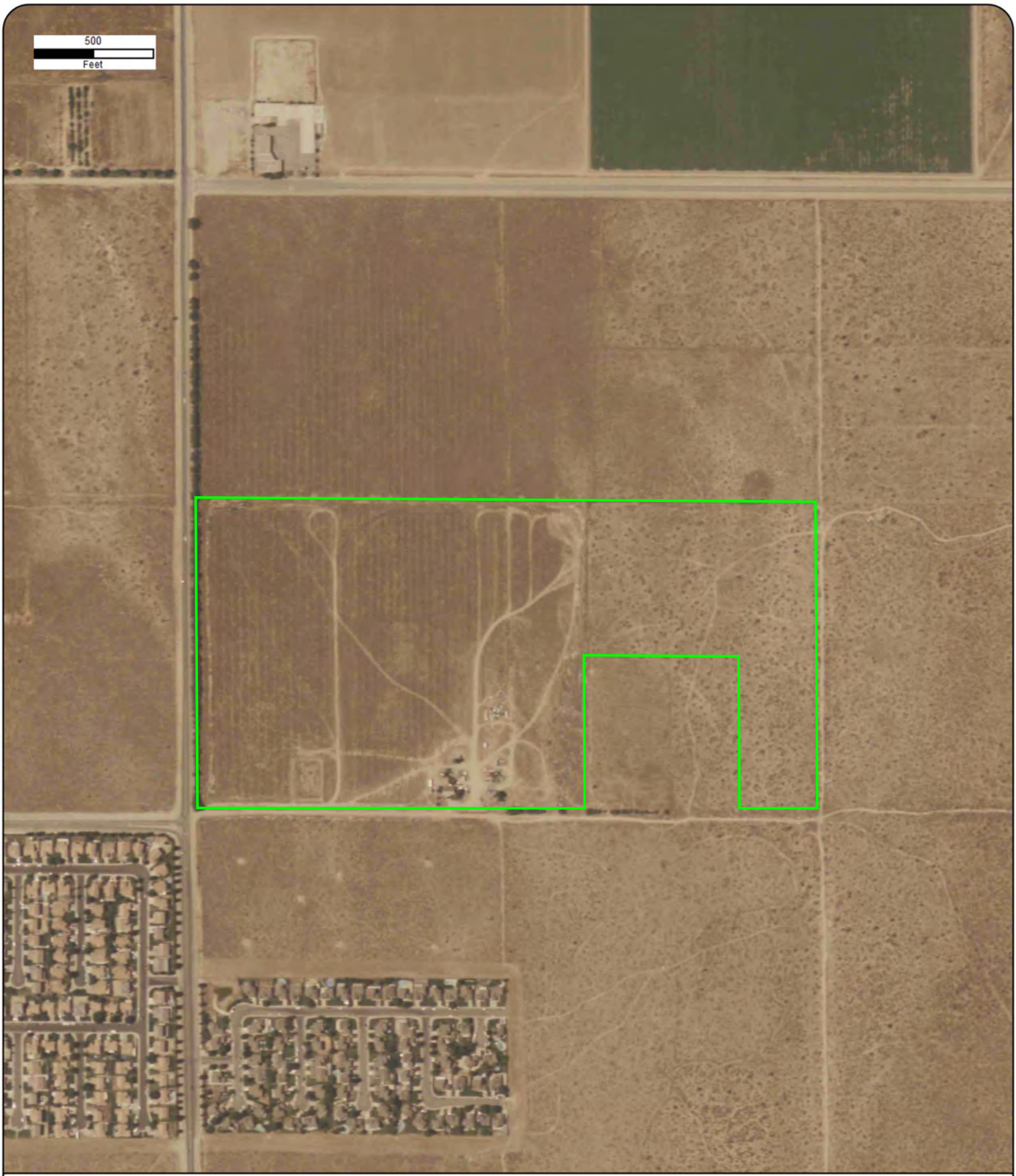


Year: 2009
Source: USDA
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Order No: 25022000906

ERIS

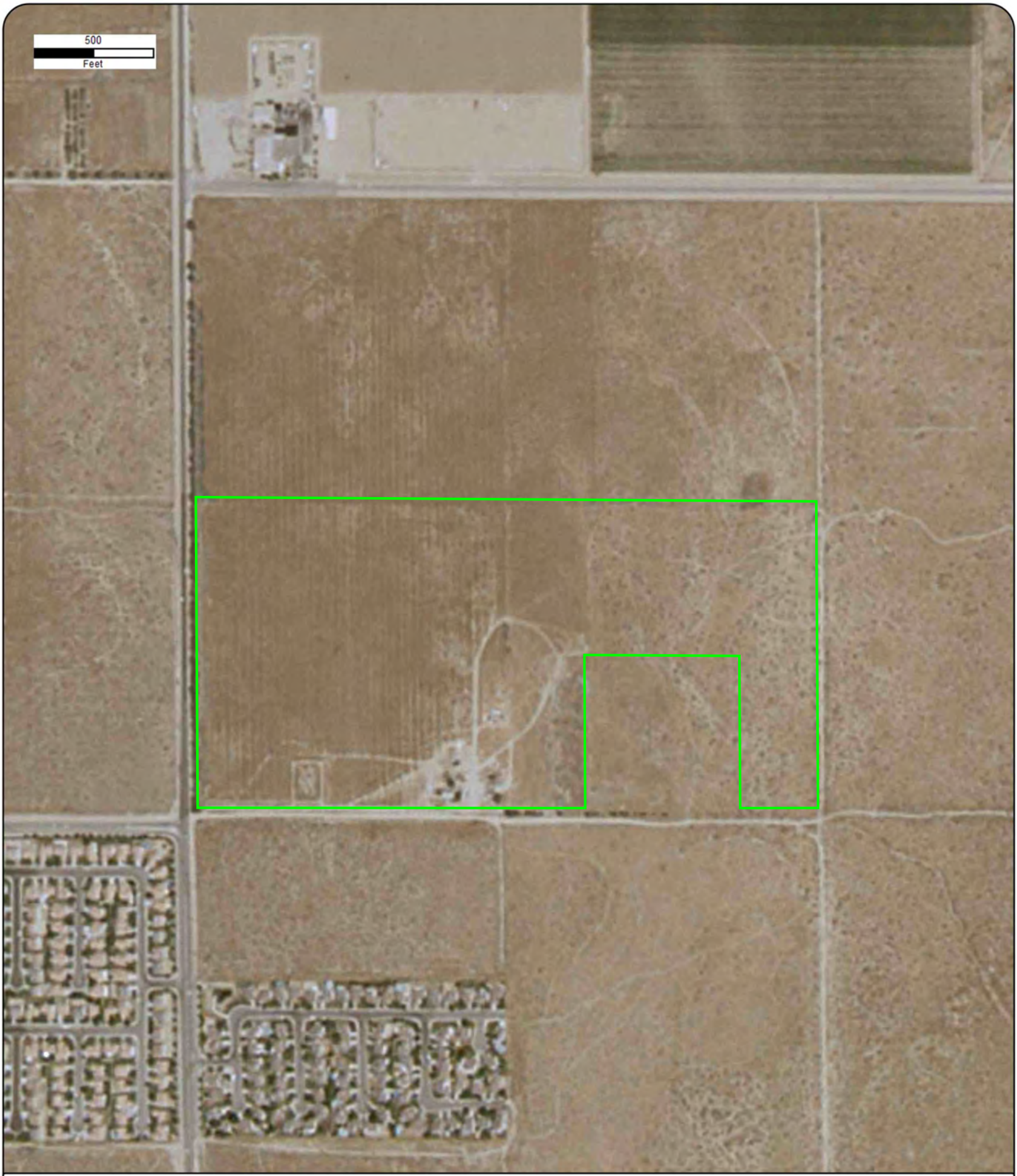


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Source: USDA
Scale: 1" = 500'
Comment:

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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 2003
Source: USDA
Scale: 1" = 500'
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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1994
Source: USGS
Scale: 1" = 500'
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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1987
Source: USGS
Scale: 1" = 500'
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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1980
Source: USDA
Scale: 1" = 500'
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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1974
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Scale: 1" = 500'
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Order No: 25022000906

ERIS



Year: 1968
Source: TG
Scale: 1" = 500'
Comment:

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Palmdale, CA
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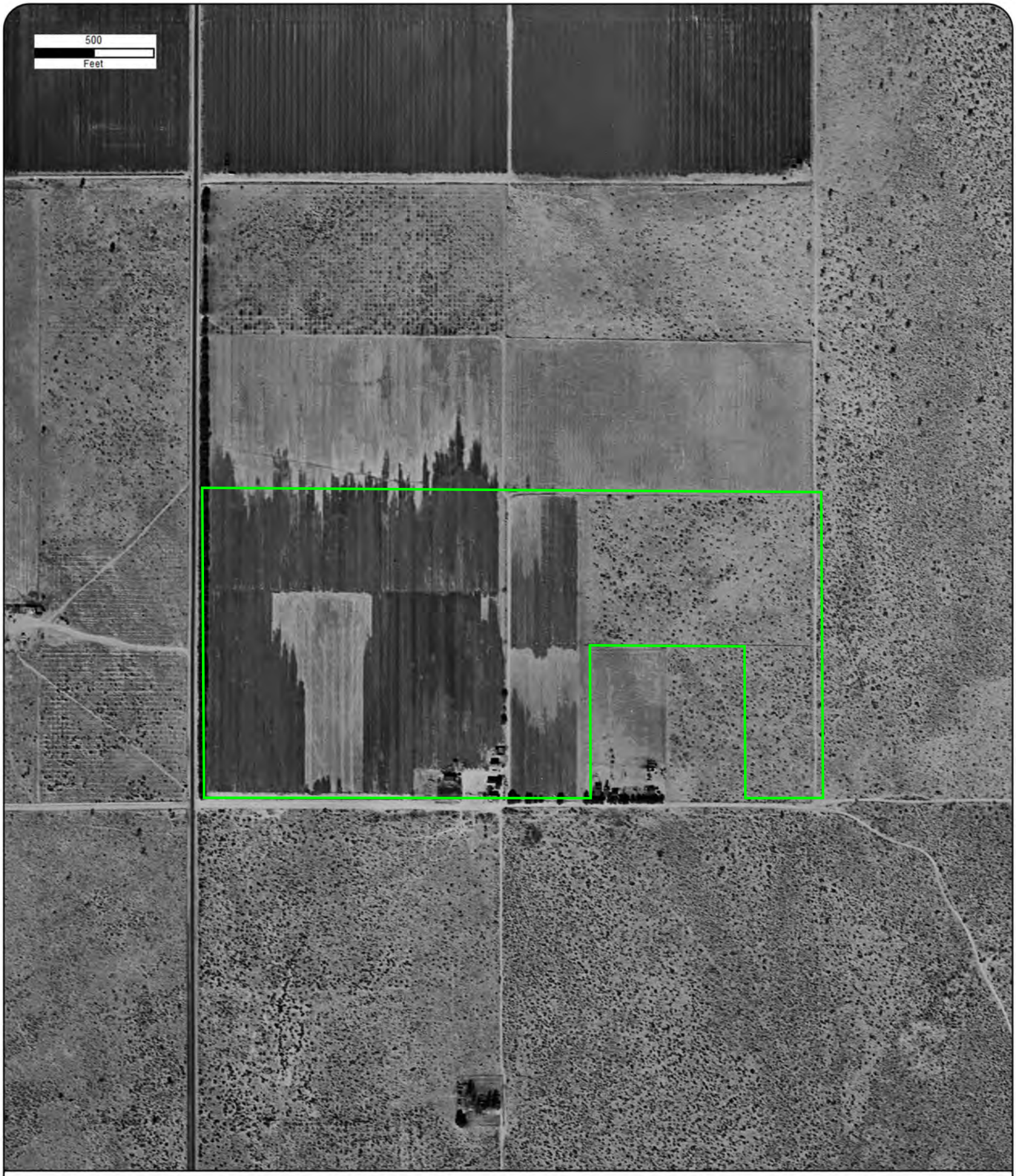


Year: 1959
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Palmdale, CA
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Order No: 25022000906

ERIS



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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1940
Source: ASCS
Scale: 1" = 500'
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Palmdale, CA
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Order No: 25022000906

ERIS



Year: 1928
Source: FAIRCHILD
Scale: 1" = 500'
Comment:

Address: AINs 3025-026-001, 002, 007, 008 and 011,
Palmdale, CA
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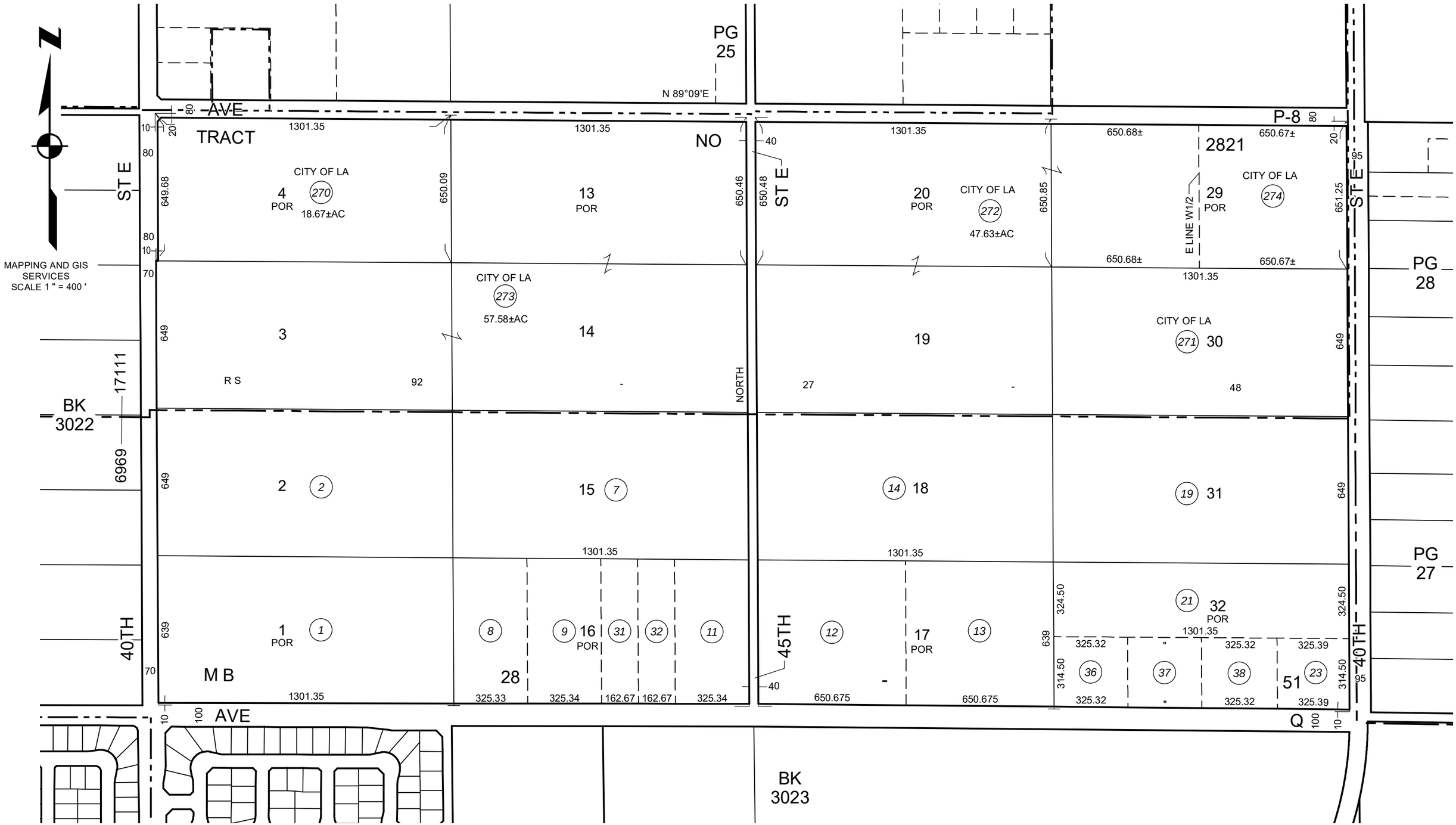
ERIS

Appendix D

Additional Documentation

3025	26 SHEET	P. A. 3025-26	TRA 6969 17111	REVISED 670728319 681024208	681030503 710202404 710521502	750402262 760126 760414615	770914303 850111-85 20040224	20220630	SEARCH NO		OFFICE OF THE ASSESSOR COUNTY OF LOS ANGELES COPYRIGHT © 2002

2022



DATE PRINTED: NEVER NEVER
DATE SAVED: 6/30/2022 4:56:08 PM

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

CASE SUMMARY

REPORT DATE
5/16/1996

HAZARDOUS MATERIAL INCIDENT REPORT FILED WITH OES?

I. REPORTED BY -
UNKNOWN

CREATED BY
UNKNOWN

III. SITE LOCATION

FACILITY NAME
RAU/SUZUKI PROPERTY

FACILITY ID

FACILITY ADDRESS
3505 PALMDALE BLVD E
PALMDALE, CA 92211
LOS ANGELES COUNTY

ORIENTATION OF SITE TO STREET

CROSS STREET
35TH ST W

V. SUBSTANCES RELEASED / CONTAMINANT(S) OF CONCERN

GASOLINE

VI. DISCOVERY/ABATEMENT

DATE DISCHARGE BEGAN

DATE DISCOVERED
2/15/1995

HOW DISCOVERED
Other Means

DESCRIPTION

DATE STOPPED
2/7/1996

STOP METHOD

DESCRIPTION

VII. SOURCE/CAUSE

SOURCE OF DISCHARGE
Other

CAUSE OF DISCHARGE
Unknown

DISCHARGE DESCRIPTION

VIII. CASE TYPE

CASE TYPE
Soil

IX. REMEDIAL ACTION

NO REMEDIAL ACTIONS ENTERED

X. GENERAL COMMENTS

XI. CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION REPORTED HEREIN IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

XII. REGULATORY USE ONLY

LOCAL AGENCY CASE NUMBER

REGIONAL BOARD CASE NUMBER
6B1900707T

LOCAL AGENCY

CONTACT NAME	INITIALS	ORGANIZATION_NAME	EMAIL ADDRESS
Manual Regalado		LOS ANGELES COUNTY	mregalado@dpw.lacounty.gov

ADDRESS

CONTACT DESCRIPTION

Palmdale,

PHONE TYPE	PHONE NUMBER	EXTENSION
office	(626)-458-4195	

REGIONAL BOARD

UNKNOWN

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Appendix E

Qualifications Statement

Earth Systems Pacific
Qualifications Statement for Environmental Work

The principals of the Earth Systems companies have been consulting for an average of over 20 years, and the combined staff numbers nearly 100. Earth Systems' multidisciplinary professional staff has extensive experience with and education in chemistry, geology, geophysics, hydrogeology, mechanical engineering, civil engineering, mapping, soil science, drafting, and surveying. Our senior project and staff professionals include Certified Engineering Geologists, Registered Geologists, Registered Environmental Assessors and Professional Engineers. These professionals are highly qualified, holding an average of two registrations and/or certifications in their area of expertise. To continue to meet our commitment to technical expertise, Earth Systems considers it essential to train our personnel in the latest scientific advancements in assessment and mitigation techniques. This involves continuing education in the form of training seminars, literature reviews, and pertinent conferences to remain abreast of recent developments in this complex and rapidly changing field.

The Environmental Professional [EP] who provided oversight for this project meets the qualifications specified by US EPA AAI and ASTM E1527-21. An EP is defined by US EPA AAI as "a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (of hazardous substances) on, at, in, or to a property, sufficient to meet the objectives and performance factors (of the rule)." In addition, an environmental professional must have:

- A state, tribal, or territory-issued certification or license (Professional Engineer or Professional Geologist) and three years of relevant full-time work experience; or
- A Baccalaureate degree or higher in science or engineering and five years of relevant full-time work experience; or
- Ten years of relevant full-time work experience.

The attached resumes describe the credentials of the professionals who performed field, research and/or report preparation work on the project.

Alexander Schriener Jr., P.G.

Associate Geologist

Mr. Schriener has over forty years as an alternative energy, natural resource and environmental geologist. He has seven years consulting experience specifically in the field of environmental geology. Mr. Schriener also manages geothermal energy services for Earth Systems.

Key Qualifications:

Mr. Schriener experience performing Phase I Environmental Site Assessments to evaluate the potential presence of soil and groundwater contamination at industrial, commercial, residential and agricultural properties, as well as vacant land. He has performed Phase II Investigations to evaluate whether contamination is actually present, and the concentration and extent of those contaminants. If contaminates are found, then site remediation is required. Mr. Schriener has successfully performed numerous Phase III site remediation and brought sites to closure with public agencies.

Mr. Schriener has over thirty years' experience in geothermal resource management, development and exploration.

Mr. Schriener has also been an expert witness in legal proceedings involving geothermal energy management and well drilling.

Relevant Project Experience:

Gasoline Station Investigation and Closure

Mr. Schriener was project manager for an assessment of gasoline stations with potential leaking underground storage tanks. He placed monitoring wells, completed groundwater and soil assessments and successfully got agency closure on 5 of 7 sites he was managed between 2004 and 2008.

Phase II Site Assessments and Phase III Site Closure

Mr. Schriener was project manager on numerous Phase II site assessments in the Coachella Valley and southern California. At each site, he selected the investigative methods, oversaw sampling and analysis activities, reviewed the laboratory data, and prepared a report meeting the requirements of the lender or agency. If contamination was found, Mr. Schriener prepared a work plan to mitigate the site and obtain closure. Significant sites that were evaluated and closure was obtained included several parcels of farm land over 20 acres each, a metal salvage yard, an industrial warehouse, a former cattle ranch and former sewage treatment facility.

Geothermal Exploration and Development

Mr. Schriener over thirty years' experience in geothermal energy including geology, geochemistry, geophysics, drilling, reservoir modeling, land leasing, exploration, and field development. He has managed the resource staff and activities in the three major geothermal fields in California: The Geysers, Coso and The Salton Sea, as well as Desert Peak in Nevada and Roosevelt/Blundell in Utah. Mr. Schriener has regularly managed an annual drilling and resource department budget of over $10 Million.

.

REGISTRATIONS AND CERTIFICATIONS

Professional Geologist, State of California, 2001 (No. 7198)

EDUCATION

B.S., Geology
University of Washington
Seattle, Washington 1976

M.S., Geology
Oregon State University
Corvallis, Oregon 1978

MS Thesis; The Geology and Mineralization of the Northern Part of the Washougal Mining District, Skamania County, Washington.

Professional Affiliations:
Member: Geological Society of America
Member: American Association of Petroleum Geologists.
Member: Geothermal Resources Council

Publications
19 publications and field trip guidebooks, including published in: Geological Society of America, Association of Petroleum Geologists, United States Geological Survey Open File Report, Stanford Geothermal Program Conference, Geothermal Resources Council Transactions, Department of Energy, Journal of Scientific Drilling, and Geochemistry, Geophysics and Geosystems.

EMAIL

aschriener@earthsystems.com

PRIME OFFICE LOCATION

Bermuda Dunes, CA

Appendix F

Reliance Form

Application for Authorization to Rely on Environmental Report

This form serves as an application for third parties to apply for permission to use and rely on the referenced report [Report]. It is the applicant's responsibility to obtain the approval of the original client prior to submitting the form. As a condition of approval for authorization to use and rely on the referenced Report, applicant agrees to waive any conflict of interest arising out of, and applicant will not object to, our representation of our original client; that Earth Systems Pacific's liability for errors and omissions from the Report shall be limited to $15,000; and Earth Systems Pacific shall have no liability for any other cause or action. Use of this Report without written permission releases Earth Systems Pacific from any liability that may arise from the use of this Report.

Reference: *Report of Environmental Site Assessment,*

Subject: **Report of Phase I Environmental Site Assessment**

Project: *AINs 3025-026-001, 002, 007, 008 and 011, NEC of 40th Street East & East Avenue Q, Palmdale, Los Angeles County, California,* File No. 307083-001, Doc. No. 25-03-705R, dated March 31, 2025, Revised May 6, 2025.

Original Client: Palmdale School District, 39139 10th St E, Palmdale, California 93550, Al Tsai, Maintenance & Operations Administrator 661-789-6575.

To be completed by Applicant. **A processing fee of $1,000.00 made payable to Earth Systems Pacific must accompany application.** Submit to Earth Systems Pacific, 79811 Country Club Drive, Indio, California 92203. Signature signifies applicant's acceptance of the use and liability limitations described above, and caveats described below*.

_____ By:_____
(Company Name) (Print Name)

_____ _____
(Address) (Signature)

_____ Title:_____
(City, State, Zip)

_____ _____ Date:_____
(Telephone) (FAX)

Approval of Original Client

By:_____ _____
(Print Name) (Signature)

For Earth Systems Pacific's use only

_____ Approved for re-use with caveat that findings discussed in Report were based on available information and site conditions as noted at time of Report but may not be applicable to current site conditions.

_____ Disapproved (application fee to be refunded).

By:_____ Date:_____
(Earth Systems Pacific)

*Caveats - Applicant understands and agrees that the referenced Report is a copyrighted document, that Earth Systems Pacific is the copyright owner, and that unauthorized use or copying of the Report is strictly prohibited without the express written permission of Earth Systems Pacific. Applicant understands that Earth Systems Pacific may withhold such permission at its sole discretion, or grant permission upon such terms and conditions as it deems acceptable. Applicant acknowledges that: (1) Earth Systems Pacific did not have an opportunity to evaluate the applicant's relationship to the site; (2) Applicant-specific information can affect the conclusions and recommendations presented in the Report; (3) The Report speaks only to conditions observed onsite at the time of the site visit, and site conditions may have changed since that time; (4) The scope of the Report was limited to the scope defined by our proposal; (4) The shelf life of the Report, as defined by the EPA All Appropriate Inquiry [AAI] guidelines, is six months (the Report expires after six months and should not be relied upon without an update in accordance with the AAI guidelines); and, (5) Earth Systems Pacific maintains its contract with the original client for the Report.

Palmdale School District
39139 10th St E
Palmdale, California 93550

Phase II Report of
Sampling and Testing
AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

June 17, 2025

Submitted By:
Earth Systems Pacific
79811B Country Club Drive
Bermuda Dunes, California 92203

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File No.: 307083-002
Doc. No.: 25-06-704

EARTH SYSTEMS
79-811B Country Club Drive | Bermuda Dunes, CA 92203-1244 | (760) 345-1588 | www.earthsystems.com

June 17, 2025

File No.: 307083-002
Doc. No.: 25-06-704

Palmdale School District
39139 10th St E
Palmdale, California 93550

Attention: Al Tsai, Maintenance & Operations Administrator

Subject: **Phase II Report of Sampling and Testing**

Project: **AINs 3025-026-001, 002, 007, 008 and 011**
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

As you requested, Earth Systems Pacific [Earth Systems] has completed testing at the site referenced above for hazardous constituents. This report has been prepared in accordance with Change Order No.1, dated May 19, 2025, and approved on May 30, 2025.

Thank you for this opportunity to be of service to you. If you have any questions regarding this report or the information contained herein, please contact this office at your convenience.

Respectfully submitted,
EARTH SYSTEMS PACIFIC

Alexander Schriener, Jr., PG 7198
Associate Geologist

PROFESSIONAL GEOLOGIST
ALEXANDER SCHRIENER JR.
No. 7198
Exp. 07/31/2025
STATE OF CALIFORNIA

Rpt/asj/cgj

Distribution: 6/ Palmdale School District
1/BER

Report of
Sampling and Testing
AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

June 17, 2025

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1.0 INTRODUCTION AND SUMMARY

1.1 Introduction

Earth Systems Pacific [Earth Systems], on behalf of the Palmdale School District, completed initial screening soil sampling and laboratory analysis to address concerns referenced in the Phase I Environmental Site Assessment [ESA] completed by Earth Systems (Earth Systems, 2025) to the site referenced above. This report details the sampling and analysis.

2.0 SITE DESCRIPTION

2.1 General Information

The site consists of five legal parcels totaling approximately 67 acres located at the northeast corner of 40th Street East & East Avenue Q, in Palmdale, Los Angeles County, California. The site location is depicted in Figure 1. The site layout is depicted in Figure 2.

2.2 Areas of Potential Concern

1) AINs 3025-026-001, 002, 007, and 008 contain numerous soil piles. The source of the material is unknown. It is recommended that a screening number of samples of the soil be collected and should be tested for TPH, OCPs, PCHs, and Heavy Metals. If found to be above regulatory limits, then the soil should be removed from the site and disposed of properly.
2) AIN 3025-026-001 features a former retention pond and former structure locations located along E Avenue Q. Representative samples for each area should be tested for TPH, OCPs, PCHs, Heavy Metals, lead, and asbestos.

3.0 METHODS

3.1 Sampling

The soil samples were collected at a depth of approximately 1 inch below the surface. A clean hand trowel was used to scrape off the upper inch of each sample location. The 4-ounch clean jar was then driven directly into the exposed soil until full. The jar was then capped with a Teflon-lined screw on lid, labeled and placed in a closed container with an ice compound. The trowel was cleaned with distilled water after each use. Samples were collected at AINs 3025-026-001, 002, and 007 on June 3, 2025, at the locations shown on Figure 2, as follows:

1) The soil piles contained in AINs 3025-026-001, 002, 007, and 008 were sampled at three separate clusters. Three samples were collected from each cluster (Figure 2 and Photos 1-2). Each set of the three soil samples were composited by the laboratory into one sample. For example, SS-1, SS-3, and SS-5 were composted into SS-A. Duplicate samples were collected at SS-1, SS-3, and SS-5. These were labeled SS-2, SS-4, and SS-6 and composited into SS-B.

2) In AIN 3025-026-001, three samples SS-25, SS-26, and SS-27 were collected from the former retention pond area and composited into SS-I. Three samples SS-16, SS-17, and SS-18 were collected from the former structure locations located along E Avenue Q, and composited into SS-F.

3) Two additional samples clusters were selected in the former agriculture field locations in AINs 3025-026-001 and -002. Three samples were collected from each cluster. Each set of the three soil samples were composited by the laboratory into one sample. These are identified as SS-G and SS-H.

4) Samples SS-13, SS-14 and SS-15, were collected from AIN 3025-026-007 and composited into SS-E. This portion of the site was apparently never under cultivation or development. This sample was collected as background for the site.

5) In total, 27 samples were collected. The samples were labeled and logged onto a chain-of-custody form, placed into an ice-chest, and transported to a California-certified testing laboratory.

3.2 Laboratory Testing

Analysis of the collected samples was performed by A & R Laboratories, a California-certified testing laboratory. The analysis consisted of the following:

1) The 27 soil samples were composited at the laboratory and were analyzed for CAM-17 metals, using EPA method 6010B and EPA method 7471A for mercury, for TPH using EPA method 5035, for OCPs using EPA method 8081A, VOCs using EPA method 8260B, PCBs using EPA Method 8082, and asbestos using EPA method 600/R-93/116.

The analytical results were compared to the US EPA Regional Screening Levels [RSLs] for metals and organics, and the California Department of Toxic Substance Control [DTSC] specified values for lead and arsenic. A summary of the test results is presented in Table 1 in Appendix A. The laboratory report is presented in Appendix B.

3.4 Laboratory and Field-Testing QC

The accuracy of laboratory analyses was assessed by laboratory control samples, matrix spikes, duplicates, and initial and continuing calibrations of instruments. Accuracy limits are statistically generated by the laboratory or required by specified EPA methods. The QA/QC summaries in the laboratory report were reviewed and found to be within accepted limits.

In the field, a “laboratory blind” duplicate sample was collected at the SS-1, SS-3, and SS-5 locations. These were SS-2, SS-4, and SS-6. The duplicate samples were collected in the same sampling locations as the initial sample. The laboratory analysis of SS-A and SS-B were both similar in chemical content within normal statically variation. This demonstrates that the soils sampled were basically homogeneous in composition and that the laboratory techniques were adequately accurate.

4.0 FINDINGS, DISCUSSION AND CONCLUSIONS

Heavy metals were detected in the 9 soil samples analyzed (Table 1). For all 9 samples analyzed, the respective highest concentrations detected and the average for each detected metal were much less than the EPA screening levels for residential and industrial. In addition, the detected concentration of Lead and Arsenic were less than the DTSC specific screening values for those metals.

One sample (SS-F) contained trace amount of the OCP DDE at 0.011 mg/kg. It was less than any regulatory screen level. Other OCPs were not detected above laboratory reporting limits.

TPH and PCBs were not detected above laboratory reporting limits for any of the samples analyzed.

Asbestos was analyzed for Sample SS-F. It was not detected above laboratory reporting limits.

Given the results of the initial screening sampling of specific areas at the site, the total concentrations of heavy metals, TPH and OCPs and asbestos from all the locations sampled were not above any regulatory reporting limits.

5.0 LIMITATIONS

This report has been prepared for the exclusive use of the Palmdale School District [Client]. The conclusions rendered in this report are opinions based on readily available information obtained to date within the scope of the work authorized by the Client. The scope of work for this project was developed to address the needs of the Client and may not meet the needs of other users. Any other use of or reliance on the information and opinions contained in this report without the written authorization of Earth Systems is at the sole risk of the user.

The results contained in this report are based upon the information acquired during the investigation and may include information obtained from third parties. Earth Systems makes no claim as to the accuracy of the information obtained from others. It should be noted that any level of assessment cannot ascertain that a property is completely free of chemical or toxic substances. It is possible that variations exist beyond or between points explored during the course of the investigation, and that changes in conditions can occur in the future due to the works of man, contaminant migration, variations in rainfall, temperature, and/or other factors not apparent at the time of the field investigation.

The services performed by Earth Systems have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the site vicinity. No warranty is expressed or implied.

REFERENCES

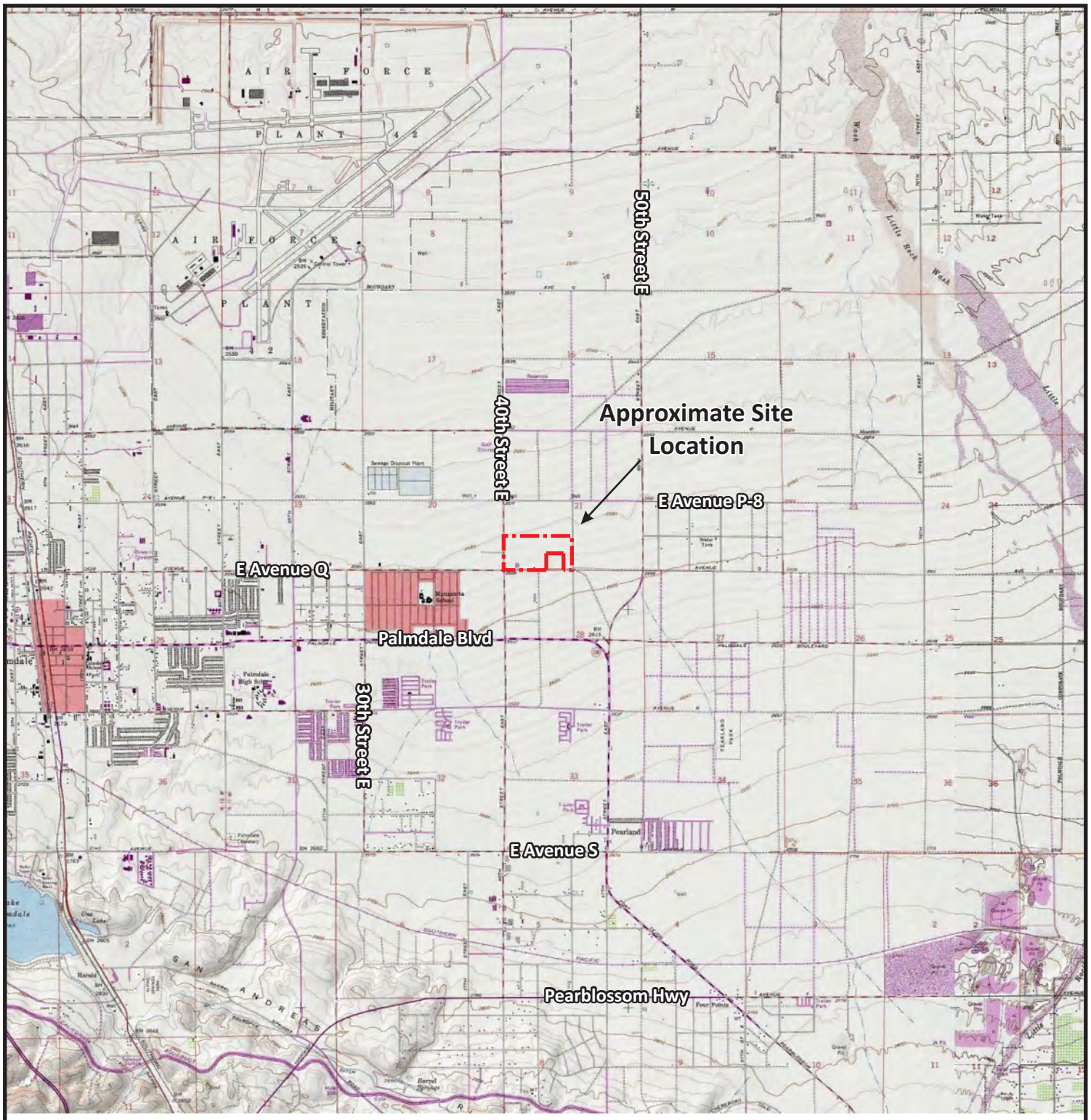
California Department of Toxic Substances Control, *Preliminary Endangerment Assessment Guidance Manual*, January 1994, Interim Final – Revised October 2013.

Earth Systems, 2025, *Report of Phase I Environmental Site Assessment, Proposed Serena Village Project, AINs 3025-026-001, 002, 007, 008 and 011, Palmdale, California*, File No.: 307083-001, Doc. No.: 25-05-703R, dated May 6, 2025.

US Environmental Protection Agency, 2015. *Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) November 2015*, obtained from the US EPA website.

APPENDIX A

Figures, Photos and Tables



Base Map: USGS 7-1/2' Quadrangle, *La Liebre Ranch, CA,* 1995, *Neenach School, CA*, 1995.

LEGEND

Approximate Site Boundary

Approximate Scale: 1" = 1 Mile

0 1 Mile 2 Miles

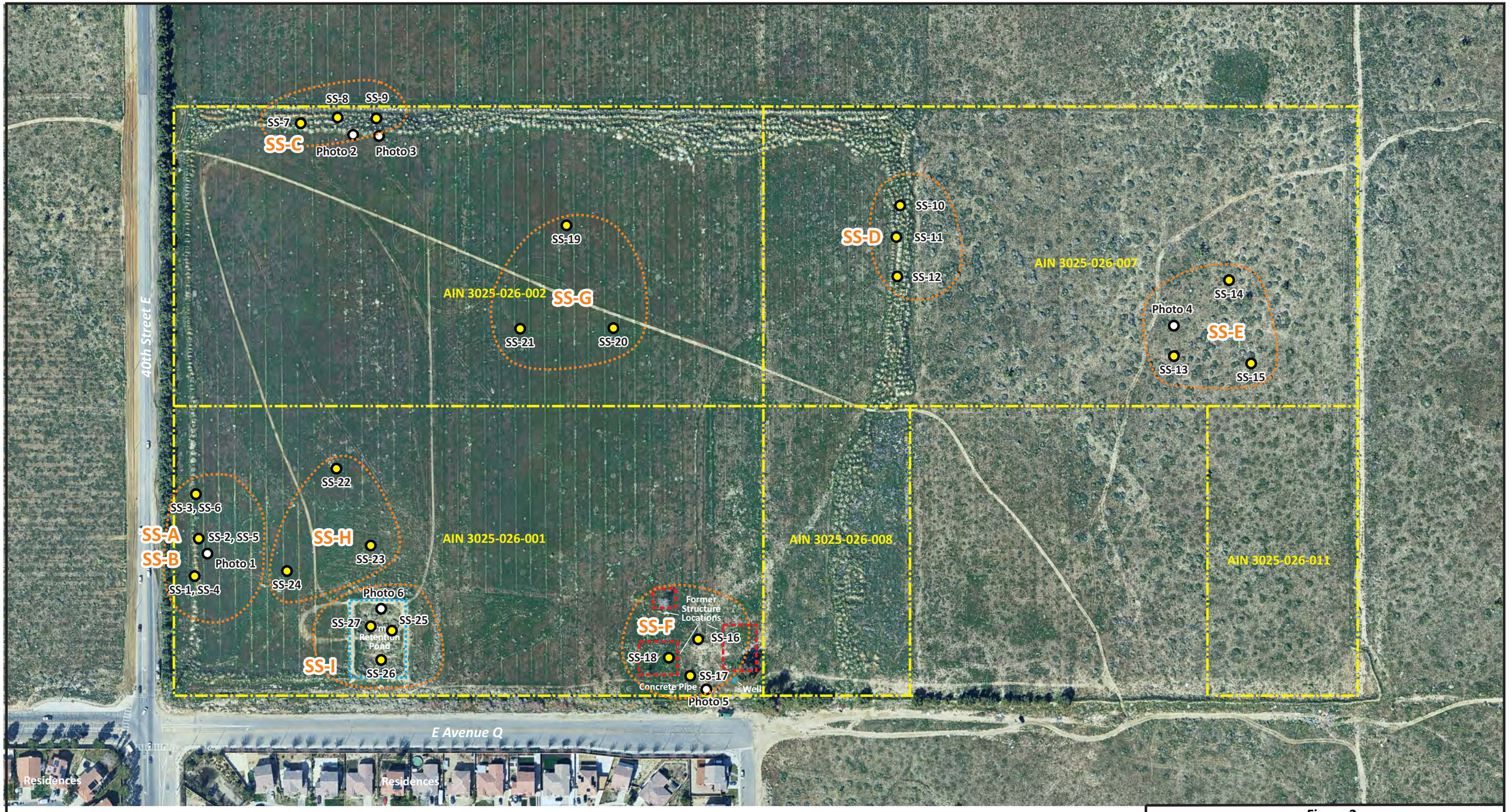
N

Figure 1
Site Location

AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

6/17/2025 | File No.: 307083-002



LEGEND

- Approximate Site/AIN Boundaries
- SS-1 — Approximate Sample Locations
- Photo 6 — Approximate Photo Locations
- SS-I — Approximate Sample Cluster Locations

Approximate Scale: 1" = 200’

0 200’ 400’

Reference: Google Earth, 2/14/2024.

Figure 2
Sample Location Map

AINs 3025-026-001, 002, 007, 008 and 011
NEC of 40th Street East & East Avenue Q
Palmdale, Los Angeles County, California

Earth Systems

6/17/2025 | File No.: 307083-002



Photo 1: View of Samples SS-2,SS-5 and SS-3, SS-6.



Photo 2: View of Samples SS-8 and SS-9.



Photo 3: View looking toward Samples SS-19, SS-20, SS-21.



Photo 4: View of Sample SS-13.



Photo 5: View of Samples SS-16, SS-17, and SS-18 near former location of structures.



Photo 6: View of Sample SS-25, SS-26, and SS-27 in former retention pond area.

Table 1

Chemical Testing Results - Heavy Metals and Asbestos

Area	Sample Date	Sample ID	Sample Depth (feet)	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Sb	Se	Ag	Th	V	Zn	Asbestos
soil piles	6/3/2025	SS-A	Surface	<1.0	121	<0.50	1.25	10.6	8.41	51.6	4.40	<0.042	<0.50	17.3	<1.0	<1.0	<1.0	<1.0	33.5	48.1	- -
		SS-B dup of A	Surface	<1.0	115	<0.50	1.27	12.6	8.51	50.0	5.56	<0.042	<0.50	20.0	<1.0	<1.0	<1.0	<1.0	32.7	47.4	- -
		SS-C	Surface	<1.0	99.9	<0.50	1.34	25.3	8.88	51.2	2.86	<0.042	<0.50	36.5	<1.0	<1.0	<1.0	<1.0	37.8	43.4	- -
		SS-D	Surface	<1.0	125	<0.50	1.37	7.75	8.67	55.7	2.95	<0.042	<0.50	12.3	<1.0	<1.0	<1.0	<1.0	36.5	51.9	- -
background		SS-E	Surface	<1.0	100	<0.50	1.18	7.18	8.36	46.3	3.70	<0.042	<0.50	10.7	<1.0	<1.0	<1.0	<1.0	35.0	40.4	- -
structures		SS-F	Surface	<1.0	90.9	<0.50	1.09	6.81	6.47	39.9	26.1	<0.042	<0.50	8.74	<1.0	<1.0	<1.0	<1.0	28.4	58.5	nd
former ag fields		SS-G	Surface	<1.0	105	<0.50	1.21	7.66	8.88	53.3	2.74	<0.042	<0.50	11.9	<1.0	<1.0	<1.0	<1.0	34.4	41.8	- -
		SS-H	Surface	<1.0	125	<0.50	1.5	10.3	9.77	61.6	4.11	<0.042	<0.50	14.2	<1.0	<1.0	<1.0	<1.0	39.8	53.3	- -
sump		SS-I	Surface	<1.0	104	<0.50	1.11	6.98	7.25	45.4	4.10	<0.042	<0.50	9.92	<1.0	<1.0	<1.0	<1.0	30.7	42.1	- -
	Onsite Average			nd	110	nd	1.26	10.6	8.36	50.6	6.3	nd	nd	15.73	nd	nd	nd	nd	34.3	47	- -
	Generic "Normal" Values			<5	<200	<1	<2	<50	<20	<20	<20	<0.5	<5	<20	<1	<0.05	<0.5	<30	<100	<200	<200
	DTSC Specified Value			12							80										
	US EPA Regional Screening Levels - Residential in soil				1,500	160	7.1	120,000	23	3,100	400	11	399	820	31	399	399	0.78	390	23,000	23,000
	US EPA Regional Screening Levels - Industrial in soil				220,000	2,300	980	1,800,000	350	47,000	800	46	5,800	11,000	470	5,800	5,800	12	5,800	350,000	350,000

Concentrations are in mg/kg unless otherwise noted
nd = Not detected in excess of the listed detection limit.
- - = not analyzed

Notes:

APPENDIX B

Laboratory Report

A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761
909-781-6335
www.arlaboratories.com office@arlaboratories.com

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 06/17/2025 13:23:22
Laboratory Job No. (Certificate of Analysis No.)	2506-00045
Project Name / No.	307083-002
Dates Sampled (from/to)	06/03/25 To 06/03/25
Dates Received (from/to)	06/04/25 To 06/04/25
Dates Reported (from/to)	06/17/25 To 6/17/2025
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Other Analyses

1 PLM sample(s) reported by technician LAT were contracted to LA TESTING (EMSL)

All results for sub-contracted analyses may be sent separately

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
COMPOSITE: SS-F	4,4'-DDE	**0.011**		mg/Kg	0.0050						

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USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research

A & R Laboratories, Inc.

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909-781-6335
www.arlaboratories.com office@arlaboratories.com

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **COMPOSITE: SS-A**					Date & Time Sampled:		06/03/25 @ 11:20	
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	56		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**121**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.25**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**10.6**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.41**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**51.6**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**4.40**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**17.3**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**33.5**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**48.1**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[PCBs]								
Ultrasonic Extraction	Complete			EPA 3550B	1.0		06/06/25	KZ

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 001 **COMPOSITE: SS-A** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Aroclor 1016	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1221	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1232	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1242	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1248	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1254	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1260	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	56		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	68		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 001 **COMPOSITE: SS-A** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 001 **COMPOSITE: SS-A** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	88		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	103		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	118		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **COMPOSITE: SS-A**					Date & Time Sampled:		06/03/25 @	11:20
Sample Matrix: **Soil**								
.....continued								
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	62		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	68		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 002 **COMPOSITE: SS-B**					Date & Time Sampled:		06/03/25 @	11:20
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	75		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **COMPOSITE: SS-B**					Date & Time Sampled:		06/03/25 @	11:20
Sample Matrix: **Soil**								
.....continued								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**115**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.27**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**12.6**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.51**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**50.0**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**5.56**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**20.0**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**32.7**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**47.4**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[PCBs]								
Ultrasonic Extraction	Complete			EPA 3550B	1.0		06/06/25	KZ
Aroclor 1016	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1221	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1232	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1242	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1248	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1254	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1260	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	70		%REC	EPA 8081A/8082		50-150	06/06/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 002 **COMPOSITE: SS-B** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Decachlorobiphenyl	91		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 002 **COMPOSITE: SS-B** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 002 **COMPOSITE: SS-B** Date & Time Sampled: 06/03/25 @ 11:20
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	93		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	103		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	118		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **COMPOSITE: SS-B**					Date & Time Sampled:		06/03/25 @	11:20
Sample Matrix: **Soil**								
.....continued								
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	78		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	91		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 003 **COMPOSITE: SS-C**					Date & Time Sampled:		06/03/25 @	11:43
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	67		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**99.9**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.34**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**25.3**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.88**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**51.2**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 003 **COMPOSITE: SS-C** Date & Time Sampled: 06/03/25 @ 11:43
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Lead	**2.86**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	**0.566**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**36.5**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**37.8**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**43.4**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[PCBs]								
Ultrasonic Extraction	Complete			EPA 3550B	1.0		06/06/25	KZ
Aroclor 1016	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1221	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1232	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1242	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1248	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1254	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1260	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	64		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	80		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 003 **COMPOSITE: SS-C** Date & Time Sampled: 06/03/25 @ 11:43
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 003 **COMPOSITE: SS-C** Date & Time Sampled: 06/03/25 @ 11:43
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 003 **COMPOSITE: SS-C** Date & Time Sampled: 06/03/25 @ 11:43
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	89		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	103		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	120		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	71		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	80		%REC	EPA 8081A/8082		50-150	06/06/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported	06/17/25
Date Received	06/04/25
Invoice No.	5448
Cust #	1035
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 **COMPOSITE: SS-D**					Date & Time Sampled:		06/03/25 @ 12:01	
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	60		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**125**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.37**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**7.75**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.67**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**55.7**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**2.95**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**12.3**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**36.5**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**51.9**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[PCBs]								

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 004 **COMPOSITE: SS-D** Date & Time Sampled: 06/03/25 @ 12:01
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Ultrasonic Extraction	Complete			EPA 3550B	1.0		06/06/25	KZ
Aroclor 1016	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1221	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1232	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1242	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1248	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1254	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1260	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	70		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	89		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 004 **COMPOSITE: SS-D** Date & Time Sampled: 06/03/25 @ 12:01
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 004 **COMPOSITE: SS-D** Date & Time Sampled: 06/03/25 @ 12:01
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	84		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	103		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	117		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Date Reported	06/17/25
Date Received	06/04/25
Invoice No.	5448
Cust #	1035
Permit Number	
Customer P.O.	

Project: 307083-002

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 **COMPOSITE: SS-D**					Date & Time Sampled:		06/03/25 @	12:01
Sample Matrix: **Soil**								
.....continued								
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	78		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	89		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 005 **COMPOSITE: SS-E**					Date & Time Sampled:		06/03/25 @	12:16
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	64		%REC	EPA 8015B		50-150	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 005 **COMPOSITE: SS-E** Date & Time Sampled: 06/03/25 @ 12:16
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**100**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.18**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**7.18**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.36**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**46.3**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**3.70**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**10.7**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**35.0**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**40.4**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 **COMPOSITE: SS-E**					Date & Time Sampled:		06/03/25 @	12:16
Sample Matrix: **Soil**								
.....continued								
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	64		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	78		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 006 **COMPOSITE: SS-F**					Date & Time Sampled:		06/03/25 @	12:34
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	73		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 **COMPOSITE: SS-F**					Date & Time Sampled:		06/03/25 @ 12:34	
Sample Matrix: **Soil**								
.....continued								
Barium	**90.9**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.09**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**6.81**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**6.47**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**39.9**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**26.1**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**8.74**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**28.4**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**58.5**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[PCBs]								
Ultrasonic Extraction	Complete			EPA 3550B	1.0		06/06/25	KZ
Aroclor 1016	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1221	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1232	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1242	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1248	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1254	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
Aroclor 1260	<0.050		mg/Kg	EPA 8082	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	58		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	78		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 006 **COMPOSITE: SS-F** Date & Time Sampled: 06/03/25 @ 12:34
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 006 **COMPOSITE: SS-F** Date & Time Sampled: 06/03/25 @ 12:34
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 006 **COMPOSITE: SS-F** Date & Time Sampled: 06/03/25 @ 12:34
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	87		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	103		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	114		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	**0.011**		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 **COMPOSITE: SS-F**					Date & Time Sampled:		06/03/25 @	12:34
Sample Matrix: **Soil**								
.....continued								
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	69		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	81		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Asbestos	SEE ATTACHED			PLM	1.0		06/12/25	LAT
Sample: 007 **COMPOSITE: SS-G**					Date & Time Sampled:		06/03/25 @	12:49
Sample Matrix: **Soil**								
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**105**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.21**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**7.66**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**8.88**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**53.2**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**2.74**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**11.9**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**34.4**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**41.8**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Date Reported	06/17/25
Date Received	06/04/25
Invoice No.	5448
Cust #	1035
Permit Number	
Customer P.O.	

Project: 307083-002

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 **COMPOSITE: SS-G**					Date & Time Sampled:		06/03/25 @	12:49
Sample Matrix: **Soil**								
.....continued								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	75		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	80		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 008 **COMPOSITE: SS-H**					Date & Time Sampled:		06/03/25 @	13:08
Sample Matrix: **Soil**								
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported	06/17/25
Date Received	06/04/25
Invoice No.	5448
Cust #	1035
Permit Number	
Customer P.O.	

Sample: 008 **COMPOSITE: SS-H** Date & Time Sampled: 06/03/25 @ 13:08
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**125**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.50**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Chromium	**10.3**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**9.77**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**61.6**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**4.11**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**14.2**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**39.8**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**53.3**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 **COMPOSITE: SS-H**					Date & Time Sampled:		06/03/25 @	13:08
Sample Matrix: **Soil**								
.....continued								
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	75		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	90		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Sample: 009 **COMPOSITE: SS-I**					Date & Time Sampled:		06/03/25 @	13:24
Sample Matrix: **Soil**								
[TPH Gasoline (C4-C12)]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C4-C12	<0.50		mg/Kg	EPA 8015M	1.0	0.50	06/05/25	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		06/05/25	JEN
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	06/05/25	JEN
C23-C40	<50		mg/Kg	EPA 8015M	1.0	50	06/05/25	JEN
[Surrogate]								
Hexacosane	75		%REC	EPA 8015B		50-150	06/05/25	JEN
[Metals Title 22 no Hg]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		06/05/25	KZ
Antimony	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Arsenic	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Barium	**104**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Beryllium	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cadmium	**1.11**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 009 **COMPOSITE: SS-I**					Date & Time Sampled:		06/03/25 @	13:24
Sample Matrix: **Soil**								
.....continued								
Chromium	**6.98**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Cobalt	**7.25**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Copper	**45.4**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Lead	**4.10**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Molybdenum	<0.50		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Nickel	**9.92**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Selenium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Silver	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Thallium	<1.0		mg/Kg	EPA 6010B	1.0	1.0	06/05/25	KZ
Vanadium	**30.7**		mg/Kg	EPA 6010B	1.0	0.50	06/05/25	KZ
Zinc	**42.1**		mg/Kg	EPA 6010B	1.0	5.0	06/05/25	KZ
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		06/04/25	KZ
Mercury	<0.042		mg/Kg	EPA 7471A	1.0	0.042	06/04/25	KZ
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		06/05/25	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	06/05/25	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Benzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	06/05/25	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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CERTIFICATE OF ANALYSIS

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
Permit Number
Customer P.O.

Sample: 009 **COMPOSITE: SS-I** Date & Time Sampled: 06/03/25 @ 13:24
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	06/05/25	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN

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EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Project: 307083-002

Date Reported 06/17/25
Date Received 06/04/25
Invoice No. 5448
Cust # 1035
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Customer P.O.

Sample: 009 **COMPOSITE: SS-I** Date & Time Sampled: 06/03/25 @ 13:24
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	06/05/25	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	06/05/25	JEN
[VOC Surrogates]								
Dibromofluoromethane	89		%REC	EPA 8260B		70-130	06/05/25	JEN
Toluene-D8	102		%REC	EPA 8260B		70-130	06/05/25	JEN
Bromofluorobenzene	115		%REC	EPA 8260B		70-130	06/05/25	JEN
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		06/06/25	KZ
Aldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN

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2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
BERMUDA DUNES, CA 92203

Date Reported	06/17/25
Date Received	06/04/25
Invoice No.	5448
Cust #	1035
Permit Number	
Customer P.O.	

Project: 307083-002

Sample: 009 **COMPOSITE: SS-I** Date & Time Sampled: 06/03/25 @ 13:24
Sample Matrix: **Soil**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
beta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
delta-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Technical Chlordane	<0.10		mg/Kg	EPA 8081A	1.0	0.10	06/06/25	JEN
4,4'-DDD	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDE	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
4,4'-DDT	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Dieldrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan II	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endosulfan Sulfate	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin Aldehyde	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Endrin ketone	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	1.0	0.0050	06/06/25	JEN
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	06/06/25	JEN
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	06/06/25	JEN
[Surrogates]								
Tetrachloro-m-xylene	64		%REC	EPA 8081A/8082		50-150	06/06/25	JEN
Decachlorobiphenyl	70		%REC	EPA 8081A/8082		50-150	06/06/25	JEN

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

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QUALITY CONTROL DATA REPORT

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER
79-811B COUNTRY CLUB DRIVE
INDIO, CA 92203

Project: 307083-002

Date Reported	**06/17/2025**
Date Received	**06/04/2025**
Date Sampled	**06/03/2025**
Invoice No.	**5448**
Customer #	**1035**
Customer P.O.	

Method # EPA 6010B
QC Reference # 122813 **Date Analyzed:** 6/5/2025 **Technician:** KZ
Samples 001 002 003 004 005 006 007 008 009

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Antimony	96	95	1	95	94	1
Arsenic	98	98	0	99	99	0
Barium	97	95	2	95	95	0
Beryllium	96	95	1	97	96	1
Cadmium	95	94	1	93	93	0
Chromium	103	104	1	104	106	2
Cobalt	95	94	1	94	94	0
Copper	98	98	0	99	100	1
Lead	96	95	1	94	95	1
Molybdenum	101	102	1	106	106	0
Nickel	96	95	1	95	95	0
Selenium	97	97	0	98	98	0
Silver	90	89	1	88	89	1
Thallium	98	98	0	99	99	0
Vanadium	91	90	1	88	88	0
Zinc	95	94	1	93	93	0

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20
70 - 130	0 - 20	0 - 20

Method # EPA 7471A
QC Reference # 122821 **Date Analyzed:** 6/4/2025 **Technician:** KZ
Samples 001 002 003 004 005 006 007 008 009

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Mercury	97	92	5	92	90	2

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 25	0 - 25

Method # EPA 8015B
QC Reference # 122903 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 009

No QC recoveries reported.

Method # EPA 8015M
QC Reference # 122818 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 009

Results

	LCS %REC	LCS %DUP	LCS %RPD
C4-C12	88	87	1

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

QC Reference # 122903 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 009

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909-781-6335
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QUALITY CONTROL DATA REPORT

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER

Date Reported 06/17/2025
Date Received 06/04/2025
Date Sampled 06/03/2025

Project: 307083-002

Method # EPA 8015M
QC Reference # 122903 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 009

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
C13-C22	101	99	97	2

Control Ranges

LCS %REC	SPIKE %RPD
70 - 130	0 - 25

Method # EPA 8081A
QC Reference # 122921 **Date Analyzed:** 6/6/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 007 008 009

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
4,4'-DDT	90	80	80	0
Aldrin	90	85	81	4
Dieldrin	87	86	86	0
Endrin	88	88	89	1
gamma-BHC	85	84	75	9
Heptachlor	86	87	84	3

Control Ranges

LCS %REC	SPIKE %RPD
30 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

Method # EPA 8081A/8082
QC Reference # 122918 **Date Analyzed:** 6/6/2025 **Technician:** JEN
Samples 001 002 003 004 006

No QC recoveries reported.

QC Reference # 122921 **Date Analyzed:** 6/6/2025 **Technician:** JEN
Samples 001 002 003 004 005 006 007 008 009

No QC recoveries reported.

Method # EPA 8082
QC Reference # 122918 **Date Analyzed:** 6/6/2025 **Technician:** JEN
Samples 001 002 003 004 006

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Aroclor 1016	85	90	85	5

Control Ranges

LCS %REC	SPIKE %RPD
50 - 150	0 - 25

Method # EPA 8260B
QC Reference # 122815 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 006 009

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QUALITY CONTROL DATA REPORT

2506-00045

EARTH SYSTEMS
ALEX SCHRIENER

Date Reported 06/17/2025
Date Received 06/04/2025
Date Sampled 06/03/2025

Project: 307083-002

Method # EPA 8260B
QC Reference # 122815 **Date Analyzed:** 6/5/2025 **Technician:** JEN
Samples 001 002 003 004 006 009

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
1,1-Dichloroethene	130	130	130	0
Benzene	94	95	100	5
Chlorobenzene	108	107	113	6
Toluene	92	92	103	11
Trichloroethene	86	87	90	3

Control Ranges

LCS %REC	SPIKE %RPD
50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

LA Testing
5431 Industrial Drive, Huntington Beach, CA 92649
Phone/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com hblab@latesting.com

LA Testing Order:	332515804
CustomerID:	32CENT50
CustomerPO:	
ProjectID:	

Attn: **Jennifer Iniguez**
A & R Laboratories
1650-C South Grove Avenue
Ontario, CA 91761

Phone:	(800) 798-9336
Fax:	(951) 779-0344
Received:	6/6/2025 10:00 AM
Analysis Date:	6/12/2025
Collected:	6/3/2025

Project: **307083-002**

Test Report: Qualitative Asbestos Analysis of Soils via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Result	Notes
COMPOSITE SS-F *332515804-0001*		Brown Fibrous Heterogeneous	**None Detected**	Soil is a problem matrix. Other analytical options are recommended such as EPA 600 PLM/TEM with milling prep

Analyst(s)

Pamela Cardoso (1)

Michael Chapman, Laboratory Manager
or other approved signatory

LA Testing maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by LA Testing. LA Testing bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. This method is designed for relatively homogenous bulk building materials not soil. There is a distinct chance for false negatives. LA Testing recommends other, more specialized methods for these types of samples.

Samples analyzed by LA Testing Huntington Beach, CA

Initial report from 06/12/2025 14:58:17

A & R Laboratories

1650-C S. Grove Avenue
Ontario, CA 91761
V: 909.781.6335 ●
office@arlaboratories.com

#3325158231 RO #332515804

Chain of Custody Record

A & R Work Order #: 2506-00045

Page ____ of ____

LA testing

Project No:	Project Name:		
307083-002			
Project Manager:	**Phone:**	**Fax:**	
JENNIFER INIGUEZ	909-781-6335		
Customer Name: (Report and Billing)	**Street Address:** (Report and Billing)		
A&R LABORATORIES	1650 S. GROVE AVE STE# C		
Email:	**City, State Zip**		
JENNIFER.INIGUEZ@ARLABORATORIES.COM	ONTARIO,CA,91761		

Analyses Requested (circle appropriate)

Lab # (Lab use only)	Sample ID (As it should appear on report)	Grab/ Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GCMS: 8260 or 624	VOCs by GCMS: BTEX, OXYs	SVOCs: 8270 or 625	Pest. &/or PCBs: 608 or 8081/8082	Asbestos PLM	Qualitative		
	Composite 55-F		6/3/25	12:34-1236	soil	4oz Jar													X	X		

Turn Around
- ○ 24hr RUSH*
- ○ 48hr RUSH*
- ◉ Normal
- ◉ Other ____

*PRIOR approval, additional fee, work received after 4 pm will be processed next work day.

Special Instructions

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:	5) Relinquished by:	Date:	Time:
	6/6/25							
2) Received by:	**Date:**	**Time:**	**4) Received by:**	**Date:**	**Time:**	**6) Received for Laboratory by:**	**Date:**	**Time:**
Emily Mendoza (wi)	6/6/25	10AM						

Disposal
- ○ Return
- ◉ Lab Disposal

Unless other arrangements are made samples will be disposed of 60 days after reciept.

This section is to be completed by laboratory personnel.

Samples Chilled: ◉ Yes ○ No ○ From Field

Custody Seals: ○ Yes ◉ No

Samples Intact: ◉ Yes ○ No

Temp C:

Delivery: ◉ Courier ○ Walk In ○ UPS/Fed Ex

Report Delivery Formats
- ☐ Paper ☑ EMAIL ☐ XLS
- ☐ EDD, Type _____
- ☐ EDF, EPA Site ID _____

Laboratory Notes: Please *cc: jenny.jiang@arlaboratories.com*

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The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

White Copy - Original (Accompanies Samples) Yellow Copy - A & R Files Pink Copy - Client Copy

As per client verbals, 1WK TAT. -ESM 6/6/25

OrderID: 332515804

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2506-45 QP

Client Name: Earth Systems
E-mail: A.Schriener@earthsystems.com
Address: 79811 B Country Club Bermuda Dunes CA 92203
Report Attention: ALEX S. | Phone #: (760) 345-1588 | Fax: # | Sampled By: JOSH
Project No./ Name: 307083-002 | Project Site

☑ Chilled ☑ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☑ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Remarks
1	SS-1	6-3-25	11:20	Soil	NONE	4 Oz Jar	✓				✓	✓	✓	✓		SS-A
1	SS-3 (SS-A)		11:25				✓				✓	✓	✓	✓		SS-A
1	SS-5		11:29				✓				✓	✓	✓	✓		SS-A
2	SS-2		11:20				✓				✓	✓	✓	✓		SS-B
2	SS-4 (SS-B)		11:25				✓				✓	✓	✓	✓		SS-B
2	SS-6		11:29				✓				✓	✓	✓	✓		SS-B
3	SS-7		11:43				✓				✓	✓	✓	✓		SS-C
3	SS-8 (SS-C)		11:44				✓				✓	✓	✓	✓		SS-C
3	SS-9		11:45				✓				✓	✓	✓	✓		SS-C
4	SS-10		12:01				✓				✓	✓	✓	✓		SS-D
4	SS-11 (SS-D)		12:02				✓				✓	✓	✓	✓		SS-D
4	SS-12		12:03				✓				✓	✓	✓	✓		SS-D
5	SS-13		12:16								✓		✓	✓		SS-E
5	SS-14 (SS-E)		12:17								✓		✓	✓		SS-E
5	SS-15		12:18								✓		✓	✓		SS-E

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Josh T	ESP	6-4-25	10:43			6/4/25	10:43
		6/4/25	12:50			6/4/25	12:50

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4; 3.2°C/T33

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 2506-45 QUO

Client Name: Earth Systems
E-mail: AScherener@EarthSystems.com
Address: 79-811B Country Club dr. Bermuda Dunes, CA 92203
Report Attention: Alex S. | Phone #/Fax #: (760) 345-1588 | Sampled By: Josh
Project No./ Name: 307083-002 | Project Site

☑ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	Asbestos	Remarks
6	SS-16	6-3-25	12:34	Soil	None	4 Oz Jar	✓				✓	✓	✓	✓		✓	SS-F
	SS-17		12:35				✓				✓	✓	✓	✓		✓	
	SS-18		12:36				✓				✓	✓	✓	✓		✓	
7	SS-19		12:49								✓			✓			SS-G
	SS-20		12:50								✓			✓			
	SS-21		12:51								✓			✓			
8	SS-22		13:08								✓			✓			SS-H
	SS-23		13:09								✓			✓			
	SS-24		13:10								✓			✓			
9	SS-25		13:24				✓				✓		✓	✓			SS-I
	SS-21		13:25				✓				✓		✓	✓			
	SS-22		13:26				✓				✓		✓	✓			

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Josh T	ESP	6-4-25	10:43			6/4/25	10:45
		6/4/25	12:50			6/4/25	12:50

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: 3.2°C/ICE; IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

Appendix J: Water Availability Memorandum
Stormwater Memorandum

TECHNICAL MEMORANDUM

Date: January 15th, 2026 **BKF Job Number: 20250779**

Deliver To: Palmdale Water District

From: Rodrigo Elejalde, Project Manager

Subject: Palmdale School District ELOP Center - Water Demand Projection

INTRODUCTION

The following memorandum presents calculations showing the proposed water demand for the Palmdale School District ELOP Center institutional project.

EXISTING CONDITIONS AND WATER DEMAND

The 68-acre project site is located at the northeast corner of Avenue Q and 40th Street. It is currently undeveloped and rectangular in shape, bordered by existing or planned roadways. The site lies approximately one mile from the Palmdale Water Reclamation Plant. See *Appendix B* for existing conditions on the project site.

A 20-inch ductile iron (DI) water transmission main runs along Avenue Q, serving a nearby residential development that includes an 8-inch DI water distribution main loop. Five public fire hydrants are connected directly to the 20-inch main along Avenue Q; two of these hydrants are situated on the north side within the project boundaries. Additional connections to the transmission main adjacent to the project site include an irrigation line and a blowoff valve.

PROPOSED CONDITIONS AND WATER DEMAND

A proposed 8-inch DI distribution main loop will connect to the existing 20-inch water transmission main at two locations: one just east of the Avenue Q and 40th Street intersection, and the other just west of the Avenue Q and 42nd Street intersection. The distribution loop will run along Avenue Q and include at least five service connections: two 6-inch domestic water lines, two 8-inch fire water lines, and one 6-inch irrigation line.

The proposed development will include six sprinklered modular classroom buildings of Construction Type V(B)-S and one large sprinklered multipurpose room of Construction Type II(B)-S. The site layout is shown in *Appendix C*. Each sprinklered building will be equipped with an adjacent fire hydrant, a fire department connection, and a post indicator valve to ensure fire safety. Additional fire hydrants will be installed and spaced in accordance with California Fire Code requirements.

Each classroom will contain two separate bathrooms and sinks. Standalone restroom facilities will also be located near play areas. A cafeteria will also contribute to the overall water demand.

The proposed site will feature multiple large sports fields requiring considerable irrigation, along with appropriate landscaping around the buildings. The site will initially be designed with irrigation pulling

from domestic water lines. However, it is anticipated the system will be changed to a reclaimed water system in a future phase. The irrigation system will have one point of connection near the intersection of Avenue Q & 40th Street.

PROPOSED DOMESTIC WATER DEMAND

Based on the Palmdale Water District Development Services Processes and Guidelines, Chapter 3 – Water Design Criteria, Section 3.11.2, the total projected domestic water demand for the site is 48,898 gallons per day (gpd). Detailed calculations are available in *Appendix A*.

Palmdale Water District provided the pressure and flow available in the 20" water transmission main along Avenue Q via a fire flow test of a hydrant on the southeast corner of Avenue Q & 40th Street. The results of this fire flow test are shown in *Figure 1*.

The flow test results were used as a basis to confirm sufficient flow and pressure is available to serve each domestic water lateral on the site. See *Appendix C* for a visual representation of the model layout about the model label and building type.

PROPOSED FIRE WATER DEMAND

According to the 2022 California Fire Code, Section 507 and Appendices B & C, the required fire flow demand for the project is 1,500 gallons per minute (gpm), equivalent to 2,160,000 gpd. Supporting calculations are provided in *Appendix D*.

Palmdale Water District provided the pressure and flow available in the 20" water transmission main along Avenue Q via a fire flow test of a hydrant on the southeast corner of Avenue Q & 40th Street. The results of this fire flow test are shown in *Figure 1*.

PROPOSED IRRIGATION DEMAND

Preliminary irrigation demand projections have been provided by Nuvis and can be found in *Appendix E*. The anticipated irrigation demand is 33 gpm.

Figure 1: Fire Flow Test Results

Location: Southside of Avenue Q +/- 111 East of 40th Street E

Date: 11/13/25 **Time:** 08:45 AM **Temperature:** 70°F/ Windy
Main Line Size: 20" **Outlet Size:** 2 ½"

Static Pressure:	72 PSI
Residual Pressure:	71 PSI
Observed Flow:	1363 GPM

PROPOSED DOMESTIC WATER & IRRIGATION MODEL AND RESULTS

A water system model was created using Bentley WaterCAD to compare the demand required with the pressure available and confirm if sufficient pressure could be supplied at each domestic water lateral for each building. The model also includes irrigation demand. See *Figure 2* below. The model utilizes a reservoir with an elevation equivalent to the pressure available in the 20-inch water transmission main to model a direct connection to the existing water main. All supply pressure is over 63psi

Figure 2: Domestic and Irrigation Water Model Results

	Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
31: J-1	J-1	0	166.25	72
33: J-2	J-2	0	166.24	72
39: J-5	J-5	0	165.51	72
41: IRR METER	IRR METER	0	166.23	72
43: IRR RPDA	IRR RPDA	33	166.23	72
49: DW METER	DW METER	0	165.04	71
51: DW RPDA	DW RPDA	0	164.90	71
56: J-14	J-14	0	166.19	72
59: DW METER	DW METER	0	165.63	72
61: DW RPDA	DW RPDA	0	165.51	72
66: J-18	J-18	0	164.24	71
68: J-19	J-19	0	161.70	70
70: J-20	J-20	0	164.16	71
72: J-21	J-21	0	164.29	71
74: J-22	J-22	0	161.91	70
76: J-23	J-23	152	160.97	70
78: J-24	J-24	0	164.81	71
80: J-25	J-25	0	164.56	71
83: J-26	J-26	0	162.41	70
85: J-27	J-27	0	160.32	69
87: J-28	J-28	0	159.56	69
89: J-29	J-29	0	159.38	69
91: J-30	J-30	0	159.31	69
94: J-31	J-31	0	160.55	69
96: J-32	J-32	152	150.60	65
98: J-33	J-33	0	159.26	69
101: J-34	J-34	0	156.67	68
103: J-35	J-35	152	145.45	63
105: J-36	J-36	152	154.54	67
107: J-37	J-37	152	151.16	65
109: J-38	J-38	175	154.10	67

	Label	Diameter (in)	Flow (gpm)	Velocity (ft/s)
32: P-1	P-1	8.0	272	1.74
34: P-2	P-2	8.0	272	1.74
42: P-6	P-6	6.0	33	0.37
44: P-7	P-7	6.0	33	0.37
50: P-10	P-10	6.0	460	5.22
52: P-11	P-11	6.0	460	5.22
60: P-14	P-14	6.0	475	5.39
62: P-15	P-15	6.0	475	5.39
63: P-16	P-16	20.0	696	0.71
64: P-17	P-17	8.0	239	1.53
65: P-18	P-18	8.0	-221	1.41
67: P-19	P-19	6.0	460	5.22
69: P-20	P-20	6.0	379	4.31
71: P-21	P-21	6.0	80	0.91
73: P-22	P-22	6.0	-72	0.81
75: P-23	P-23	3.0	152	6.90
77: P-24	P-24	3.0	152	6.90
79: P-25	P-25	6.0	-224	2.54
81: P-26	P-26	6.0	252	2.85
82: P-27	P-27	6.0	475	5.39
84: P-28	P-28	6.0	252	2.85
86: P-29	P-29	6.0	252	2.85
88: P-30	P-30	6.0	252	2.85
90: P-31	P-31	6.0	77	0.87
92: P-32	P-32	6.0	77	0.87
95: P-34	P-34	3.0	152	6.90
97: P-35	P-35	3.0	152	6.90
99: P-33(1)	P-33(1)	6.0	77	0.87
100: P-33(2)	P-33(2)	6.0	-379	4.31
102: P-36	P-36	6.0	456	5.17
104: P-37	P-37	3.0	152	6.90
106: P-38	P-38	3.0	152	6.90
108: P-39	P-39	3.0	152	6.90
110: P-40	P-40	3.0	175	7.94

PROPOSED FIRE WATER MODEL AND RESULTS

A water system model was created using Bentley WaterCAD to compare the demand required with the pressure available and confirm if sufficient pressure could be supplied at each fire water lateral for each building; see *Appendix D* for a visual representation. The model utilizes a reservoir with an elevation equivalent to the pressure available in the 20-inch water transmission main to model a direct connection to the existing water main. All supply pressure is approximately 71 psi. See *Appendix D* for Junction Pressure Supply Table from the Model in addition to tabular results.

APPENDICES

Appendix A – Potable Water Demands

Appendix B – Existing Conditions

Appendix C – Site Layout & Water Model Exhibit

Appendix D – Fire Flow Demand Calculation

Appendix E – Irrigation Demand Projection By Others

APPENDIX A

250779 Palmdale School District ELOP Center Water Demand Calculations

This excel worksheet calculates the proposed water demand required for domestic, irrigation, and fire infrastructure.

Domestic Water Demand

Per Palmdale Water District '*Design Criteria for Water Facilities*' Chapter 3:

3.11.2 Design Flows

Design flows shall be based on a demand of an average of 714 gallons per day (gpd) per connection which is referenced in the latest PWD Water System Master Plan. Commercial/Industrial flows shall be calculated based on the developers estimated water demands for the proposed development. The calculation for design flows is used for determining instantaneous water supply and not related to water budgets.

Per plan, two domestic water connections are proposed. Therefore:

# of POCs	Demand/Connection (gpd)	Total Domestic Water Demand (gpd)	Total Domestic Water Demand (gpm)
2	714	1428	1.0

Irrigation Demand

Per Palmdale Water District '*Design Criteria for Water Facilities*' Chapter 3:

3.11.2 Design Flows

Design flows shall be based on a demand of an average of 714 gallons per day (gpd) per connection which is referenced in the latest PWD Water System Master Plan. Commercial/Industrial flows shall be calculated based on the developers estimated water demands for the proposed development. The calculation for design flows is used for determining instantaneous water supply and not related to water budgets.

Per plan, one irrigation water connections is proposed. Therefore:

# of POCs	Demand/Connection (gpd)	Total Irrigation Demand (gpd)	Total Irrigation Demand (gpm)
1	714	714	0.50

Per the calculations provided by Nuvis, the following irrigation demand can be determined: Nuvis Calc

Total Irrigation Gallons per year =	17326391	gallon/year
Total Irrigation Gallons per minute =	33.0	gpm

Fire Water Demand

Based on the following email: RE_ ELOP - Fire Flow Calculation.msg

And this calculation:

The following Fire Flow Calculations are based upon California Fire Code (2022 editions) – Section 507, App. B & C.

Building Area by Construction Type:

Type II(B)-S – Multipurpose Room	= 20,000 GSF
Total Building Gross SF (basis of Fire Flow)	= 20,000 GSF

Fire Flow by Construction Type- CFC Section B104.1, B104.3, & Table B105.1:

Type II(B)-S at 20,000 GSF	= 3,000 GPM

Percentage of Building Area by Construction Type:

Type II(B)-S 20,000 / 20,000 X 100	= 100%

Fire Flow by Construction Type as Percentage of Building:

1.00 X 3,000 GPM	= 3,000 GPM Combined Fire Flow*
*prior to fire sprinkler reduction	
Fire Flow Duration	= 3 Hours

Fire Flow Reduction – CFC App. B – Table B105.1(2), & B105.2

Fire Flow Reduction – Sprinkler System 903.3.1.1	
3,000 GPM * 0.50	= 1,500 GPM Net Required Fire Flow (CFC)

Fire Hydrant Locations & Distribution – Appendix C – Table C102.1:

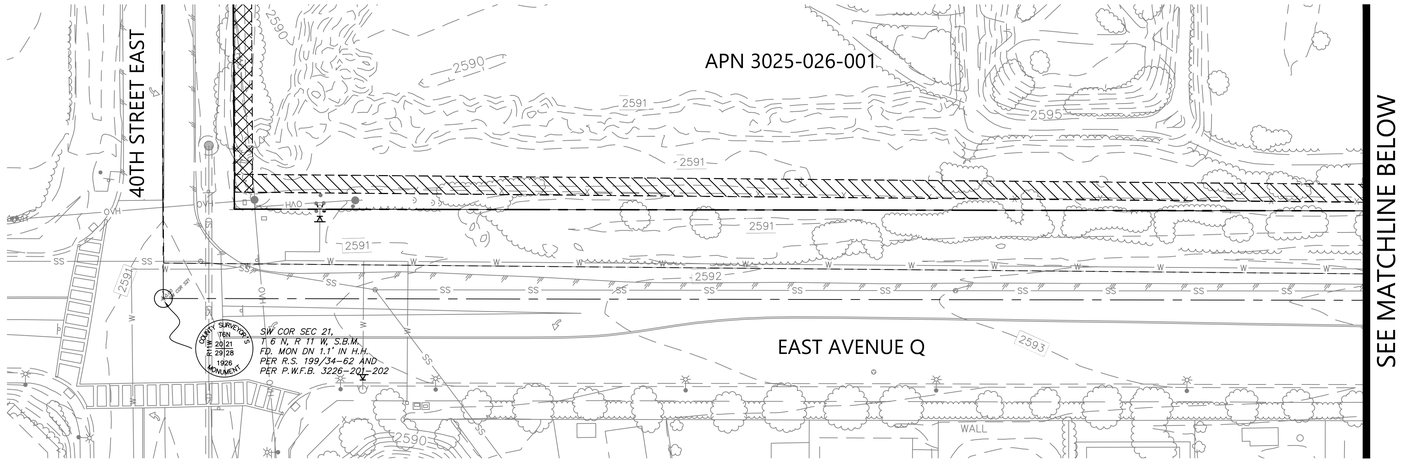
Fire Flow Required	= 1,500 GPM
Number of hydrants required (based on full flow)	= 1
Average Hydrant Spacing (with Spacing Increase)	= 750 FT (500 + 50% increase – C102.1(f))
Minimum Distance from Street to Hydrant	= 375 FT (250 + 50% increase – C102.1(f))

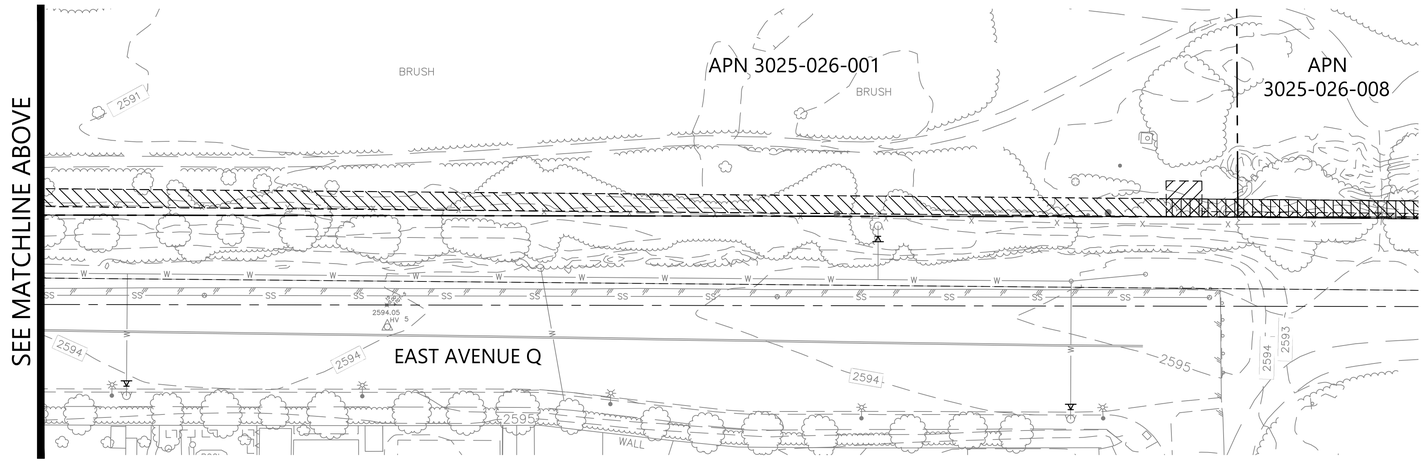
Total Fire Water Gallons per minute =	1500	gpm

Total Water Demand

Domestic Water Total	1.0	gpm
Irrigation Water Total	33.0	gpm
Fire Water Total	1500	gpm
Total Water Demand	1534	gpm

APPENDIX B





EASEMENTS	
A	EASEMENT FOR PIPELINES FOR CONVEYING WATER RECORDED IN BOOK 5171 PAGE 225, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 9
B	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED APRIL 5, 1963, AS DOCUMENT NO. 6163, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 11
C	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED MAY 9, 1963, AS DOCUMENT 5259, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 12
D	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED JULY 10, 1963, AS DOCUMENT NO. 5922, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 13
E	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED MARCH 5, 1986, AS DOCUMENT NO 86-281384, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 14

BASIS OF BEARINGS:

THE BEARINGS SHOWN HERON ARE BASED ON THE BEARING OF NORTH 00°19'12" WEST OF THE WEST LINE OF THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 6 NORTH, RANGE 11 WEST, SAN BERNARDINO MERIDIAN, ALSO BEING THE CENTER LINE OF 40TH STREET EAST AS SHOWN ON RECORD OF SURVEY, FILED IN BOOK 199, PAGES 34 TO 62 OF RECORD OF SURVEY.

BENCHMARK:

DESIGNATION: UL6245
DATUM: NAVD88
YEAR: 2010
ELEVATION: 2610.297'

DESCRIPTION: DPW BM TAG IN SOUTH CURB, 3' E/O BCR, AT SE CORNER PALMDALE BLVD & 40TH STREET EAST

SCALE: 1" = 40'-0"

0' 20' 40' 80' 160'

REGISTERED PROFESSIONAL ENGINEER RODRIGO F. ELEJALDE No. C-89458 CIVIL STATE OF CALIFORNIA

PRELIMINARY
NOT FOR CONSTRUCTION
12/11/2025
DATE:
RODRIGO F. ELEJALDE C 89458

BKF ENGINEERS
4675 MACARTHUR CT.
SUITE 400
NEWPORT BEACH, CA 92660
(949) 526-8460
www.bkf.com

PALMDALE SCHOOL DISTRICT ELOP CENTER PROJECT
APN 3025-026-001
PALMDALE, CA

EXISTING CONDITIONS

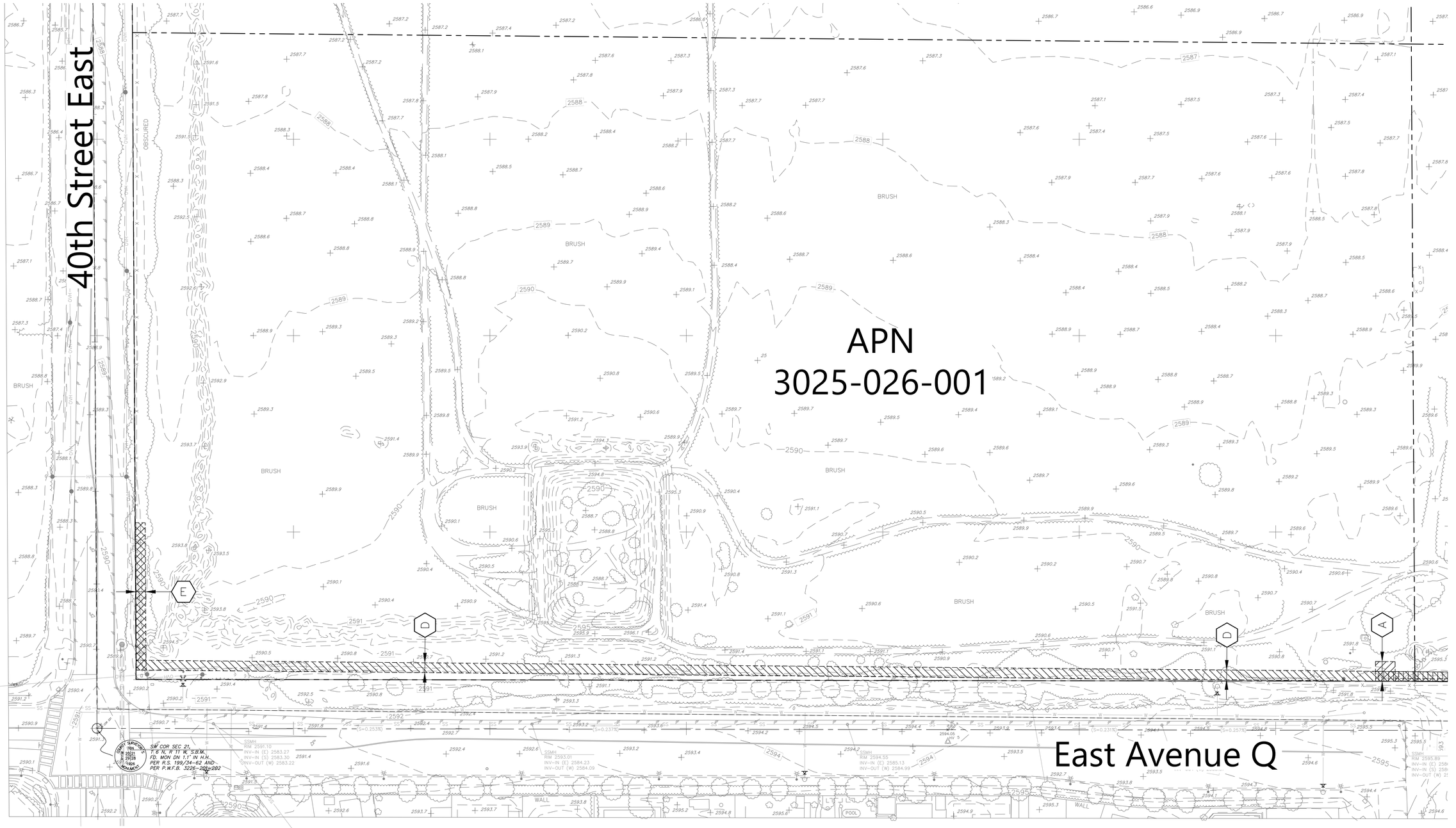
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Approved: APRV
Job No: 20250779

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C1.00
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Plot Dec 11, 2025 at 8:42am
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PALMDALE, CA

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Approved: RFE
Job No: 20250779

Drawing Number:
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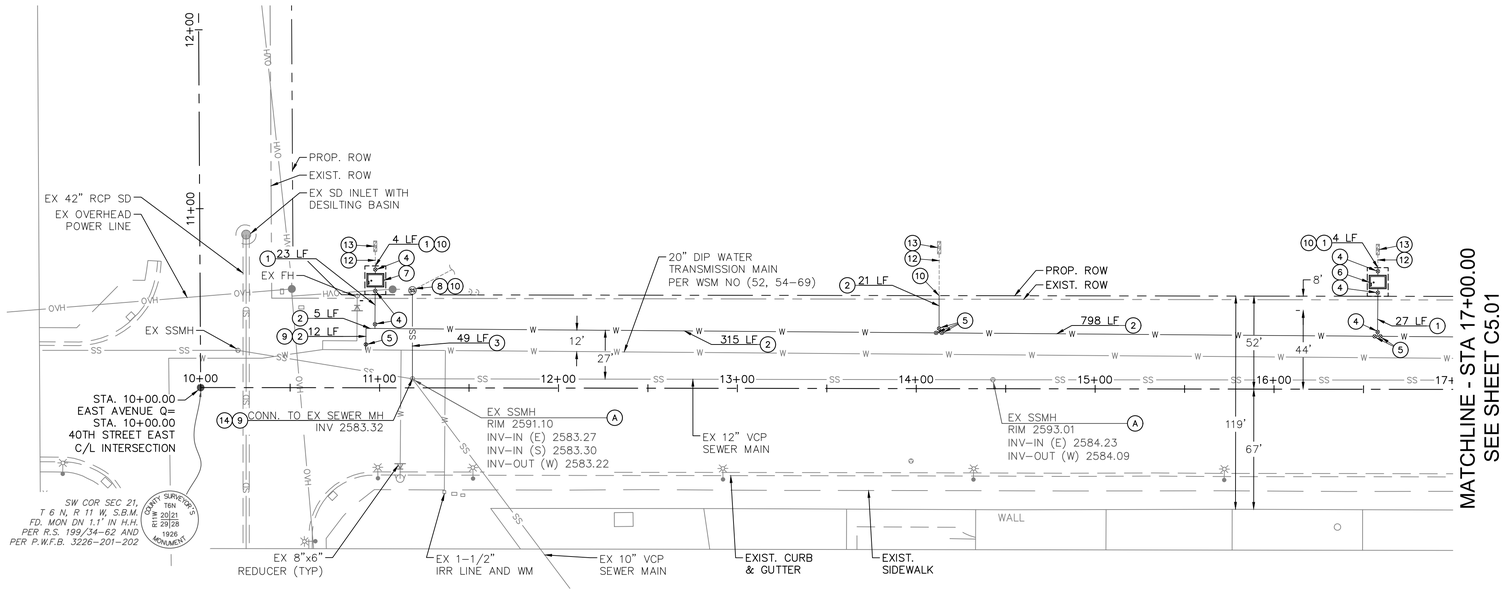
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APPENDIX C

CONSTRUCTION NOTES

- (A) ADJUST STRUCTURE TO GRADE
- (1) 6" DIP–DCML CL350 WITH PE WRAP
- (2) 8" DIP–DCML CL350 WITH PE WRAP
- (3) 8" ASTM C700 EXTRA–STRENGTH VCP WITH TYPE G JOINTS
- (4) PROPOSED 6" GATE VALVE SEE DETAIL 1, SHEET C8.00
- (5) PROPOSED 8" GATE VALVE SEE DETAIL 1, SHEET C8.00
- (6) PROPOSED 6" DOM. WATER METER PROVIDED BY PWD, SEE DETAIL 2 SHEET C8.00
- (7) PROPOSED 6" IRR. METER PROVIDED BY PWD, SEE DETAIL 2 SHEET C8.00
- (8) PROPOSED SEWER MANHOLE SEE DETAIL 3, SHEET C8.00
- (9) PROPOSED CONNECTION TO EXISTING UTILITY
- (10) FUTURE POINT OF CONNECTION FOR PRIVATE UTILITIES
- (11) WATER MAIN STUB FOR FUTURE EXTENSION
- (12) FUTURE PRIVATE DI PIPE PER DSA A#XX–XXX
- (13) FUTURE PRIVATE RPDA PER DSA A#XX–XXX
- (14) CONNECT TO EXISTING SEWER MANHOLE, SEE DETAIL 4, SHEET C8.00



SCALE: 1" = 40'-0"

0' 20' 40' 80' 160'

REGISTERED PROFESSIONAL ENGINEER RODRIGO F. ELEJALDE No. C-89458 CIVIL STATE OF CALIFORNIA

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UTILITY PLAN

No.	Revisions

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Drawn: IB
Approved: APRV
Job No: 20250779

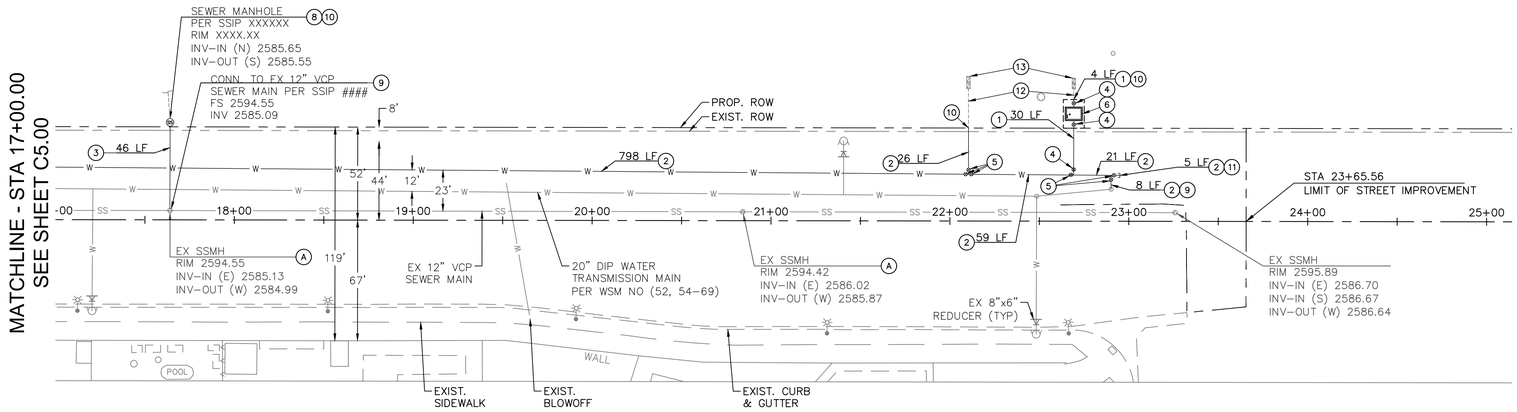
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9 OF 13

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CONSTRUCTION NOTES

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STATE OF CALIFORNIA

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UTILITY PLAN

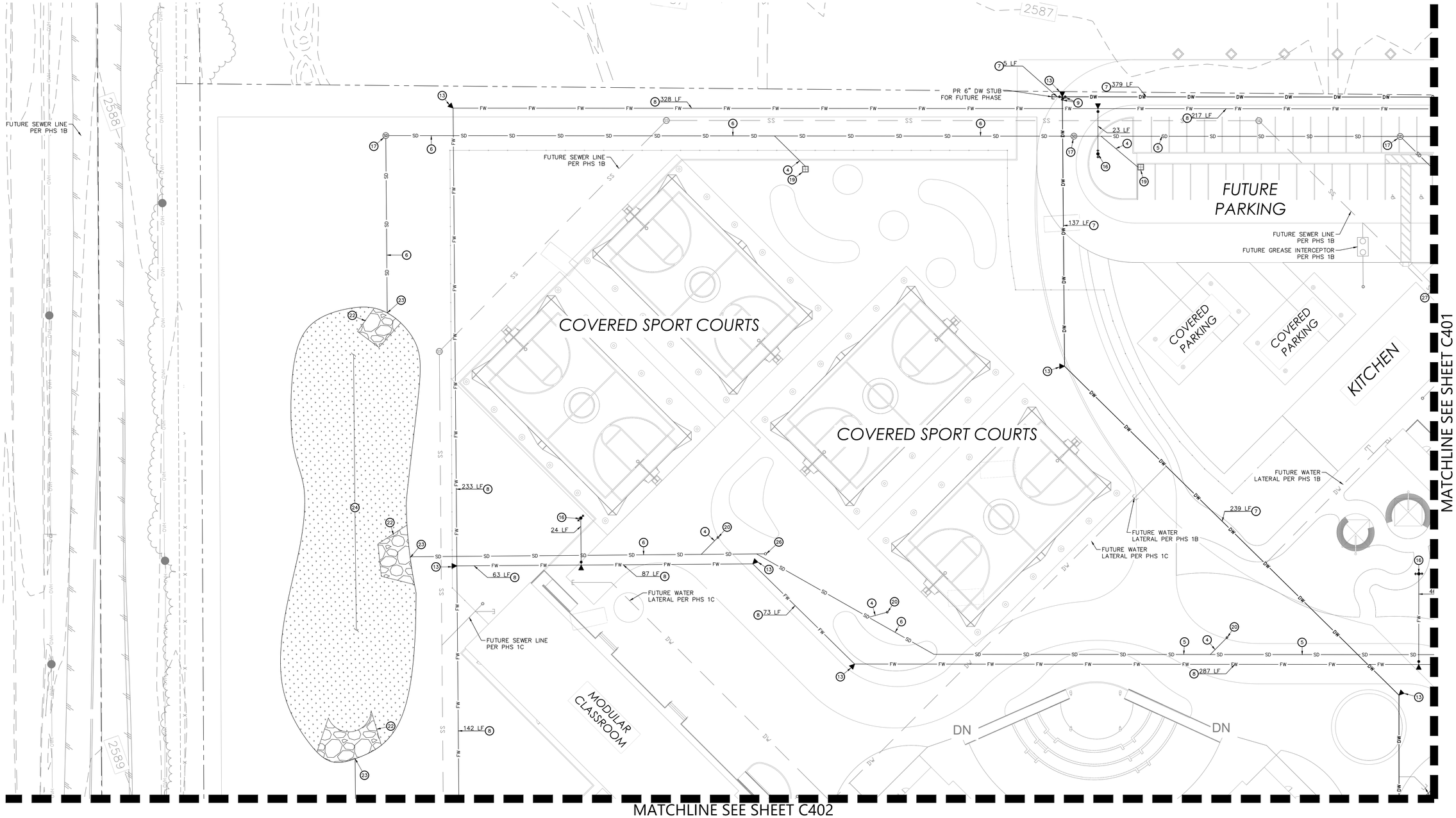
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Plot: Jan 15, 2026 at 5:20pm



LEGEND:

W	EXISTING WATER DISTRIBUTION MAIN
DW	PROPOSED DOMESTIC WATER LINE
DW	EXISTING DOMESTIC WATER LINE
FW	PROPOSED FIRE WATER LINE
FW	EXISTING FIRE WATER LINE
SS	PROPOSED SEWER LINE
SS	EXISTING SEWER LINE
SD	PROPOSED STORM DRAIN LINE
SD	EXISTING STORM DRAIN LINE
OVH	EXISTING OVERHEAD ELECTRIC LINE
	FUTURE UTILITY IMPROVEMENTS
DVDA	PROPOSED REDUCED PRESSURE DETECTOR ASSEMBLY, UTILITY PER PLAN
	EXISTING LARGE WATER METER PROVIDED BY PALMDALE WATER DISTRICT PER SIP #XX
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
	FUTURE GREASE INTERCEPTOR BY OTHERS
	PROPOSED WATER VALVE
	EXISTING WATER VALVE
PIVA	PROPOSED POST INDICATOR VALVE
FDCA	PROPOSED FIRE DEPARTMENT CONNECTION
	PROPOSED SEWER MANHOLE
	EXISTING SEWER MANHOLE
SD	PROPOSED STORM DRAIN MANHOLE
	PROPOSED CLEANOUT
	PROPOSED CURB OPENING CATCH BASIN
	PROPOSED DROP INLET
	PROPOSED AREA DRAIN
	EXISTING LARGE STORM DRAIN
	EXISTING STREET LIGHT POLE
	EXISTING POWER POLE
	EXISTING GUY WIRE ANCHOR
	PROPOSED RIP RAP

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4. 4" HDPE PIPE AND FITTINGS
5. 6" HDPE PIPE AND FITTINGS
6. 8" HDPE PIPE AND FITTINGS
7. 6" DR18 C900 PVC PIPE WITH CL350 DI FITTINGS
8. 8" DR18 C900 PVC PIPE WITH CL350 DI FITTINGS
9. PROPOSED 6" GATE VALVE SEE DETAIL 13, SHEET C301
10. PROPOSED 8" GATE VALVE SEE DETAIL 13, SHEET C301
11. PROPOSED 6" USC–APPROVED REDUCED PRESSURE DETECTOR ASSEMBLY
12. PROPOSED 8" USC–APPROVED REDUCED PRESSURE DETECTOR ASSEMBLY
13. PROPOSED THRUST BLOCK SEE DETAIL 11, SHEET C300
14. PROPOSED FIRE DEPARTMENT CONNECTION, SEE DETAIL 1, SHEET C300
15. PROPOSED POST INDICATOR VALVE, SEE DETAIL 2, SHEET C300
16. 6" CLOW MODEL 850 FIRE HYDRANT SEE DETAIL 12 & 14, SHEET C301
17. PROPOSED STORM DRAIN MANHOLE SEE DETAIL 10, SHEET C300
18. PROPOSED CURB OPENING CATCH BASIN WITH CONNECTOR PIPE SCREENS SEE D
19. PROPOSED 24"X24" DROP INLET SEE DETAIL 8, SHEET C300
20. PROPOSED ROUND AREA DRAIN SEE DETAIL 5, SHEET C300
21. PROPOSED 12" SQUARE AREA DRAIN, SEE DETAIL 4, SHEET C300
22. PROPOSED RIP RAP, SEE DETAIL 6, SHEET C300
23. PROPOSED MITERED DRAIN, SEE DETAIL 9, SHEET C300
24. PROPOSED INFILTRATION BASIN, SEE DETAIL 7, SHEET C300
25. PROPOSED SEWER MANHOLE SEE DETAIL 15, SHEET C301
26. PROPOSED CLEANOUT SEE DETAIL 3, SHEET C300
27. CONNECTION TO FUTURE BUILDING SPRINKLER SYSTEM BY OTHERS
28. PROPOSED CONNECTION TO EXISTING UTILITY STUB PER WSIP####
29. PROPOSED CONNECTION TO SEWER MANHOLE PER SSIP####

GENERAL NOTES:

1. THE CONTRACTOR IS REQUIRED TO OBTAIN THE APPLICABLE CITY, COUNTY, OR CALTRANS ENCROACHMENT PERMIT FOR WATER SYSTEM FACILITIES.
2. THE CONTRACTOR SHALL CONTACT ALL OTHER UTILITIES INCLUDING SBC (661–266–9209), UTI (805–658–7801) FOR SOUTHERN CALIFORNIA EDISON AND ADELPHIA, AND SOUTHERN CALIFORNIA GAS (661–945–7388) FOR LOCATIONS OF THEIR EXISTING AND PROPOSED FACILITIES PRIOR TO EXCAVATIONS IN THIS AREA.
3. WATER METERS ARE TO BE PURCHASED THROUGH PALMDALE WATER DISTRICT.
4. ALL MECHANICAL JOINT FITTINGS FOR DOMESTIC WATER REQUIRE THE USE OF RETAINING GLANDS.
5. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS AND TIE–IN POINTS PRIOR TO CONSTRUCTION TO VERIFY LOCATION, DEPTH, AND CONFIGURATION OF EXISTING FACILITIES.
6. PRESSURE REGULATORS ARE REQUIRED FOR ALL SERVICES WHERE SYSTEM PRESSURE MEETS OR EXCEEDS 80 PSI. REGULATORS TO BE MAINTAINED BY PROPERTY OWNER.
7. THE MINIMUM VERTICAL SEPARATION BETWEEN WATER MAIN AND CROSSING UTILITIES OR IMPROVEMENTS IS ONE FOOT. SANITARY SEWER AND STORM DRAIN MUST CROSS BELOW WATER MAIN.
8. APPROVAL OF THIS PLAN BY THE CITY ENGINEER DOES NOT CONSTITUTE A REPRESENTATION TO THE ACCURACY OF THE LOCATION OR THE EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT.
9. ALL SANITARY SEWERS MAY REQUIRE VIDEOTAPING PRIOR TO FINAL ACCEPTANCE FOR MAINTENANCE, AS DETERMINED BY THE PUBLIC WORKS INSPECTOR.

PRIVATE ENGINEER'S NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLAN ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS PLAN. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES AND ANY OTHER LINES NOT SHOWN ON THIS PLAN. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CALL 1–800–422–4144 FOR THE UNDERGROUND LOCATION OF UTILITY LINES. THE CONTRACTOR SHALL ALSO CALL THE APPLICABLE UTILITY COMPANIES TO VERIFY THE LOCATIONS.

SCALE: 1" = 20'-0"

0' 10' 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER RODRIGO F. ELEJALDE No. C-89458 CIVIL STATE OF CALIFORNIA

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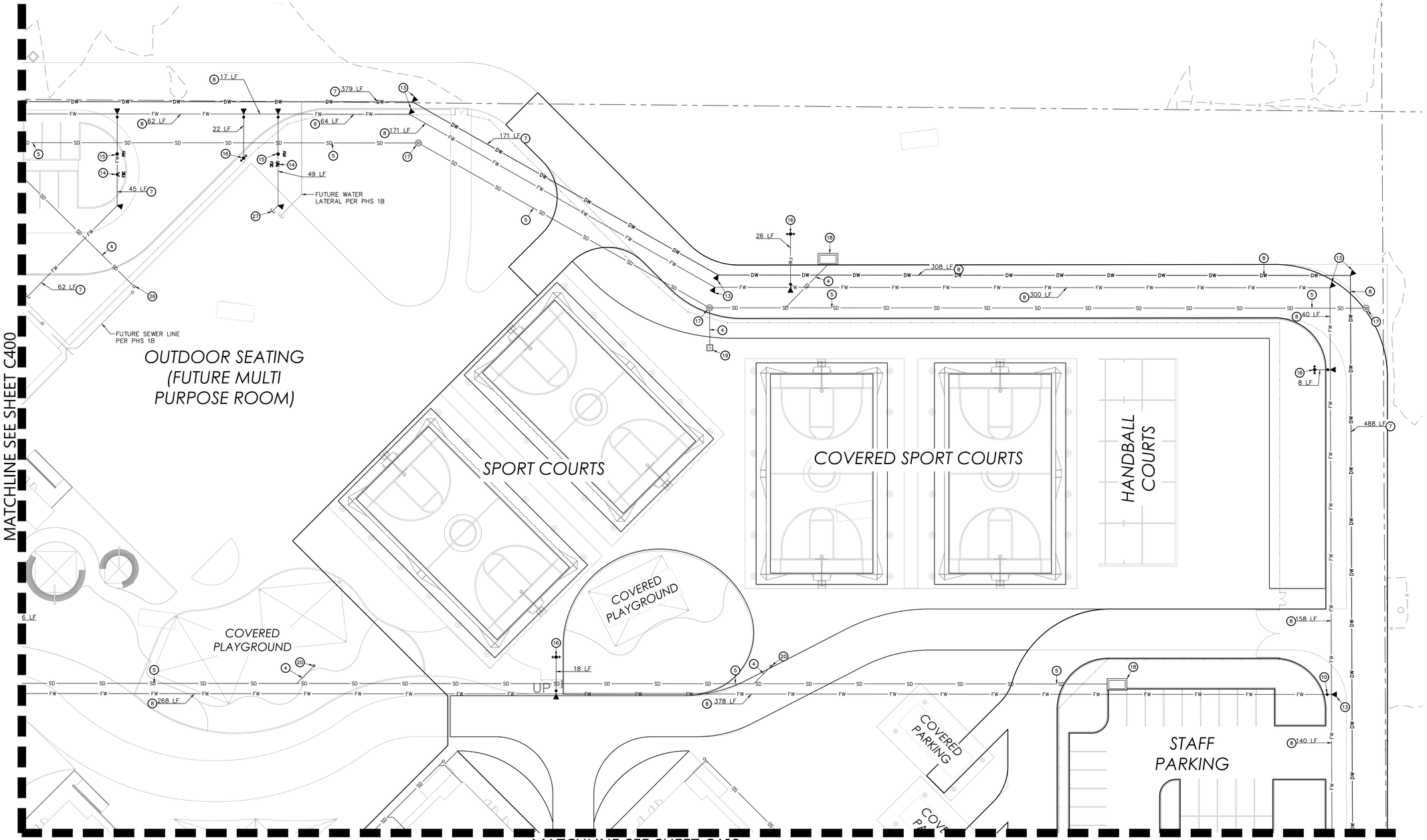
UTILITY PLAN

No.	Revisions

Date: 12/01/25
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Drawn: IB/ML
Approved: RFE
Job No: 20250779

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C200
4 OF 10

C200 UTILITY PLAN.dwg
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LEGEND:

- EXISTING WATER DISTRIBUTION MAIN
- PROPOSED DOMESTIC WATER LINE
- EXISTING DOMESTIC WATER LINE
- PROPOSED FIRE WATER LINE
- EXISTING FIRE WATER LINE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE
- PROPOSED STORM DRAIN LINE
- EXISTING STORM DRAIN LINE
- EXISTING OVERHEAD ELECTRIC LINE
- FUTURE UTILITY IMPROVEMENTS
- PROPOSED REDUCED PRESSURE DETECTOR ASSEMBLY, UTILITY PER PLAN
- EXISTING LARGE WATER METER PROVIDED BY PALMDALE WATER DISTRICT PER SIP #XX
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- FUTURE GREASE INTERCEPTOR BY OTHERS
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED POST INDICATOR VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED SEWER MANHOLE
- EXISTING SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED CLEANOUT
- PROPOSED CURB OPENING CATCH BASIN
- PROPOSED DROP INLET
- PROPOSED AREA DRAIN
- EXISTING LARGE STORM DRAIN
- EXISTING STREET LIGHT POLE
- EXISTING POWER POLE
- EXISTING GUY WIRE ANCHOR
- PROPOSED RIP RAP

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SCALE: 1" = 20'-0"

0' 10' 20' 40' 80'

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Plot Jan 13, 2026 at 6:14pm

REGISTERED PROFESSIONAL ENGINEER RODRIGO F. ELE/ALDE No. C-89458 CIVIL STATE OF CALIFORNIA

PRELIMINARY
NOT FOR CONSTRUCTION
DATE: 01/15/2026
RODRIGO F. ELE/ALDE C 89458

BKF ENGINEERS
4675 MACARTHUR CT.
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NEWPORT BEACH, CA 92660
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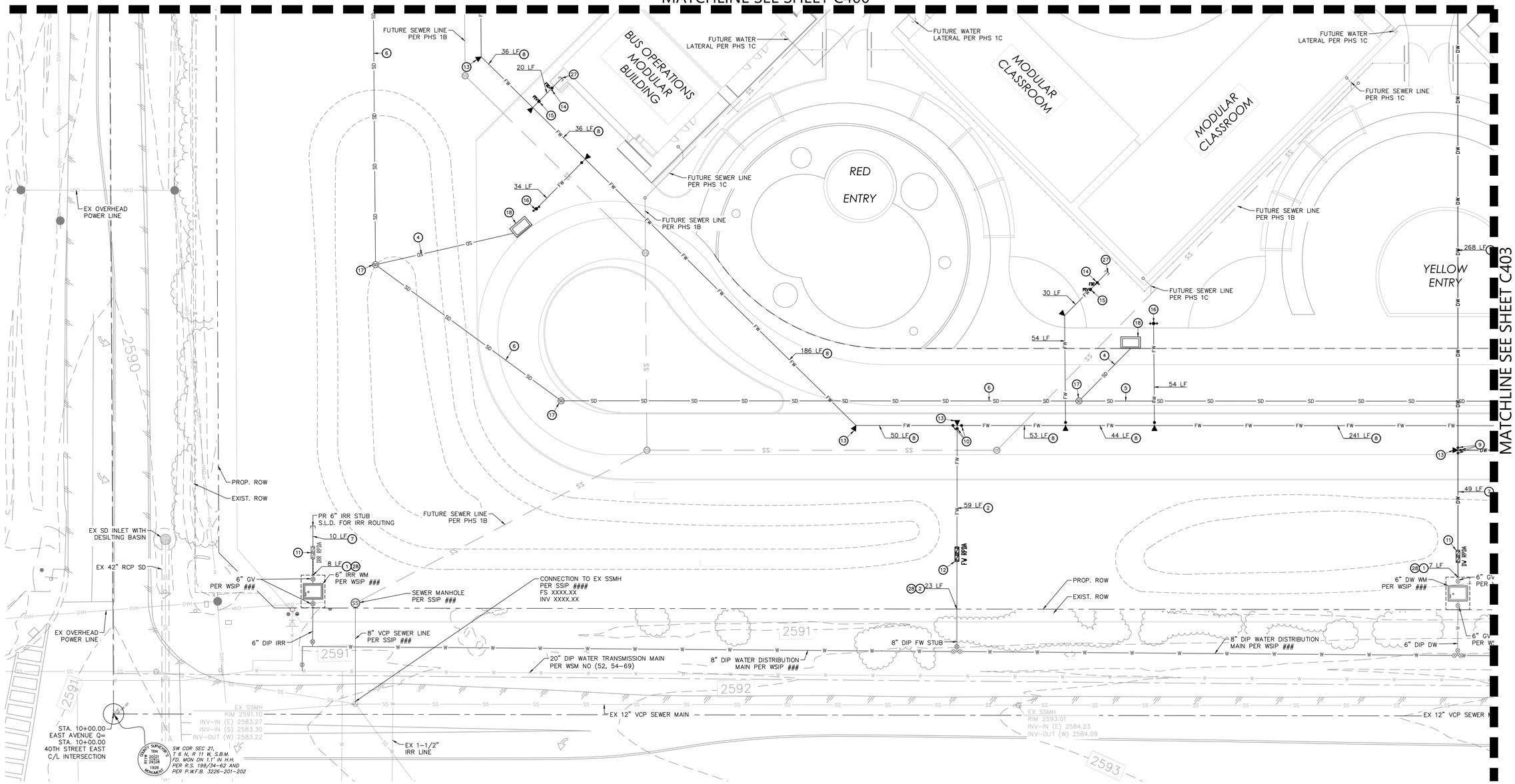
PALMDALE SCHOOL DISTRICT ELOP CENTER PROJECT
APN 3025-026-001
PALMDALE, CA

UTILITY PLAN

No.	Revisions

Date: 12/01/25
Scale: AS SHOWN
Design: RFE/JB
Drawn: JB/ML
Approved: RFE
Job No: 20250779

Drawing Number:
C201
5 OF 10



LEGEND:

W	EXISTING WATER DISTRIBUTION MAIN
DW	PROPOSED DOMESTIC WATER LINE
DW	EXISTING DOMESTIC WATER LINE
FW	PROPOSED FIRE WATER LINE
FW	EXISTING FIRE WATER LINE
SS	PROPOSED SEWER LINE
SS	EXISTING SEWER LINE
SD	PROPOSED STORM DRAIN LINE
SD	EXISTING STORM DRAIN LINE
OVH	EXISTING OVERHEAD ELECTRIC LINE
	FUTURE UTILITY IMPROVEMENTS
DV RPDA	PROPOSED REDUCED PRESSURE DETECTOR ASSEMBLY, UTILITY PER PLAN
2"	EXISTING LARGE WATER METER PROVIDED BY PALMDALE WATER DISTRICT PER SIP #XX
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
	FUTURE GREASE INTERCEPTOR BY OTHERS
	PROPOSED WATER VALVE
	EXISTING WATER VALVE
FVA	PROPOSED POST INDICATOR VALVE
FDCA	PROPOSED FIRE DEPARTMENT CONNECTION
SS	PROPOSED SEWER MANHOLE
	EXISTING SEWER MANHOLE
SD	PROPOSED STORM DRAIN MANHOLE
	PROPOSED CLEANOUT
	PROPOSED CURB OPENING CATCH BASIN
	PROPOSED DROP INLET
	PROPOSED AREA DRAIN
	EXISTING LARGE STORM DRAIN
	EXISTING STREET LIGHT POLE
	EXISTING POWER POLE
	EXISTING GUY WIRE ANCHOR
	PROPOSED RIP RAP

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1. 6" DIP–DCML CL350 WITH PE WRAP
2. 8" DIP–DCML CL350 WITH PE WRAP
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9. PROPOSED 6" GATE VALVE SEE DETAIL 13, SHEET C301
10. PROPOSED 8" GATE VALVE SEE DETAIL 13, SHEET C301
11. PROPOSED 6" USC–APPROVED REDUCED PRESSURE DETECTOR ASSEMBLY
12. PROPOSED 8" USC–APPROVED REDUCED PRESSURE DETECTOR ASSEMBLY
13. PROPOSED THRUST BLOCK SEE DETAIL 11, SHEET C300
14. PROPOSED FIRE DEPARTMENT CONNECTION, SEE DETAIL 1, SHEET C300
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16. 6" CLOW MODEL 850 FIRE HYDRANT SEE DETAIL 12 & 14, SHEET C301
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27. CONNECTION TO FUTURE BUILDING SPRINKLER SYSTEM BY OTHERS
28. PROPOSED CONNECTION TO EXISTING UTILITY STUB PER WSIP#####
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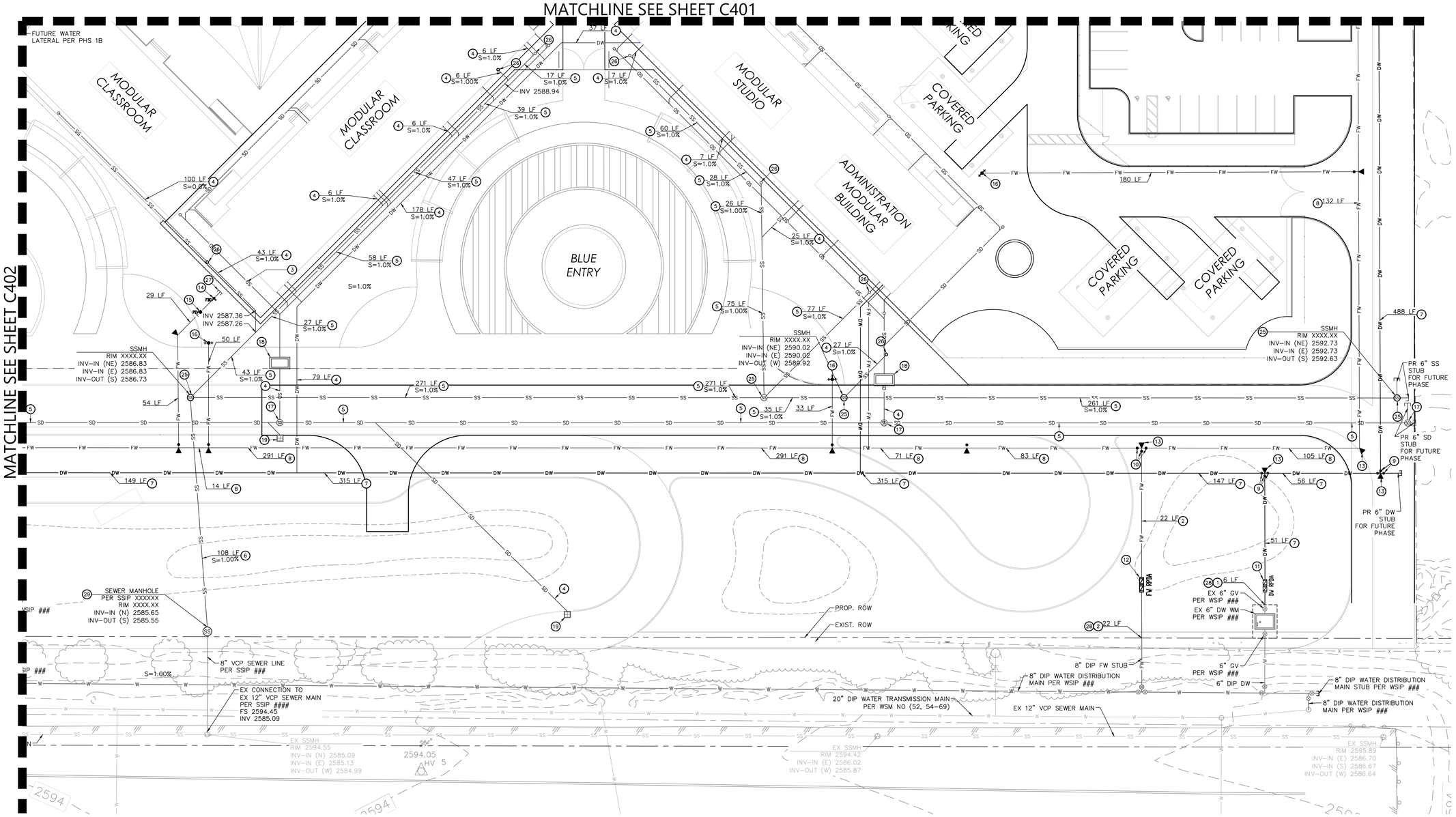
UTILITY PLAN

No.	Revisions

Date: 12/01/25
Scale: AS SHOWN
Design: RFE/IB
Drawn: IB/AL
Approved: RFE
Job No: 20250779

Drawing Number:
C202
6 OF 10

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Plot Jan 15, 2026 at 6:14am



LEGEND:

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PALMDALE SCHOOL DISTRICT ELOP CENTER PROJECT
APN: 3025-026-001
PALMDALE, CA

UTILITY PLAN

No.	Revisions

Date: 12/01/25
Scale: AS SHOWN
Design: RFE/JB
Drawn: JB/AL
Approved: RFE
Job No: 20250779

Drawing Number:
C203
7 OF 10

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PEM Jan 15, 2026 at 4:15pm

APPENDIX D

The following Fire Flow Calculations are based upon California Fire Code (2022 editions) – Section 507, App. B & C.

Building Area by Construction Type:

Type II(B)-S – Multipurpose Room	= 20,000 GSF
Total Building Gross SF (basis of Fire Flow)	= 20,000 GSF

Fire Flow by Construction Type- CFC Section B104.1, B104.3, & Table B105.1:

Type II(B)-S at 20,000 GSF	= 3,000 GPM

Percentage of Building Area by Construction Type:

Type II(B)-S 20,000 / 20,000 X 100	= 100%

Fire Flow by Construction Type as Percentage of Building:

1.00 X 3,000 GPM	= 3,000 GPM Combined Fire Flow*
*prior to fire sprinkler reduction	
Fire Flow Duration	= 3 Hours

Fire Flow Reduction – CFC App. B – Table B105.1(2), & B105.2

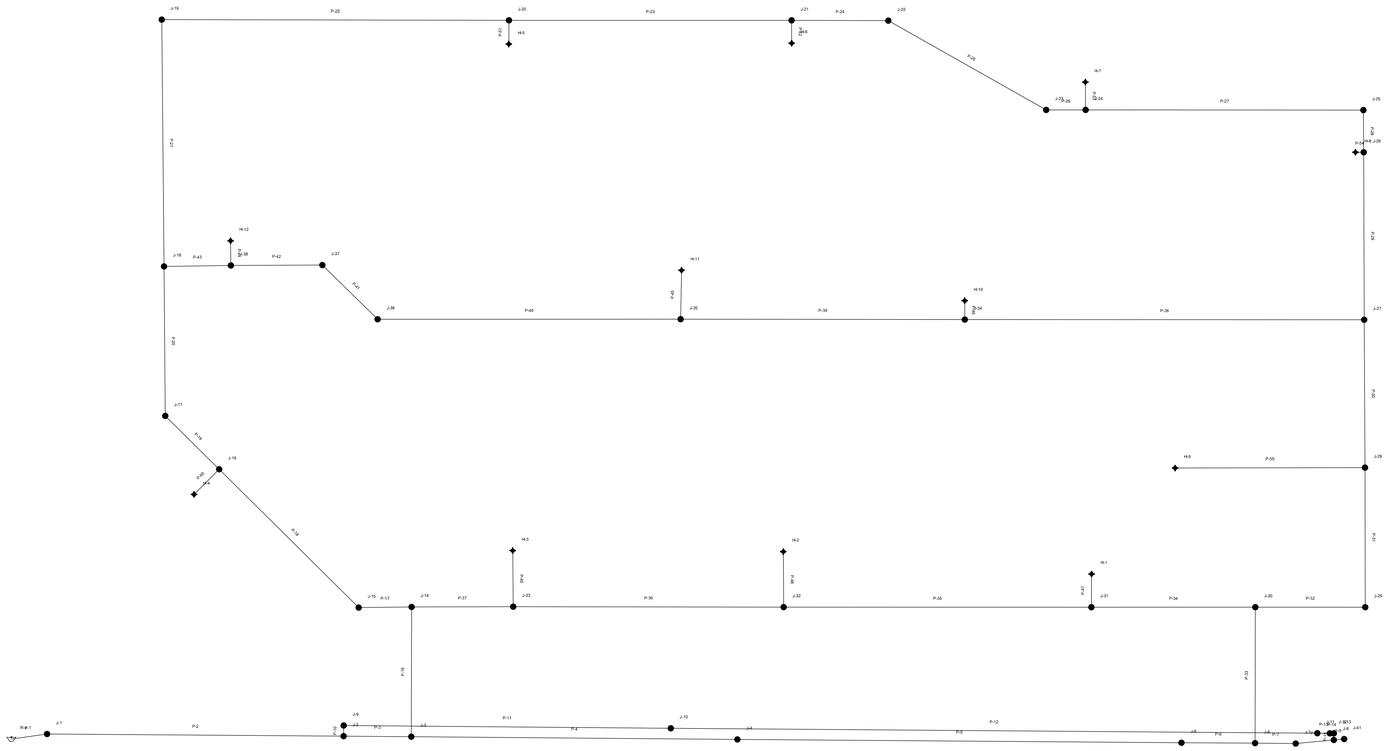
Fire Flow Reduction – Sprinkler System 903.3.1.1	
3,000 GPM * 0.50	= 1,500 GPM Net Required Fire Flow (CFC)

Fire Hydrant Locations & Distribution – Appendix C – Table C102.1:

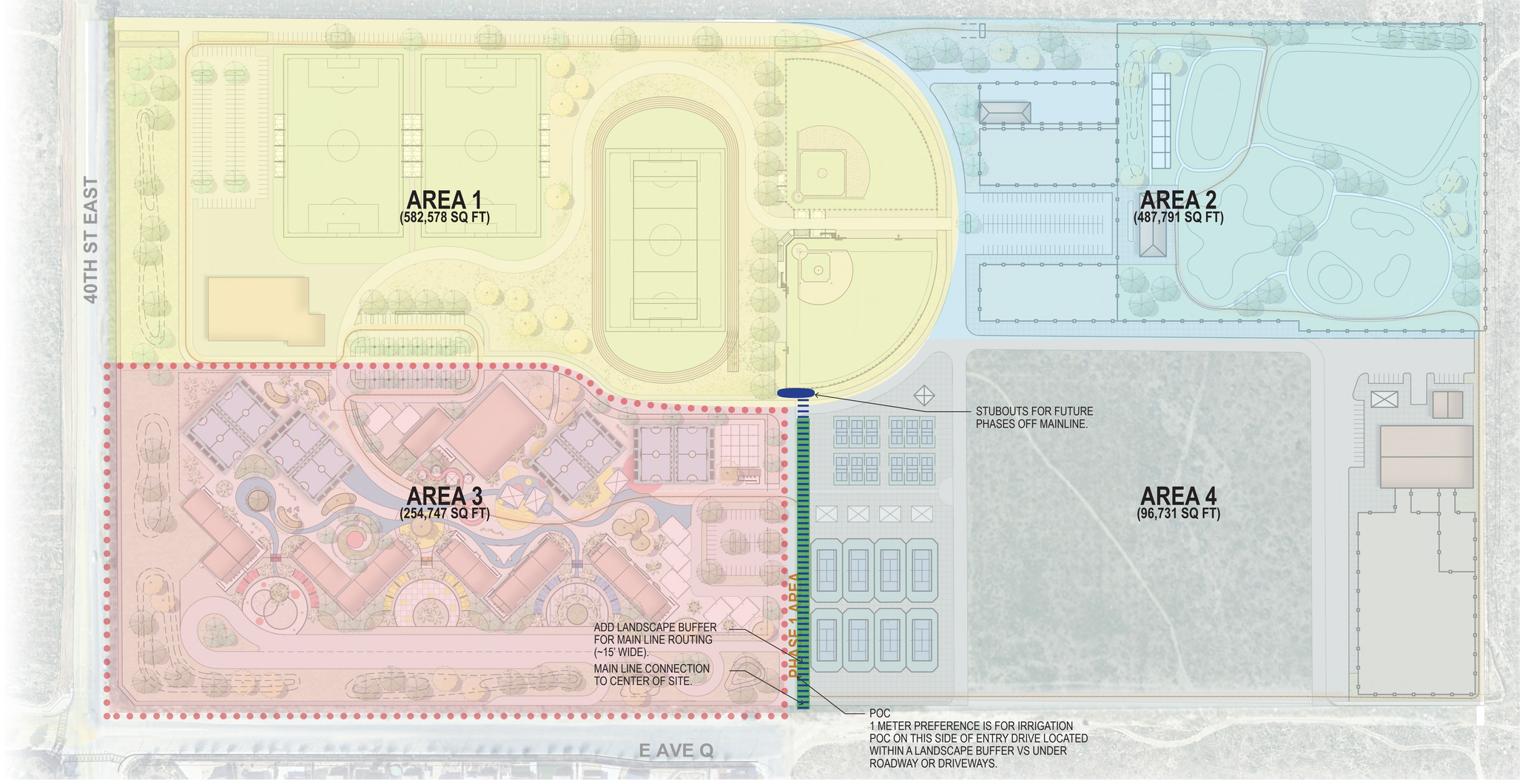
Fire Flow Required	= 1,500 GPM
Number of hydrants required (based on full flow)	= 1
Average Hydrant Spacing (with Spacing Increase)	= 750 FT (500 + 50% increase – C102.1(f))
Minimum Distance from Street to Hydrant	= 375 FT (250 + 50% increase – C102.1(f))

Label	Satisfies Fire Flow C	Fire Flow Status	Fire Flow	Fire Flow	Flow (Total	Flow (Total	Pressure (Residual	Pressure	Pressure (Zone	Pressure	Junction w/ Minimu	Pressure (System	Pressure	Junction w/ Minimu	Is Fire Flow Run Balanced?
J-1	TRUE	Passed	0	50000	0	50000	20	68	20	68	J-21	20	68	J-21	TRUE
J-2	TRUE	Passed	0	50000	0	50000	20	32	20	32	J-24	20	32	J-24	TRUE
J-3	TRUE	Passed	0	50000	0	50000	20	24	20	24	J-14	20	24	J-14	TRUE
J-4	TRUE	Passed	0	39757	0	39757	20	20	20	21	J-5	20	21	J-5	TRUE
J-5	TRUE	Passed	0	32610	0	32610	20	20	20	20	J-6	20	20	J-6	TRUE
J-6	TRUE	Passed	0	31823	0	31823	20	20	20	20	J-7	20	20	J-7	TRUE
J-7	TRUE	Passed	0	31272	0	31272	20	20	20	20	J-41	20	20	J-41	TRUE
J-8	TRUE	Passed	0	30778	0	30778	20	20	20	20	J-41	20	20	J-41	TRUE
J-9	TRUE	Passed	0	29774	0	29774	20	20	20	32	J-10	20	32	J-10	TRUE
J-10	TRUE	Passed	0	8497	0	8497	20	20	20	68	J-11	20	68	J-11	TRUE
J-11	TRUE	Passed	0	19352	0	19352	20	20	20	37	J-12	20	37	J-12	TRUE
J-12	TRUE	Passed	0	23399	0	23399	20	20	20	21	J-11	20	21	J-11	TRUE
J-13	TRUE	Passed	0	25483	0	25483	20	20	20	20	J-12	20	20	J-12	TRUE
J-14	TRUE	Passed	0	12582	0	12582	20	20	20	21	J-15	20	21	J-15	TRUE
J-15	TRUE	Passed	0	10250	0	10250	20	20	20	26	J-16	20	26	J-16	TRUE
J-16	TRUE	Passed	0	7479	0	7479	20	20	20	20	H-4	20	20	H-4	TRUE
J-17	TRUE	Passed	0	7070	0	7070	20	20	20	27	J-18	20	27	J-18	TRUE
J-18	TRUE	Passed	0	6628	0	6628	20	20	20	21	J-38	20	21	J-38	TRUE
J-19	TRUE	Passed	0	5371	0	5371	20	20	20	27	H-5	20	27	H-5	TRUE
J-20	TRUE	Passed	0	4797	0	4797	20	20	20	20	H-5	20	20	H-5	TRUE
J-21	TRUE	Passed	0	4705	0	4705	20	20	20	20	H-6	20	20	H-6	TRUE
J-22	TRUE	Passed	0	4732	0	4732	20	20	20	23	H-6	20	23	H-6	TRUE
J-23	TRUE	Passed	0	4871	0	4871	20	20	20	22	J-24	20	22	J-24	TRUE
J-24	TRUE	Passed	0	4918	0	4918	20	20	20	20	H-7	20	20	H-7	TRUE
J-25	TRUE	Passed	0	5540	0	5540	20	20	20	24	H-8	20	24	H-8	TRUE
J-26	TRUE	Passed	0	5704	0	5704	20	20	20	20	H-8	20	20	H-8	TRUE
J-27	TRUE	Passed	0	6800	0	6800	20	20	20	22	J-26	20	22	J-26	TRUE
J-28	TRUE	Passed	0	7449	0	7449	20	20	20	20	H-9	20	20	H-9	TRUE
J-29	TRUE	Passed	0	8880	0	8880	20	20	20	25	H-9	20	25	H-9	TRUE
J-30	TRUE	Passed	0	12231	0	12231	20	20	20	23	J-29	20	23	J-29	TRUE
J-31	TRUE	Passed	0	8654	0	8654	20	20	20	20	H-1	20	20	H-1	TRUE
J-32	TRUE	Passed	0	7718	0	7718	20	20	20	20	H-2	20	20	H-2	TRUE
J-33	TRUE	Passed	0	9495	0	9495	20	20	20	20	H-3	20	20	H-3	TRUE
H-1	TRUE	Passed	3000	7639	3000	7639	20	20	0	31	J-31	0	31	J-31	TRUE
H-2	TRUE	Passed	3000	6560	3000	6560	20	20	0	34	J-32	0	34	J-32	TRUE
H-3	TRUE	Passed	3000	7572	3000	7572	20	20	0	38	J-33	0	38	J-33	TRUE
H-4	TRUE	Passed	3000	6741	3000	6741	20	20	0	29	J-16	0	29	J-16	TRUE
H-5	TRUE	Passed	3000	4643	3000	4643	20	20	0	23	J-20	0	23	J-20	TRUE
H-6	TRUE	Passed	3000	4564	3000	4564	20	20	0	23	J-21	0	23	J-21	TRUE
H-7	TRUE	Passed	3000	4727	3000	4727	20	20	0	24	J-24	0	24	J-24	TRUE
H-8	TRUE	Passed	3000	5614	3000	5614	20	20	0	22	J-26	0	22	J-26	TRUE
H-9	TRUE	Passed	3000	4958	3000	4958	20	20	0	48	J-28	0	48	J-28	TRUE
H-10	TRUE	Passed	3000	5140	3000	5140	20	20	0	23	J-34	0	23	J-34	TRUE
H-11	TRUE	Passed	3000	4811	3000	4811	20	20	0	27	J-35	0	27	J-35	TRUE
H-12	TRUE	Passed	3000	5878	3000	5878	20	20	0	25	J-38	0	25	J-38	TRUE
J-34	TRUE	Passed	0	5303	0	5303	20	20	20	20	H-10	20	20	H-10	TRUE
J-35	TRUE	Passed	0	5183	0	5183	20	20	20	20	H-11	20	20	H-11	TRUE
J-36	TRUE	Passed	0	5578	0	5578	20	20	20	26	J-37	20	26	J-37	TRUE
J-37	TRUE	Passed	0	5806	0	5806	20	20	20	22	J-36	20	22	J-36	TRUE
J-38	TRUE	Passed	0	6201	0	6201	20	20	20	20	H-12	20	20	H-12	TRUE
J-41	TRUE	Passed	0	22076	0	22076	20	20	20	44	J-8	20	44	J-8	TRUE

Scenario: Base



APPENDIX E



IRRIGATION ASSUMPTIONS:

- SYSTEM COULD BE SUPPLIED BY DOMESTIC OR RECYCLED WATER. THERE IS WATER TREATMENT PLANT NEARBY.

- DEPENDING ON EXISTING WATER PRESSURE, THE SITE AND/OR SPORTS FIELDS MAY REQUIRE A PUMP FOR ADEQUATE IRRIGATION OPERATION.

- ACTUAL PHASING OF FULL SITE IS UNKNOWN; AREA DIVISION HEREON ASSUMED FOR ROM CALCULATION

- DUE TO PHASED PROJECT APPROACH, RECOMMENDED BEST IRRIGATION LAYOUT APPROACH IS FOR A SINGLE MAINLINE TRUNK LEADING TO CENTER OF SITE TO MINIMIZE FUTURE TRENCHING THROUGH NEW CONSTRUCTED HARDSCAPE.

TOTAL SQ FEET COUNT ESTIMATE

AREA 1:	SQ FT COUNT	TOTAL SQ FT
SOCCER FIELD :	78,240 SQ FT(2)	156,480
TRACK & FIELD :	109,948 SQ FT(1)	109,948
BASEBALL FIELD :	66,600 SQ FT (2)	133,200
LANDSCAPE AREA:	112,033 SQ FT	112,033
OUTER LANDSCAPE AREA:	70,917 SQFT	70,917
		= 582,578 SQ FT
AREA 2:		
GOLF ACADEMY:	380,162 SQ FT	380,162
STOCKYARD / CORRAL:	27,763 SQ FT (2)	55,526
LANDSCAPE AREA:	52,103 SQ FT	52,103
		=487,791 SQ FT
AREA 3:		
LANDSCAPE AREA:	97,632 SQ FT	97,632
OUTER LANDSCAPE AREA:	157,115 SQ FT	157,115
		= 254,747 SQ FT
AREA 4:		
STOCKYARD / CORRAL:	78,740 SQ FT	78,740
LANDSCAPE AREA:	17,991 SQ FT	17,991
		= 96,731 SQ FT

GRAND TOTAL: 1,422,147 SQ FT

SCALE: 1 = 100'-0"

0' 50' 100' 200' 400'

LANDSCAPE IRRIGATION WATER ANALYSIS

PROJECT NAME: Area 1
PROJECT ADDRESS:

POINT OF CONNECTION NUMBER: 1
CONTROLLER NUMBER OR LETTER: A

REFERENCE EVAPOTRANSPIRATION RATE (Eto): 49.6 INCHES / YEAR
TOTAL OF HYDROZONE AREAS (HA): 582,578 SQUARE FEET
TOTAL OF SPECIAL LANDSCAPE AREAS (SLA): 0 SQUARE FEET
TOTAL LANDSCAPE AREAS (LA): 582,578 SQUARE FEET
MAXIMUM APPLIED WATER ALLOWANCE:
TOTAL MAWA = (Eto) x (0.65) x [(0.45x LA) + (1-0.45 x SLA)] = 13,147,620 GALLONS / YEAR
ESTIMATED APPLIED WATER USED:
TOTAL ETWU = (Eto) x (0.65) x [((PF x HA)/IE) + SLA] = 7,061,021 GALLONS / YEAR — *THIS PROJECT USES LESS WATER THAN THE MAXIMUM APPLIED WATER ALLOWANCE*

HYDROZONE AREA (HA) CALCULATIONS FOR HYDROZONES:

HYDROZONE DESCRIPTION		HYDROZONE AREA (HA)	PLANT FACTOR (PF)	ADJUSTED HA (PF x HA)	IRRIGATION EFFICIENCY (IE)
HYDROZONE #1:	SHRUB PLANTING WITH DRIP	146,360	0.30	43,908	0.81
HYDROZONE #2:	TURF PLANTING WITH ROTATORY NOZZLES	199,814	0.90	179,833	0.750
HYDROZONE #3:	TURF PLANTING WITH ROTOR NOZZLES	199,814	0.90	179832.6	0.75
HYDROZONE #4:	TREE PLANTING WITH BUBBLERS	36,590	0.30	10,977	0.75
TOTAL OF ALL HYDROZONE AREAS (HA) ON THE PROJECT:		582,578		414,550	
CALCULATED AVERAGE IRRIGATION EFFICIENCY OF ALL HYDROZONE AREAS:					0.798

LANDSCAPE IRRIGATION WATER ANALYSIS

PROJECT NAME: Area 2
PROJECT ADDRESS:

POINT OF CONNECTION NUMBER: 2
CONTROLLER NUMBER OR LETTER: B

REFERENCE EVAPOTRANSPIRATION RATE (Eto): 49.6 INCHES / YEAR
TOTAL OF HYDROZONE AREAS (HA): 487,791 SQUARE FEET
TOTAL OF SPECIAL LANDSCAPE AREAS (SLA): 0 SQUARE FEET
TOTAL LANDSCAPE AREAS (LA): 487,791 SQUARE FEET
MAXIMUM APPLIED WATER ALLOWANCE:
TOTAL MAWA = (Eto) x (0.65) x [(0.45x LA) + (1-0.45 x SLA)] = 11,008,467 GALLONS / YEAR
ESTIMATED APPLIED WATER USED:
TOTAL ETWU = (Eto) x (0.65) x [((PF x HA)/IE) + SLA] = 6,005,351 GALLONS / YEAR — *THIS PROJECT USES LESS WATER THAN THE MAXIMUM APPLIED WATER ALLOWANCE*

HYDROZONE AREA (HA) CALCULATIONS FOR HYDROZONES:

HYDROZONE DESCRIPTION		HYDROZONE AREA (HA)	PLANT FACTOR (PF)	ADJUSTED HA (PF x HA)	IRRIGATION EFFICIENCY (IE)
HYDROZONE #1:	SHRUB PLANTING WITH DRIP	63,893	0.30	19,168	0.81
HYDROZONE #2:	TURF PLANTING WITH ROTATORY NOZZLES		0.90	0	0.750
HYDROZONE #3:	TURF PLANTING WITH ROTOR NOZZLES	380,162	0.90	342145.8	0.75
HYDROZONE #4:	TREE PLANTING WITH BUBBLERS	43,736	0.30	13,121	0.75
TOTAL OF ALL HYDROZONE AREAS (HA) ON THE PROJECT:		487,791		374,435	
CALCULATED AVERAGE IRRIGATION EFFICIENCY OF ALL HYDROZONE AREAS:					0.786

LANDSCAPE IRRIGATION WATER ANALYSIS

PROJECT NAME: Area 3
PROJECT ADDRESS:

POINT OF CONNECTION NUMBER: 3
CONTROLLER NUMBER OR LETTER: C

REFERENCE EVAPOTRANSPIRATION RATE (Eto): 49.6 INCHES / YEAR
TOTAL OF HYDROZONE AREAS (HA): 254,747 SQUARE FEET
TOTAL OF SPECIAL LANDSCAPE AREAS (SLA): 0 SQUARE FEET
TOTAL LANDSCAPE AREAS (LA): 254,747 SQUARE FEET
MAXIMUM APPLIED WATER ALLOWANCE:
TOTAL MAWA = (Eto) x (0.65) x [(0.45x LA) + (1-0.45 x SLA)] = 5,749,130 GALLONS / YEAR
ESTIMATED APPLIED WATER USED:
TOTAL ETWU = (Eto) x (0.65) x [((PF x HA)/IE) + SLA] = 3,087,610 GALLONS / YEAR — *THIS PROJECT USES LESS WATER THAN THE MAXIMUM APPLIED WATER ALLOWANCE*

HYDROZONE AREA (HA) CALCULATIONS FOR HYDROZONES:

HYDROZONE DESCRIPTION		HYDROZONE AREA (HA)	PLANT FACTOR (PF)	ADJUSTED HA (PF x HA)	IRRIGATION EFFICIENCY (IE)
HYDROZONE #1:	SHRUB PLANTING WITH DRIP	203,798	0.30	61,139	0.81
HYDROZONE #2:	TURF PLANTING WITH ROTATORY NOZZLES		0.90	0	0.750
HYDROZONE #3:	TURF PLANTING WITH ROTOR NOZZLES		0.90	0	0.75
HYDROZONE #4:	TREE PLANTING WITH BUBBLERS	50,949	0.30	15,285	0.75
TOTAL OF ALL HYDROZONE AREAS (HA) ON THE PROJECT:		254,747		76,424	
CALCULATED AVERAGE IRRIGATION EFFICIENCY OF ALL HYDROZONE AREAS:					0.798

LANDSCAPE IRRIGATION WATER ANALYSIS

PROJECT NAME: Area 4
PROJECT ADDRESS:

POINT OF CONNECTION NUMBER: 4
CONTROLLER NUMBER OR LETTER: D

REFERENCE EVAPOTRANSPIRATION RATE (Eto): 49.6 INCHES / YEAR
TOTAL OF HYDROZONE AREAS (HA): 96,731 SQUARE FEET
TOTAL OF SPECIAL LANDSCAPE AREAS (SLA): 0 SQUARE FEET
TOTAL LANDSCAPE AREAS (LA): 96,731 SQUARE FEET
MAXIMUM APPLIED WATER ALLOWANCE:
TOTAL MAWA = (Eto) x (0.65) x [(0.45x LA) + (1-0.45 x SLA)] = 2,183,025 GALLONS / YEAR
ESTIMATED APPLIED WATER USED:
TOTAL ETWU = (Eto) x (0.65) x [((PF x HA)/IE) + SLA] = 1,172,409 GALLONS / YEAR — *THIS PROJECT USES LESS WATER THAN THE MAXIMUM APPLIED WATER ALLOWANCE*

HYDROZONE AREA (HA) CALCULATIONS FOR HYDROZONES:

HYDROZONE DESCRIPTION		HYDROZONE AREA (HA)	PLANT FACTOR (PF)	ADJUSTED HA (PF x HA)	IRRIGATION EFFICIENCY (IE)
HYDROZONE #1:	SHRUB PLANTING WITH DRIP	77,385	0.30	23,216	0.81
HYDROZONE #2:	TURF PLANTING WITH ROTATORY NOZZLES		0.90	0	0.750
HYDROZONE #3:	TURF PLANTING WITH ROTOR NOZZLES		0.90	0	0.75
HYDROZONE #4:	TREE PLANTING WITH BUBBLERS	19,346	0.30	5,804	0.75
TOTAL OF ALL HYDROZONE AREAS (HA) ON THE PROJECT:		96,731		29,019	
CALCULATED AVERAGE IRRIGATION EFFICIENCY OF ALL HYDROZONE AREAS:					0.798

TECHNICAL MEMORANDUM

Date: January 19, 2026 **BKF Job Number: 20250779-10**

Deliver To: City of Palmdale Public Works

From: Rodrigo Elejalde, PE, Project Manager

Subject: Palmdale ELOP – Preliminary Storm Drain Memo

INTRODUCTION

The proposed site, Palmdale ELOP Phase 1, located at the northeast corner of 40th Street East and East Avenue Q, includes improvements for the Expanded Learning Opportunities Program (ELOP) After School Program Center. Proposed improvements include construction of sports fields, modular buildings, associated parking, a bus loading and unloading zone, on-site utility improvements, and grading to support future development. This memorandum summarizes the SWQDv analysis for the proposed site using a 0.75-inch storm, 24-hour rainfall event and evaluates the capacity of the proposed infiltration basin located at the western end of the site, adjacent to 40th Street.

PROJECT DESCRIPTION AND EXISTING CONDITIONS

The project site is located at the intersection of 40th Street East and East Avenue Q in Palmdale, California. The site is bounded to the west by 40th Street East and to the south by East Avenue Q and encompasses approximately 814,656 square feet (18.70 acres).

The existing project site consists of undeveloped rural land with natural ground cover and no existing storm drain infrastructure. Under existing conditions, stormwater runoff sheet flows northwesterly across the site, with a portion infiltrating into native soils and the remainder continuing off-site along natural drainage patterns.

EXISTING CONDITIONS

The existing project site is predominantly undeveloped and consists of natural ground cover with minimal impervious area. Pre-development runoff conditions were evaluated using HydroCalc to characterize existing hydrologic behavior.

The HydroCalc model was developed using a site drainage area of 18.7 acres, a flow path length of approximately 1,450 feet, and flow path slope of 0.006. Native soil conditions are represented by a soil type parameter of 124, and existing impervious coverage is estimated at 1.0 percent, consistent with rural site conditions. The analysis was performed for the 0.75-inch 24-hour design storm, consistent with local LID requirements. Hydrocalc output for the existing condition is provided in the table below.

DMA	Area (acres)	Impervious (%)	Length (ft)	Slope (vht/hft)	Rainfall Depth (in)	Peak Rainfall Intensity (in/hr)	Peak Flow Rate (cfs)	24-hr runoff volume (ac-ft)
Existing	18.7	1	1450	0.006	0.75	0.0694	0.1401	0.1253

PROPOSED CONDITIONS

Post-development runoff conditions were evaluated using HydroCalc based on the proposed site layout. The proposed improvements increase impervious coverage while maintaining existing site drainage patterns and flow paths.

The model is based on the same site drainage area of 18.7 acres, a flow path length of approximately 1,450 feet, and a flow path slope of 0.008. Site soils are represented by a soil type parameter of 124, with post-development surface conditions reflected by 68.0 percent imperviousness. Hydrocalc output for the proposed condition is provided in the table below.

DMA	Area (acres)	Impervious (%)	Length (ft)	Slope (vht/hft)	Rainfall Depth (in)	Peak Rainfall Intensity (in/hr)	Peak Flow Rate (cfs)	24-hr runoff volume (ac-ft)
Proposed	18.7	68.0	1450	0.008	0.75	0.1261	1.5187	0.7465

EVALUATION OF EXISTING STORM DRAIN SYSTEM

The project site is not served by an existing public or private storm drain system on-site. Under existing conditions, stormwater runoff is conveyed via overland sheet flow across the site and continues off-site following natural drainage patterns.

STORMWATER MANAGEMENT/INFILTRATION

Post-development stormwater management is evaluated based on runoff volume control rather than peak flow attenuation, as the project site is not served by an existing storm drain system.

Hydrologic analysis indicates that the pre-development runoff volume for the 0.75-inch 24-hour percentile storm is approximately 5,459 cubic feet, while the post-development runoff volume is approximately 32,518 cubic feet. The project proposes to manage post-development runoff through an on-site infiltration basin with a storage capacity of approximately 38,000 cubic feet, which exceeds the modeled post-development runoff volume.

Because the proposed infiltration basin provides storage in excess of the post-development runoff volume, runoff generated by the 0.75-inch 24-hour percentile storm is expected to be fully retained and infiltrated on-site, and no increase in off-site stormwater runoff is anticipated under post-development conditions.

SUMMARY

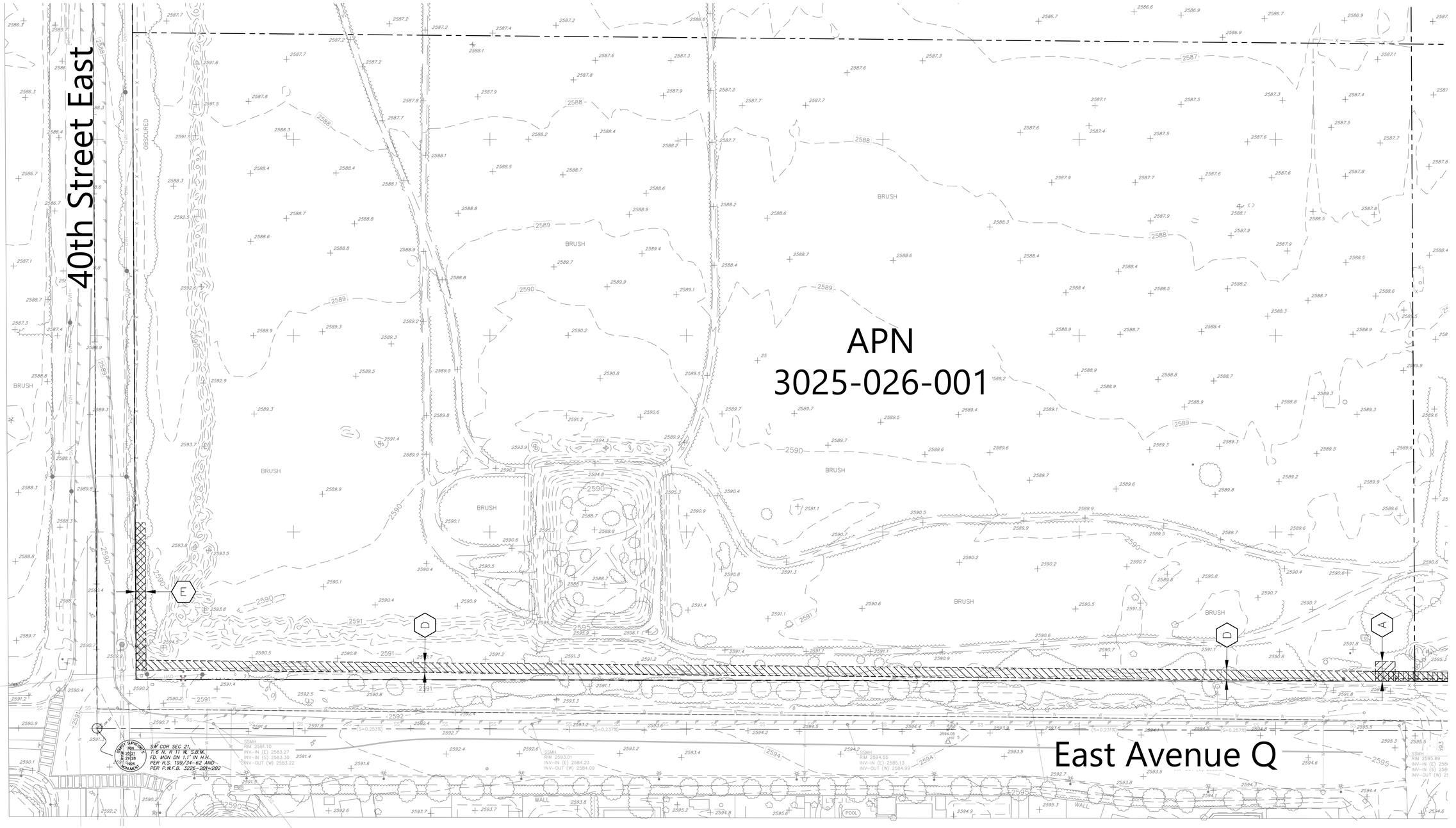
Although post-development conditions result in increased impervious area, stormwater runoff will be managed on-site through volume-based infiltration rather than discharge to a storm drain system. The proposed infiltration basin provides approximately 38,000 cubic feet of storage, exceeding the modeled post-development runoff volume for the 0.75-inch 24-hour percentile storm. Accordingly, no increase in off-site stormwater runoff is anticipated, and post-development drainage conditions are expected to remain consistent with existing hydrologic conditions.

APPENDIX

Appendix A – C100 Existing Conditions
Appendix B – C 400 Stormwater Control Plan
Appendix C – Palmdale ELOP Existing Conditions HydroCalc
Appendix D – Palmdale ELOP Proposed Conditions HydroCalc



Appendix A – C100 Existing Conditions



BASIS OF BEARINGS:

THE BEARINGS SHOWN HERON ARE BASED ON THE BEARING OF NORTH 00°19'12" WEST OF THE WEST LINE OF THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 6 NORTH, RANGE 11 WEST, SAN BERNARDINO MERIDIAN, ALSO BEING THE CENTER LINE OF 40TH STREET EAST AS SHOWN ON RECORD OF SURVEY, FILED IN BOOK 199, PAGES 34 TO 62 OF RECORD OF SURVEY.

BENCHMARK:

DESIGNATION: UL6245
DATUM: NAVD88
YEAR: 2010
ELEVATION: 2610.297'

DESCRIPTION: DPW BM TAG IN SOUTH CURB, 3' E/O BCR, AT SE CORNER PALMDALE BLVD & 40TH STREET EAST

EASEMENTS	
A	EASEMENT FOR PIPELINES FOR CONVEYING WATER RECORDED IN BOOK 5171 PAGE 225, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 9
B	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED APRIL 5, 1963, AS DOCUMENT NO. 6163, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 11
C	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED MAY 9, 1963, AS DOCUMENT 5259, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 12
D	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED JULY 10, 1963, AS DOCUMENT NO. 5922, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 13
E	EASEMENT FOR PUBLIC ROAD AND HIGHWAY RECORDED MARCH 5, 1986, AS DOCUMENT NO 86-281384, OF OFFICIAL RECORDS SHOWN AS ITEM NO. 14

SCALE: 1" = 40'-0"

0' 20' 40' 80' 160'

REGISTERED PROFESSIONAL ENGINEER RODRIGO F. ELEJALDE No. C-89458 CIVIL STATE OF CALIFORNIA

PRELIMINARY
NOT FOR CONSTRUCTION
DATE: 01/14/2026
RODRIGO F. ELEJALDE C 89458

BKF ENGINEERS
4675 MACARTHUR CT.
SUITE 400
NEWPORT BEACH, CA 92660
(949) 526-8460
www.bkf.com

PALMDALE SCHOOL DISTRICT ELOP CENTER PROJECT
APN 3025-026-001
PALMDALE, CA

EXISTING CONDITIONS

No.	Revisions

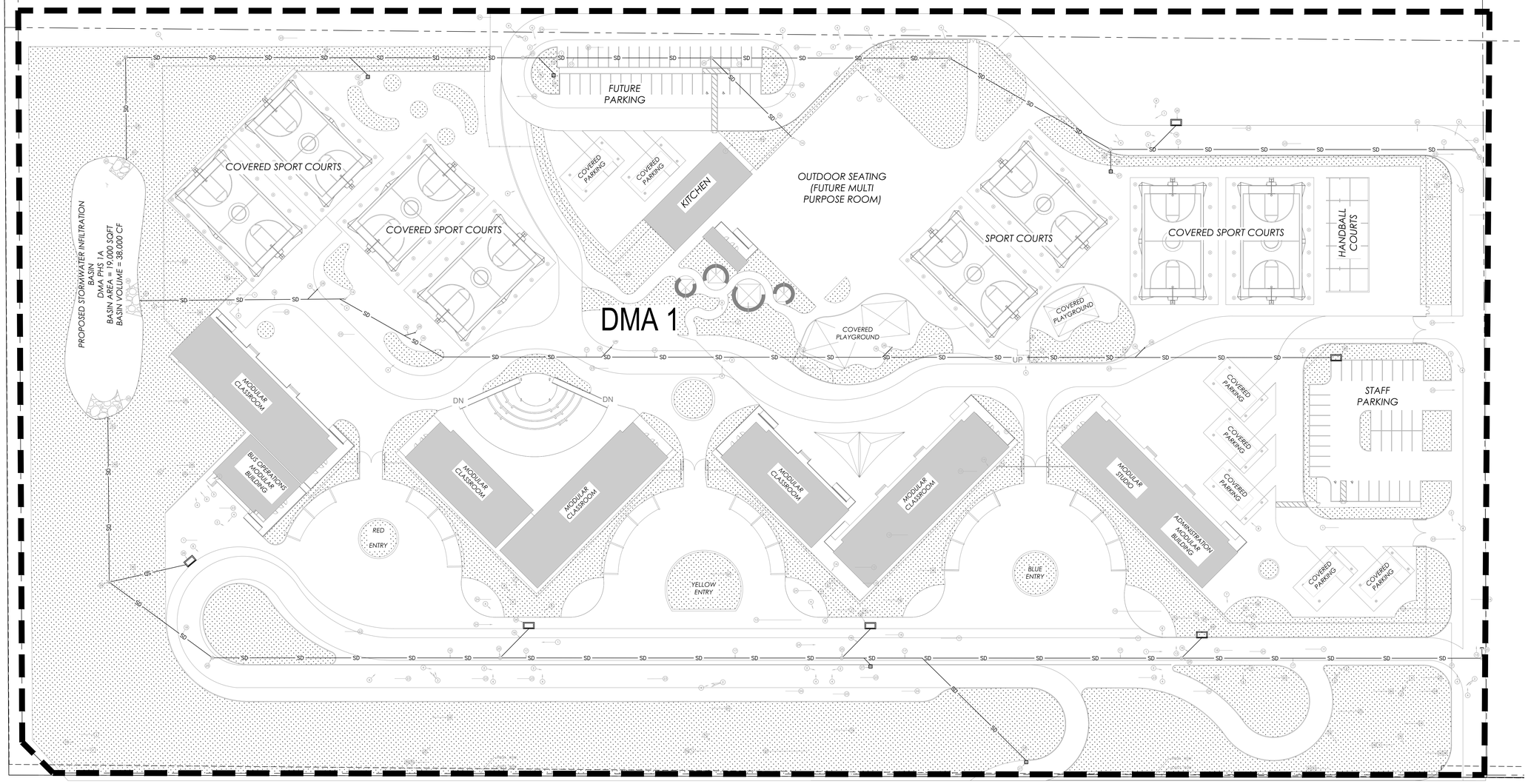
Date: 12/01/25
Scale: AS SHOWN
Design: RFE/IB
Drawn: IB/ML
Approved: RFE
Job No: 20250779

Drawing Number:
C100
3 OF 9

C100 EXISTING CONDITIONS.dwg
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Mar Jan 14, 2026 at 5:52pm

Appendix B – C400 Stormwater Control Plan



STORMWATER MANAGEMENT SUMMARY:

	AREA (AC)	IMPERVIOUS %	PERVIOUS %	PROPOSED BMP	TREATMENT VOLUME REQUIRED (FT^3)	TREATMENT VOLUME PROVIDED (FT^3)	TREATMENT DEPTH REQUIRED (FT)	TREATMENT AREA PROVIDED (FT^2)
EXISTING CONDITION	18.7	0%	100%	–	–	–	–	–
PROPOSED CONDITION	18.7	68%	32%	INFILTRATION BASIN	22,000	24,000	2	12,000

LEGEND

- DRAINAGE MANAGEMENT AREA BOUNDARY
- PROPOSED LANDSCAPING
- PROPOSED BUILDING FOOTPRINT

SCALE: 1" = 40'-0"

0' 20' 40' 80' 160'

FILE NO. ?XX-XXXX?

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
?XX-XXX?
AC ____ FLS ____ SS ____
DATE ____

LIONAKIS
2050 Main Street, Suite 400
Irvine, CA 92614
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CONSULTANT

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THE CONSTRUCTION DOCUMENTS HAVE NOT BEEN APPROVED BY THE ENFORCEMENT AGENCY AND ARE NOT COMPLETE OR READY FOR CONSTRUCTION. ELEMENTS, MEMBERS, SYSTEMS AND ASSOCIATED DETAILS AND SPECIFICATIONS MAY NOT BE SHOWN OR FULLY DEVELOPED. FOR BIDDING/ESTIMATING PURPOSES, UTILIZE ADDITIONAL MATERIALS AND QUANTITIES TO ACCOUNT FOR THOSE ITEMS NOT SHOWN OR FULLY DEVELOPED.

SEAL

LICENSED PROFESSIONAL ENGINEER STATE OF CALIFORNIA — FOR REVIEW ONLY NOT FOR CONSTRUCTION

PROJECT
PALMDALE ELOP CENTER

NE CORNER OF 40th AND Q
PALMDALE, CA

CLIENT
PALMDALE SCHOOL DISTRICT

39139 10TH ST E, PALMDALE, CA 93550

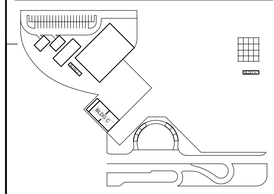
ISSUED

MARK	DATE	DESCRIPTION

MANAGEMENT

LIONAKIS PROJECT NO:	025112.01
CLIENT PROJECT NO:	
COPYRIGHT:	LIONAKIS 2017

KEY PLAN



NORTH

TITLE
STORMWATER CONTROL PLAN

SHEET
C400

IF THIS SHEET IS NOT 30"x42", IT IS A REDUCED PRINT - SCALE ACCORDINGLY
0 1/4" 1/2" 1" 2"
\\lakdrive\wk4\2025\025171_palmdale_school_district_ekps_centerline\g-h25-ds-tssite-ph1\sheets\s400 stormwater control plan.dwg
1/13/2026 1:52 PM

Appendix C – Palmdale ELOP Existing Conditions HydroCalc

Peak Flow Hydrologic Analysis

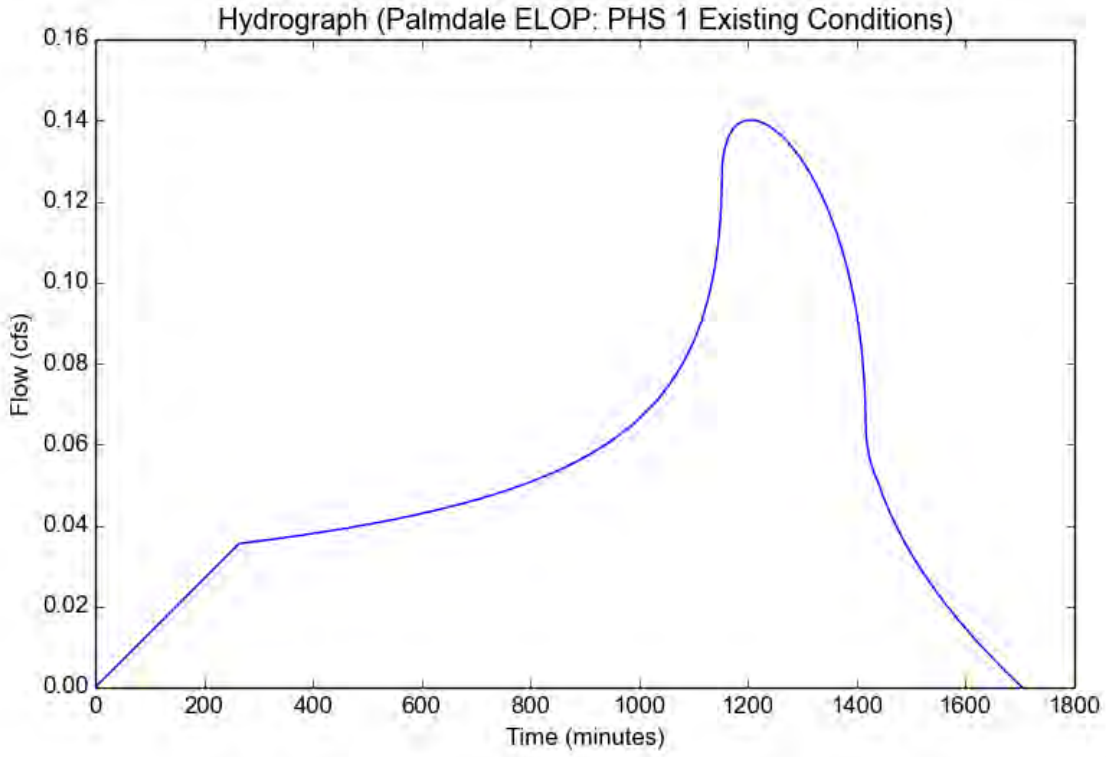
File location: K:/2025/250779_Palmdale_School_District_ELOP_Center/DOC/05-Design/Reports_Calcs/Stormwater/SD Memo/Attachments/250779 Paln
Version: HydroCalc 1.0.3

Input Parameters

Project Name	Palmdale ELOP
Subarea ID	PHS 1 Existing Conditions
Area (ac)	18.7
Flow Path Length (ft)	1450.0
Flow Path Slope (vft/hft)	0.006
0.75-inch Rainfall Depth (in)	0.75
Percent Impervious	0.01
Soil Type	124
Design Storm Frequency	0.75 inch storm
Fire Factor	0
LID	True

Output Results

Modeled (0.75 inch storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.0694
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	264.0
Clear Peak Flow Rate (cfs)	0.1401
Burned Peak Flow Rate (cfs)	0.1401
24-Hr Clear Runoff Volume (ac-ft)	0.1253
24-Hr Clear Runoff Volume (cu-ft)	5458.6422



Appendix D – Palmdale ELOP Proposed Conditions HydroCalc

Peak Flow Hydrologic Analysis

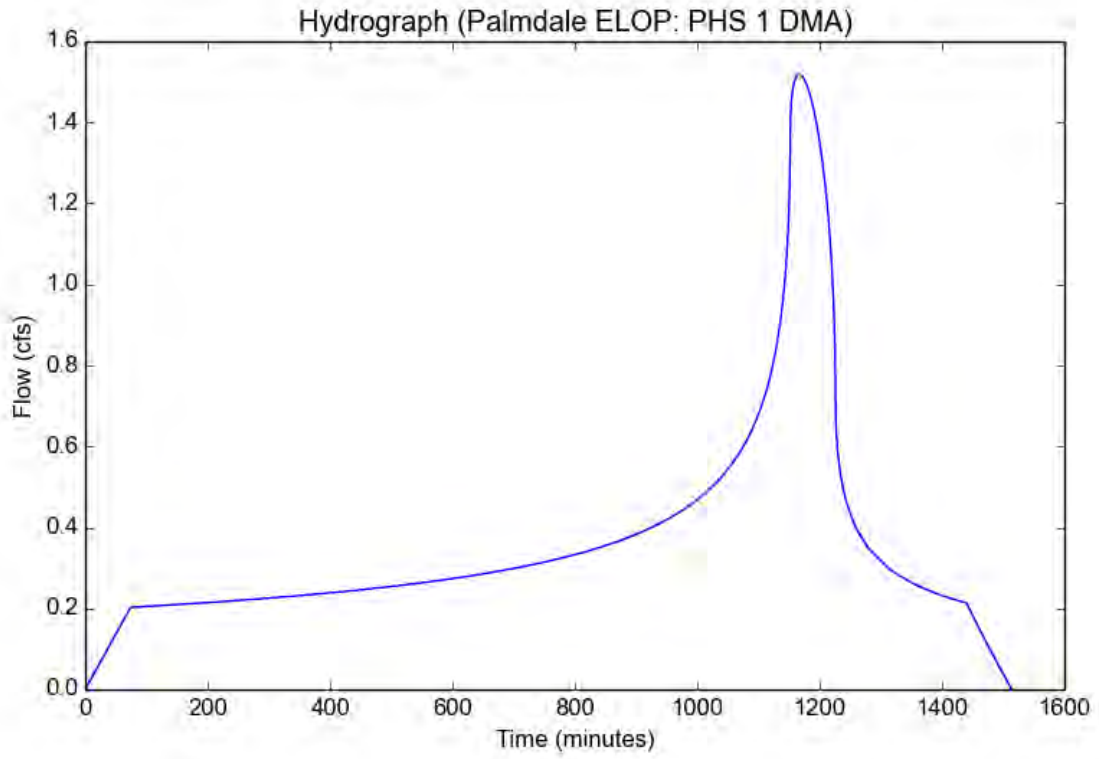
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	Palmdale ELOP
Subarea ID	PHS 1 DMA
Area (ac)	18.7
Flow Path Length (ft)	1450.0
Flow Path Slope (vft/hft)	0.008
0.75-inch Rainfall Depth (in)	0.75
Percent Impervious	0.68
Soil Type	124
Design Storm Frequency	0.75 inch storm
Fire Factor	0
LID	True

Output Results

Modeled (0.75 inch storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.1261
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.644
Time of Concentration (min)	74.0
Clear Peak Flow Rate (cfs)	1.5187
Burned Peak Flow Rate (cfs)	1.5187
24-Hr Clear Runoff Volume (ac-ft)	0.7465
24-Hr Clear Runoff Volume (cu-ft)	32517.8985



Appendix K: Transportation Analysis Parameters

Fehr & Peers

Palmdale ELOP Transportation Analysis Parameters

Project Information

Project Name: **Palmdale School District Enrichment Center**

Project Location: Northeast corner at 40th Street East & East Avenue Q

Project Description: The site will operate as a school enrichment center where kids will be bussed to/from the site to participate in afterschool activities. Please see attached site plan. This analysis and site plan reflect Full Build Out.

Trip Generation

Please see attached Table 1 for the estimated trip generation during the school year and Table 2 for the trip generation during the summer.

The project proposes a substantial busing program to reduce trips to/from the site. This is not a typical school that will allow parents to drop-off/pick-up. Instead, students will be picked-up at each school, bused to the enrichment center, and then bussed back to their school to be picked-up. The trips to/from each school are already occurring and the only new trips associated with this project are buses, staff, and deliveries to the ELOP. Trip generation estimates are not based on ITE rates as there is no comparable land use, and instead were developed based on the operations specific to the site.

Trip Distribution

Please see Figure 1 for the project's trip distribution.

Study Area and Assumptions

Project Buildout Year: 2027 (Phase 1) Ambient Growth Rate: 1 % Per Yr.

The proposed study intersections for this analysis are:

1. Project driveway on Avenue Q
2. Avenue Q & 40th Street
3. Palmdale Bl & 40th Street
4. Palmdale Bl & 35th Street
5. Avenue R & 40th Street

Access Considerations

A. In neither the summer nor the school year is Phase 1 of the project expected to generate a net increase of 1,000 or more daily vehicle trips (DVTs).

B. The project's frontage is not 250 feet or more along an Avenue or Boulevard, as classified by the City's General Plan.

C. The project's building frontage does not encompass an entire block along an Avenue or Boulevard, as classified by the City's General Plan.

Contact Information

	Consultant	Developer
Name:	Miguel Nunez	Al Tsai, Maintenance and Operations Administrator Palmdale School District
Address:	100 Oceangate, Suite 1425 Long Beach, CA 90802	39139 10th Street, E Palmdale, CA 93550
Phone Number:	+1-562-549-3020	
Emai:	M.Nunez@fehrandpeers.com	atsai@palmdalesd.org

Approved by:	x_____ Consultant's Representative	_____ Date	x_____ City Representative	_____ Date

PALMDALE ELOP TRIP GENERATION ESTIMATES – FULL BUILD OUT

Table 1: Project Vehicle Trip Generation (Full Build Out – School Year)

Land Use		ITE Land Use Code	Season	Phase	Size [a]		PCE Factor [b]	Estimated Trip Generation			
								Daily	PM Peak Hour Trips		
									In	Out	Total
PROPOSED PROJECT											
Palmdale ELOP Center	Net External Vehicle Trips	520 [c]	School Year	1	30	Buses [d]	2	120 240	0 0	30 60	30 60
	Net External Vehicle Trips			1	90	Employees [e]	-	180	0	30	30
	Net External Vehicle Trips			1	4	Delivery [f]	-	8	0	0	0
	Net External Vehicle Trips			1	5	Students [g]	-	10	2	2	4
TOTAL DRIVEWAY TRIPS								438	2	92	94

Table 2: Project Vehicle Trip Generation (Full Build Out – Summer)

Land Use		ITE Land Use Code	Season	Phase	Size [a]		PCE Factor [b]	Estimated Trip Generation						
								Daily	AM Peak Hour Trips			PM Peak Hour Trips		
									In	Out	Total	In	Out	Total [h]
PROPOSED PROJECT														
Palmdale ELOP Center	Net External Vehicle Trips	520 [c]	Summer	1	30	Buses [d]	2	120 240	0 0	30 60	30 60	0 0	30 60	30 60
	Net External Vehicle Trips			1	90	Employees [e]	-	180	30	0	30	0	30	30
	Net External Vehicle Trips			1	4	Delivery [f]	-	8	0	0	0	0	0	0
	Net External Vehicle Trips			1	5	Students [g]	-	10	1	1	2	2	2	4
TOTAL DRIVEWAY TRIPS								438	31	61	92	2	92	94

Notes:

[a] Size quantities based on the Palmdale ELOP Trip Generation Information Request and information provided by the project team.

[b] Busses include a Passenger Car Equivalent (PCE) factor of 2.

[c] The elementary school land use description aligns most closely with land use and students will be transported to the enrichment center arriving by bus. Trip generation estimates derived based on number of employees and buses.

[d] Buses dropping off and picking up children would not arrive during the afternoon peak hour as students would be brought to the site before the PM peak hour. All buses leave during the PM peak hour after children have been brought to the site.

[e] All employees would arrive before the arrival of children in the afternoon. Most staff would leave after the PM peak hour after children have left the site. Trip generation estimates assume a third of site staff may leave during the peak hour to provide a conservative analysis.

[f] Deliveries occur outside of peak hours.

[g] While unlikely and discouraged by the program operators, some children may need to be picked-up early due to illness or appointments. This trip generation estimate assumes a small number of children may be picked up during the PM peak hour to provide a conservative analysis

[h] Phase 1 buildout consists of subset of Phases 1a, 1b, and 1c. Full master plan build out consists of Phase 1, Phase 2, Phase 3, and Phase 4. The trip generation estimates presented in Table 1 and Table 2 reflect the estimated tip gen for Phase 1, Phase 2, Phase 3, and Phase 4.