INITIAL STUDY

Environmental Checklist and Evaluation for the County of Santa Clara

File Number:	PLN22-039	**Date:** September 30, 2022
Project Type:	2-Lot Tentative Subdivision Map	**APN(s):** 779-12-006
Project Location / Address:	12645 Harding Avenue, San Martin, CA 95046	**GP Designation:** Rural Residential
Owner's Name:	Marc Lewis	**Zoning:** RR-5Ac
Applicant's Name:	Gloria Ballard	**Urban Service Area:** N/A

Project Description

The proposed project is a two-lot subdivision of a 10-gross-acre parcel into two lots (Parcels 1 and 2) of approximately 5 gross acres each. The subject property is located on Harding Avenue in the rural, unincorporated community of San Martin, west of State Route 101 (see Figure 1). Figure 2 shows the tentative subdivision map. Grading of the project site would involve approximately 22 cubic yards (c.y.) of cut, and 135 c.y. of fill for subdivision frontage improvements along Harding Avenue. An existing 215 square feet (sq.ft.) shed in the northwestern corner of the property is proposed to be demolished. No tree removal is proposed.

Once the property is subdivided, Parcel 1 and Parcel 2 could be developed with a single-family residence, an accessory dwelling unit (ADU) and a junior accessory dwelling unit (JADU). Future home development would be served by well and onsite septic systems. No construction of residences is proposed as a part of this subdivision. A feasible location for future residences and associated site improvements is shown on Figure 3.

Environmental Setting and Surrounding Land Uses

The subject property is located in the unincorporated community of San Martin. The parcel is undeveloped and is currently used as a horse pasture. The project site slopes an average of approximately 1.5% from northeast to the southwest. West Branch Llagas Creek is approximately 0.25 miles south of the site, and a tributary of the creek is located on the subject property. No serpentine soils or serpentine rock outcrops are located on the subject property. The project site is in the Santa Clara Valley Habitat Plan (HCP) Area and is designated as *Area 3: Rural Development Not Covered*. According to mapping of the HCP, the project site habitat land cover consists of *Grain, Row-crop, Hay and Pasture, disked / Short-term Fallowed*. The property is in the *County Liquefaction Hazard Zone*, and the *Special Flood Hazard Zone*. The surrounding land uses are agricultural, open space, single-family homes; zoned Rural Residential.

Other agencies sent a copy of this document:

Morgan Hill Unified School District
California Department of Fish and Wildlife (CDFW),
California Regional Water Quality Control Board (RWQCB), and
U.S. Army Corps of Engineers (USACE)

Figure 1 – Location and Vicinity Map

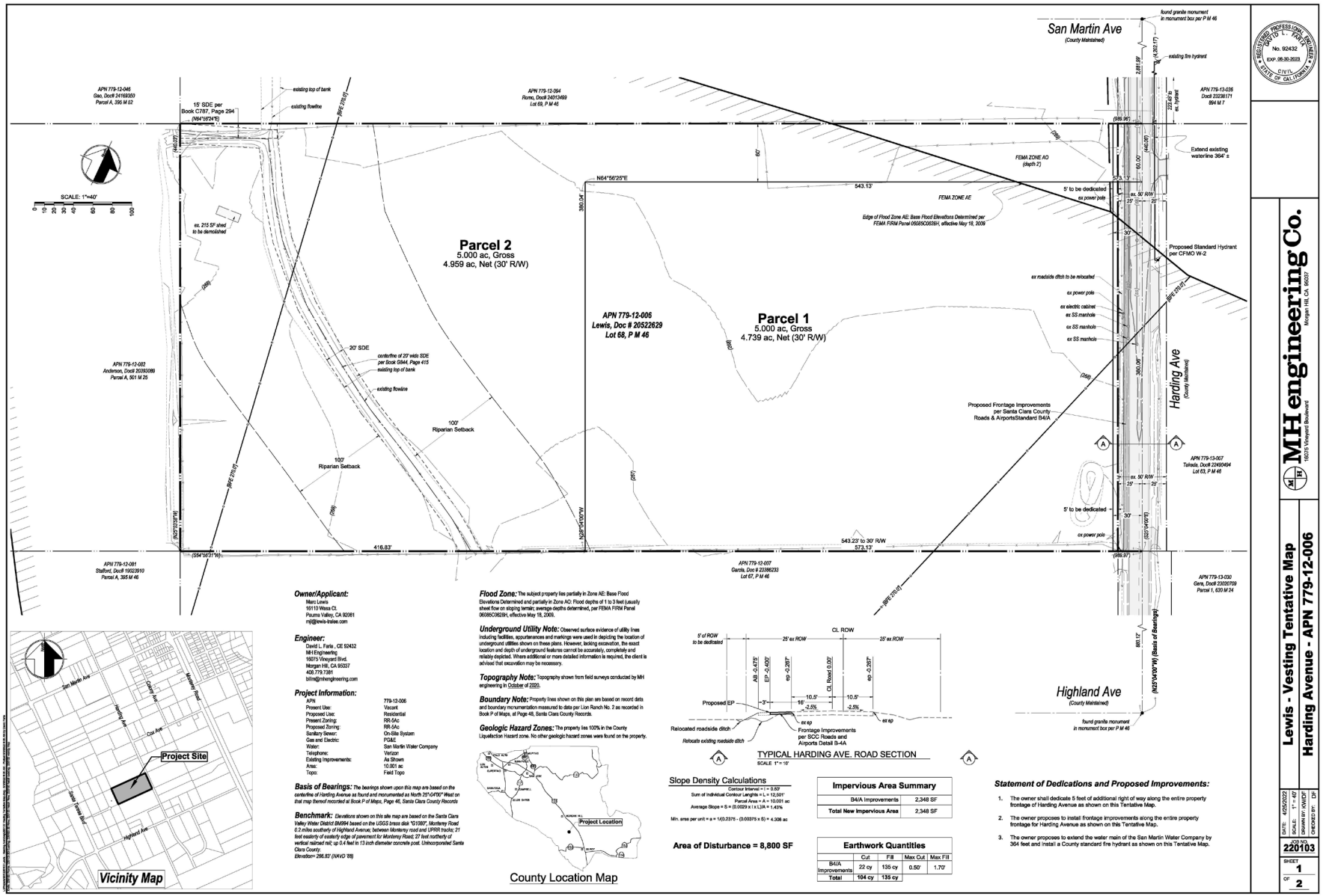

Figure 2 – Vesting Tentative Map

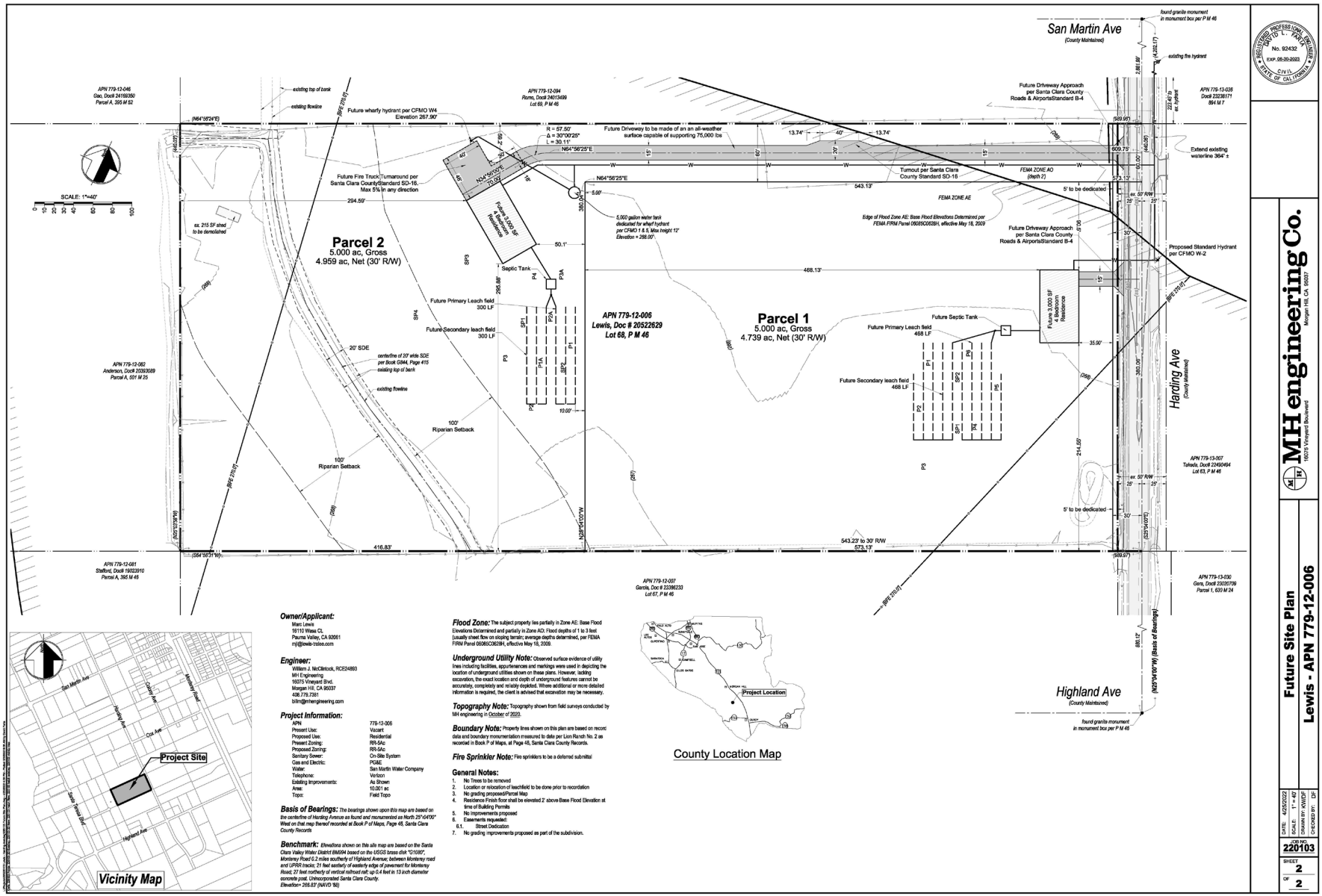

Figure 3 – Development Feasibility Site Plan

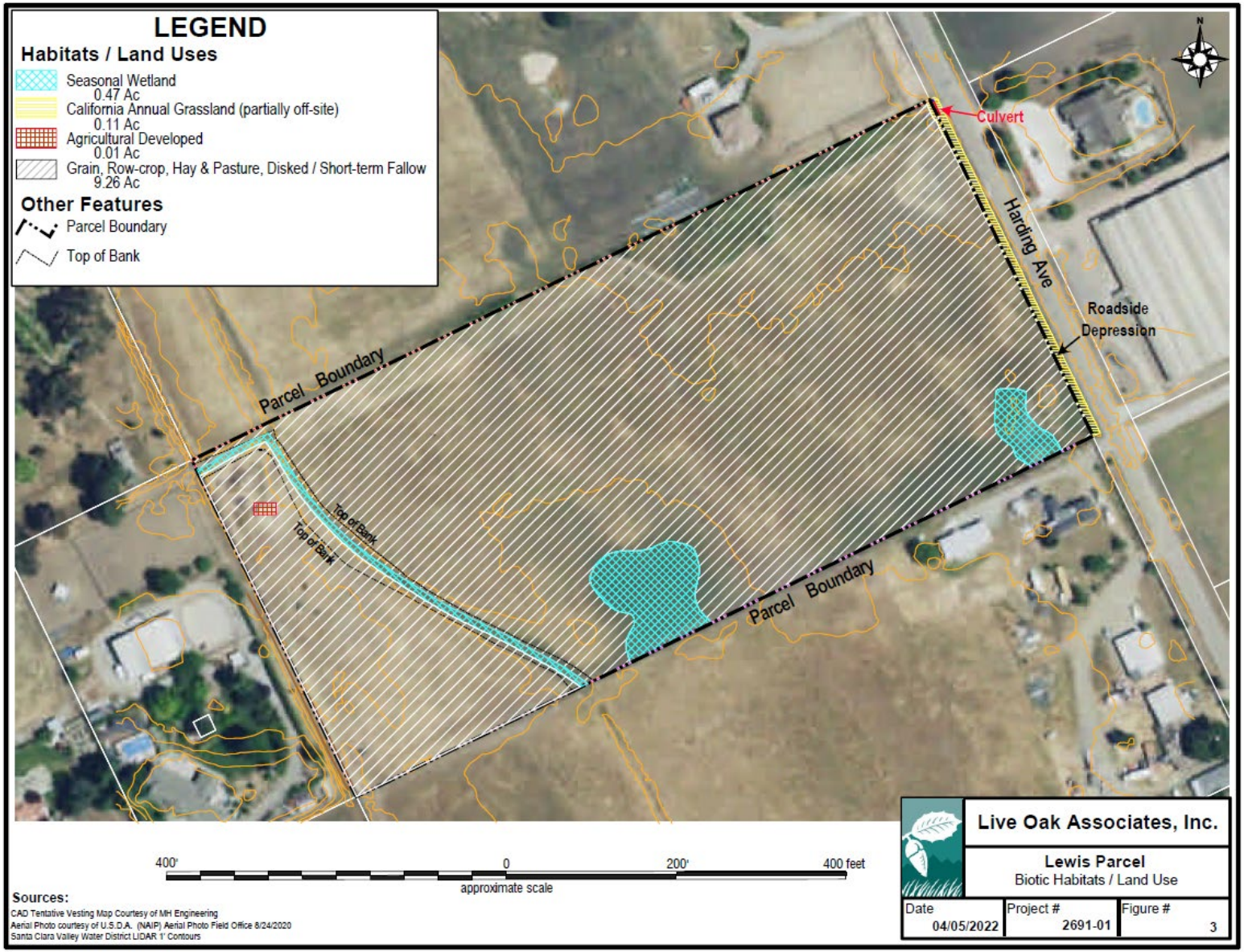

Figure 4 – Biological Resources Assessment (Land Cover Types and Jurisdictional Waters)

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.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The proposed project could potentially result in one or more environmental effects in the following areas:

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

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.

☐ 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.

☐ 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 the attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

_____	**9/30/2022** _____
Signature	**Date**
CHARU AHLUWALIA	_____
Printed name	**For**

ENVIRONMENTAL CHECKLIST AND DISCUSSION OF IMPACTS

A. AESTHETICS					
	IMPACT				
Except as provided in Public Resources Code section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐	2,3,4, 6,17f
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, along a designated scenic highway?	☐	☐	☐	☒	3, 6,7 17f
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐	2,3
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐	3,4

SETTING:

The project site is in a rural residential area in the unincorporated community of San Martin, located along Harding Avenue, between Highland and Cox Avenue. Harding Avenue is not a State- or County-designated scenic road.

DISCUSSION:

b) No Impact - The subject property is not located within a scenic vista recognized by the County of Santa Clara General Plan and Zoning Ordinance, nor does it have a Design Review zoning overlay or Scenic Road zoning overlay. The proposed project will not have substantial adverse effect or substantially damage scenic resources such as trees, rocks, outcroppings, or historic buildings. The property is 1000 feet away from the closest scenic road (Santa Teresa Boulevard) and a one mile west from a scenic highway.

a, c & d) Less than Significant - Scenic vistas in the project area consist of views from the valley floor of the mountain ranges to the east (Diablo Range) and to the west (Santa Cruz mountains). Future development of the property with two single family residences would not obstruct any views from public roadways, given that the height of structures is limited by the Zoning Ordinance to 35 feet. The

project site is not located near scenic roads or other scenic resources (e.g., rock outcroppings, historic buildings, or trees having scenic value). The future development would blend into the surrounding rural residential development and therefore would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

New sources of light and glare would be limited to future residential development. However, given the limited nature of residential outdoor lighting (e.g., illumination of pathways and doors) and the fact that source of light would be similar to that of other single-family residences in the, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

MITIGATION:

No mitigation is required.

B. AGRICULTURE / FOREST 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 Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
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?	☐	☐	☒	☐	3,23,24,26
b) Conflict with existing zoning for agricultural use?	☐	☐	☒	☐	9,21a
c) Conflict with an existing Williamson Act Contract or the County's Williamson Act Ordinance (Section C13 of County Ordinance Code)?	☐	☐	☐	☒	
d) 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))?	☐	☐	☐	☒	1, 28

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	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
e) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒	32
f) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐	

SETTING:

The 10-gross-acre lot is zoned RR-5Ac, which is a base zoning of Rural Residential (RR) and a lot-size combining district of 5 acres (-5Ac). Soil on the subject property is composed of Clear Lake clay (0 to 2 percent slopes, occasionally flooded), Los Robles clay loam (0 to 2 percent slopes), and San Ysidro loam (0 to 2 percent slopes).

The site is designated as *Farmland of Local Importance* in the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) database. The properties surrounding the subject property are zoned RR. Surrounding properties are designated as *Farmland of Local Importance*, *Prime Farmland*, *Farmland of Statewide Importance* or *Urban and Built-Up Land*, in the FMMP database.

The parcel is not under a Williamson Act Contract and contains no land classified as forest.

DISCUSSION:

a, b & f) Less Than Significant - The project is a two-lot subdivision. No residential development is proposed with this subdivision. Future development if proposed, may be two single-family residences, two ADUs and 2 JADUs.

Residential uses incidental to the agricultural use of the land, including single family homes and ADUs are considered compatible with agricultural use and permitted uses in the Rural Residential district. The site is designated as Farmland of Local Importance in the FMMP database. As defined by each county's local advisory committee and Board of Supervisors, farmland of local importance is land that is either producing or has the capability or production but does not meet the criteria to be considered Prime, Statewide, or Unique Farmland. Thus, future construction of the new residences and

associated site improvements would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses and would not affect existing agricultural operations on surrounding properties. The project site and surrounding properties have zoned RR and developed for residential uses; therefore, future residential development would not involve substantial changes to the existing agricultural environment.

c, d & e) No Impact - The parcel is not under a Williamson Act Contract and does not contain forest land. Therefore, the project will have no impact on agricultural or forest resources.

MITIGATION:

No mitigation required.

C. AIR QUALITY

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

	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	5,29, 30
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?	☐	☐	☒	☐	5,29, 30
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	5,29, 30
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐	5, 29, 30

SETTING:

The proposed project is located within the San Francisco Bay Area Air Quality Management District (BAAQMD), which regulates air pollutants, including those that may be generated by construction and operation of development projects. These so-called criteria pollutants include reactive organic gases, carbon monoxide, nitrogen dioxide, and particulate matter (PM). BAAQMD also regulates toxic air contaminants (fine particulate matter), long-term exposure to which is linked with respiratory conditions and increased risk of cancer. Major sources of toxic air contaminants in the Bay Area include major automobile and truck transportation corridors (e.g., freeways and expressways) and stationary sources (e.g., factories, refineries, power plants).

DISCUSSION:

a, b, c & d) Less Than Significant. The subject property is located on Harding Avenue in the unincorporated community of San Martin. The closest freeway or expressway is Highway 101, which is approximately 1 mile from the project site. The operational criteria pollutant screening size for single-family residential projects established by BAAQMD is 325 dwelling units. Future development of two single family residences, driveways, and possibly two ADUs and two JADUs would involve grading and construction activities. Operations would generate emissions from vehicle trips. However, emissions generated from construction and operation of future development would be well below the BAAQMD's screening size level of 325 dwelling units for operational-related emissions (oxides of nitrogen) and 114 dwelling units for construction-related emissions (reactive organic gases) from residential land uses. Dust emissions
would be controlled through standard Best Management Practices (BMPs) dust control measures. The proposed residential development would not generate significant concentrations of pollutants that sensitive receptors would be exposed to, nor would it result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

MITIGATION:

No mitigation required.

D. BIOLOGICAL RESOURCES					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	1, 7, 17b, 17o
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 Game or US Fish and Wildlife Service?	☐	☒	☐	☐	3,7, 8a, 17b, 17e, 22d, 22e, 33
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?	☐	☒	☐	☐	3, 7, 17n, 33

D. BIOLOGICAL RESOURCES					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
d) Have a substantial adverse effect on oak woodland habitat as defined by Oak Woodlands Conservation Law (conversion/loss of oak woodlands) – Public Resource Code 21083.4?	☐	☐	☐	☒	1, 3, 31, 32
e) 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?	☐	☐	☒	☐	1,7, 17b, 17o
f) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	32
g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	☐	☐	☐	☒	3,4, 17l

SETTING:

The project site is located on the west side of Harding Avenue, between its intersections with Cox Avenue and Highland, in San Martin (Figure 1). The site is bounded by rural residential development to the west (homes on 2-to-3-acre parcels), and less dense rural residential development and agricultural lands to the north, east and south. The site is approximately 0.4 miles east of more natural lands of the foothills of the Santa Cruz Range and more than three miles west of more natural lands of the foothills of the Diablo Range.

Under the HCP, the project site's land cover is *Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallowed*. The parcel is located in the HCP area; however, it is designated as Area 3 (*Rural Development Not Covered)*. West Branch Llagas Creek is approximately 0.25 miles south of the site, and a tributary of the creek is located on the subject property. No serpentine soils or serpentine rock outcrops are located on the subject property. The project site does not contain any sensitive habitats and is not located in any plant or wildlife survey areas under the HCP.

The subject property indicates the following non-HCP covered special status species, as the per the California Natural Diversity Database (CNDDB) - Crotch Bumble Bee (1-mile accuracy, 1959), Woodland Woolly threads (1901), and California Tiger Salamander (two-mile buffer).

A Biological Resources Assessment (Assessment) was prepared by Live Oak Associates, Inc. (dated April 25, 2022) for the project site, is in Attachment C. Preparation of this report included a review of

pertinent data sources and literature on relevant background information and habitat characteristics of the project area. In addition, a reconnaissance-level field survey of the property was conducted on March 30, 2022, to assess the current site conditions, to identify and map existing vegetation communities, wetlands and waterways, and to assess the potential for special status species occurrence and/or presence of their respective habitats.

The Assessment identifies that the site is more than nine miles south of the closest landscape-level linkage identified as important for wildlife movement and linkage by both the HCP and Conservation Lands Network, i.e., Linkage 10 which connects the Santa Cruz Mountains with Coyote Ridge and the Mt. Diablo Range through the Coyote Valley area.

The Assessment describes the subject property with three land cover types occur, 1) Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallow, 2) Seasonal Wetland, and 3) Agricultural Developed (Figure 4). Additionally, an upper reach of the channel of the West Branch Llagas Creek traverses the western portion of the site. Between the property boundary and the paved roadway, there is a roadside depression that is dominated by California annual grassland vegetation.

County of Santa Clara Tree Preservation Ordinance, Division C16 regulates tree removal on private land. This ordinance provides protection to certain trees that are 12-inches or greater in diameter. No tree removal is proposed with this project.

DISCUSSION:

d, f & g) No Impact – The subject parcel does not have any known mapped Oak Woodland area and thus would not impact any oak woodland habitat. Additionally, the project does not conflict with the HCP as there are no covered species or landcovers on the property. The project site occurs in Area 3 of the HCP Area, i.e., *Rural Development Not Covered*. County of Santa Clara Tree Preservation Ordinance, Division C16 regulates tree removal on private land. No tree removal is proposed with this project.

e) Less Than Significant Impact – The site occurs approximately 10 miles to the south of identified regional east-west movement corridors through the Coyote Valley area of south San Jose. Due to dense rural residential development that occurs to the west of the site, as well as the fact that the site is surrounded on three sides by cyclone fencing, it is unlikely that the site itself functions as a movement corridor. While some local species may move through the site during normal movements, animals in the region are not expected to be significantly affected by the future development of the site, and other ample agricultural and other open habitat occurs in the site's vicinity that would provide the same movement habitat for these species. The future development of the subject property with two single-family homes would not be expected to result in any significant impacts to any species that currently moves within and through the site as much better movement and foraging habitat is present to the north and south of the site.

a, b & c) Less Than Significant Impact with Mitigation Incorporated.

Special-status Plants: Per the Assessment by Live Oak Associates the subject property contains horse pasture and lacks suitable habitat for special status plants. There is a CNDDB occurrence of Woodland woollythreads (Monolopia gracilens) attributed to the vicinity of the study area; however, this location was estimated based on a 1901 collection and serpentine soils required by this species are absent from the study area. All special status plants known to occur, or to have once occurred, in the project

vicinity are considered absent from or unlikely to occur on the site because the site provides no suitable habitat for the species, or the site provides marginally suitable habitat but the species has either not been observed in the project vicinity in many decades, or there are no known occurrences in the project vicinity (i.e., within three-miles of the site). Therefore, development of the site is expected to have a less-than-significant impact on special status plants.

Special-status Wildlife: Per the Assessment by Live Oak Associates most special status animals known to occur, or to once have occurred, in the project vicinity are considered absent from the site due to a lack of suitable habitat, or they are considered unlikely to occur on the site or they have not been observed in the project vicinity in many decades. If the latter species occurred on the site at all, it would only be as rare migrants or rare foragers. The project is expected to have no impacts on any of the species that are considered absent from or unlikely to occur on the site. The latter species includes the Bay checkerspot butterfly (Euphydryas editha bayensis), steelhead (Oncorhynchus mykiss), Monterey hitch (Lavinia exilicauda harengus), southern coastal roach (Hesperoleucus venustus subditus), Santa Cruz black salamander (Aneides niger), California giant salamander (Dicamptodon ensatus), foothill yellow-legged frog (Rana boylii), California red-legged frog (Rana draytonii), Coast horned lizard (Phrynosoma blainvillii), western pond turtle (Emys marmorata), Swainson's hawk (Buteo swainsoni), tricolored blackbird (Agelaius tricolor), least Bell's vireo (Vireo bellii pusillus), yellow-breasted chat (Icteria virens), grasshopper sparrow (Ammodramus savannarum), bank swallow (Riparia riparia), and San Francisco dusky-footed woodrat (Neotoma fuscipes annectens).

While there are several occurrences of California tiger salamander (Ambystoma californiense) documented within 0.6 and one mile west of the site on the Cordevalle Country Club property, this species is considered unlikely to occur on the site. This is because there are no documented occurrences of this species to the east of Santa Teresa Boulevard, and highly disturbed agricultural lands, rural residential development, and Santa Teresa Boulevard itself would likely preclude this species from migrating to the site from areas to the west.

Additionally, the project is not expected to result in significant impacts to most special status animals (with the potential exception of burrowing owls and badgers should they occur on the site in the future and for which measures are provided below to reduce any potential impacts to a less-than-significant level).

Western Burrowing Owls Although no burrowing owls or their sign was observed on the site during the site survey, and they are likely currently absent, the site does provide suitable habitat for this species and there is some potential it could forage, nest and roost on the site in the future, prior to development. While the loss of habitat for these species as a result of development of the site would be less-than-significant, any project activities resulting in nest abandonment should they occur on the site during project construction activities may be considered a significant impact. Mitigation measures provided below would reduce any potentially significant impacts to a less-than-significant level.

MITIGATION:

BIO-1a: Habitat assessment for burrowing owls shall be conducted within 30 days of grading, or construction activities that shall result in ground disturbance or vegetation removal, to confirm that habitat for burrowing owls remains absent from the site. If the habitat assessment confirms that habitat for this species remains absent from the site, then no further mitigation for burrowing owls would be required.

<u>BIO-1a:</u> Habitat assessment for burrowing owls shall be conducted within 30 days of grading, or construction activities for the future proposed residences that shall result in ground disturbance, to confirm that habitat for burrowing owls remains absent from the site. If the habitat assessment confirms that habitat for this species remains absent from the site, then no further mitigation for burrowing owls would be required.

<u>BIO-1b:</u> Preconstruction Surveys for Burrowing Owls - Should a habitat assessment for burrowing owls confirm that site conditions have changed and that there is potential habitat present for this species (i.e., California ground squirrel burrows or other burrows of sufficient size), then the following measures shall be implemented to ensure that the project does not impact this species.

Pre-construction surveys **A pre-construction survey shall be conducted by a qualified biologist for burrowing owls within 30 days of the on-set of grading, or construction activities**. This survey shall be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

*Avoidance During the Breeding Season***.** If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent shall avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance shall include establishment of a 250-foot non-disturbance buffer zone around nests.

Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the project proponent develops an avoidance, minimization, and monitoring plan that shall be reviewed by the County and CDFW prior to project construction based on the following criteria.

- The County and CDFW approves of the avoidance and minimization plan provided by the project applicant.
- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction). The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.

Avoidance During the Non-Breeding Season. During the non-breeding season (September 1–January 31), the project proponent shall establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are

allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the County that a qualified biologist excavates usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone shall be removed and construction may continue. Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Construction Monitoring. Based on the avoidance, minimization, and monitoring plan developed (as required in the above section), during construction, the non-disturbance buffer zones shall be established and maintained if applicable. A qualified biologist shall monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor shall also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Passive Relocation. Any passive relocation plan would need to be approved by the County and CDFW, and would only occur during the non-breeding season (September 1–January 31) if the other measures described above do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors shall be in place for 48 hours to ensure owls have left the burrow, and then the biologist shall excavate the burrow to prevent reoccupation. Burrows shall be excavated using hand tools. During excavation an escape route shall be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside.

Exceptions to Passive Relocation Prohibition. Any exceptions to passive relocation prohibitions would be subject to the approval of the County and CDFW.

BIO- 2: Alternative Mitigation BIO-MIT-1b, the project can opt-in to the Santa Clara Valley Habitat Plan, and follow the mitigations measures for burrowing owls included under Condition 15 of the Habitat Plan (6-62, Santa Clara Valley Habitat Plan; Attachment B).

American Badgers known to occur in the foothills to the west of the site; most of the habitat between the site and the foothills consists of range land and agricultural fields, therefore, it is possible badgers may use the site primarily for movement and foraging and may forage or pass through the site or have the potential to dig a day-use den from time to time. No badgers were observed on the project site during the site survey; however, should badgers occur onsite at the time of construction, the project

could result in mortality of individuals of this species, which would constitute a significant impact under CEQA. Mitigation measures provided below would reduce any potentially significant impacts to a less-than-significant level.

MITIGATION:

BIO-3: Preconstruction Surveys for Badgers - During the course of the preconstruction surveys for other species, a qualified biologist shall also determine the presence or absence of badgers prior to the start of construction. If badgers are found to be absent, no other mitigations for the protection of badgers shall be warranted.

Preconstruction Surveys for Badgers - If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once the biologist has determined that badger has vacated the burrow, the burrow can be collapsed or excavated, and ground disturbance could proceed.

Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present onsite during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor shall be required to be present until it is determined that young are of an independent age and construction activities would not harm individual badgers.

BIO-4: Workers Environmental Training - Prior to the start of the project, a worker's environmental training shall be performed with the entire construction team. All workers on the project shall attend a training that includes a description of the species, a summary of its biology, and minimization measures and instructions on what to do if a Burrowing Owl or American badger is observed.

Ground Nesting Migratory Birds. Aside from two small shrubs in the northern portion of the site, trees and other woody vegetation is absent from the site, thus tree-nesting birds are considered absent from the site. However, the site could provide potential habitat for ground nesting birds such as the non-special status western meadowlark (Sturnella neglecta). Should any birds nest on the site during site development activities, including ground disturbance and vegetation removal, such activities could result in nest abandonment and in harm or mortality to unfledged young. This would be considered a potentially significant impact of the project as well as a violation of state and federal laws. Mitigation measures provided below would reduce any potentially significant impacts to a less-than-significant level.

MITIGATION:

BIO- 5: Preconstruction Surveys for Ground Nesting Migratory Birds - To the extent possible, any project-related ground disturbance or vegetation removal activities should occur outside of the bird breeding season, i.e., during the period from September 1st through January 31st. Project-related activities that occur during the bird breeding season, i.e., during the period from February 1st through August 31st, could be constrained in the vicinity of any active of ground nesting migratory birds. **If tree removal or ground disturbance activities are scheduled to commence during the breeding season, a qualified biologist shall conduct pre-construction**

nesting bird surveys to identify possible nesting activity within 15 days prior to such activities. A construction-free buffer of suitable dimensions as determined by a qualified biologist must be established around any active raptor or migratory bird nest for the duration of the project, or until it has been determined that the young have fledged and are foraging independently from their parents

Jurisdictional Waters: A stream channel traverses the western portion of the site which is approximately 12 to14 feet in width between the tops of the banks (Figure 4). This stream feature is a tributary of the West Branch Llagas Creek, which occurs approximately 0.25 miles south of the site, and the Pajaro River. In addition, two seasonal wetlands occur on the site, one in the southeastern portion of the site and one along the south-central boundary of the site.

Potentially jurisdictional waters of the U.S. and state are present on the site in the form of the above-described seasonal stream and wetlands. Impacts to these features may be regulated by the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB), or some combination of these three resource agencies, and may be considered a significant impact under CEQA.

The proposed two-lot minor subdivision includes frontage improvements along Harding Avenue. No construction of residences is proposed as a part of this subdivision. Once the property is subdivided, Parcel 1 and Parcel 2 could be developed with a single-family residence, an ADU and a junior JADU). Future home development would be served by well and onsite septic systems.

The project is subject to *General Plan Policy R-RC 37and 38*. The Tentative Map would be conditioned to require a 100-foot buffer from the top of bank on either side of the existing streams. With regard to the seasonal wetlands, if development of the site avoids the wetlands, then the project would result in a less than significant impact and no mitigation would be required. However, if development of the site results in fill being placed within the wetlands or other land alterations within the wetlands, including any fencing along the boundary between the two proposed parcels, then this is considered a significant impact of the project, and mitigations provided below would reduce any significant impact to a less-than-significant level.

MITIGATION:

BIO- 6a: Avoidance and Minimization of Impact to Wetlands - The preferred method of mitigation would be avoidance of all waters of the U.S. and State to the maximum extent practicable by designing the project so that it avoids the placement of fill within potential jurisdictional waters.

BIO- 6b: Wetland Compensation - If development of the site is not designed to completely avoid the wetland features, then a **formal wetland delineation** should be conducted and verified by the U.S. Army Corps to determine the jurisdictional status of these features. Compensation measures for a loss of wetland habitat would include the replacement of the lost habitat value of these impacts through the creation, restoration, and/or enhancement of jurisdictional waters at a minimum 1:1 replacement-to-loss ratio. The final mitigation amounts shall be based on actual impacts to be determined during the design phase. Mitigation can be accomplished at an appropriate onsite or nearby offsite location. Alternatively, mitigation can be accomplished via the purchase of an appropriate number of credits from an agency approved mitigation bank.

Should any project on the site result in fill being placed in the wetlands on the site, in addition to the mitigation provided above, the project would also need to comply with all state and federal regulations related to construction work that will impact aquatic habitats occurring on the site. The applicant may be required to obtain a Section 404 Clean Water Act Nationwide permit from the USACE, a Section 401 Water Quality Certification from the RWQCB and a Section 1600 Streambed Alteration Agreement from the CDFW, or some combination of these three agencies.

E. CULTURAL RESOURCES					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	**Source**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of the CEQA Guidelines, or the County's Historic Preservation Ordinance (Division C17 of County Ordinance Code) – including relocation, alterations or demolition of historic resources?	☐	☐	☐	☒	3, 16, 19, 40, 41
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the CEQA Guidelines?	☐	☒	☐	☐	3, 19, 40, 41
c) Disturb any human remains including, those interred outside of formal cemeteries?	☐	☒	☐	☐	3, 19, 40, 41

SETTING:

Letter from California Historical Resources Information System (CHRIS) dated March 7, 2022, noted no previously recorded sites within or adjacent to the project site. However, the Office of Historic Preservation determined that the project site has the possibility of containing unrecorded archaeological sites and recommended that the property be evaluated by a qualified archaeologist. Archaeological Resource Service (ARS) conducted an archival search and a surface survey of the proposed project area. The report titled "Archeological Resource Management Report for Residential Development on Harding Avenue – A Cultural Resource Inventory", dated July 13, 2022, is in Attachment D.

DISCUSSION:

a) No Impact. The project site contains an existing 215 sq.ft. shed in the northwestern corner of the property is proposed to be demolished. The California Public Resources code defines a historical resource as a resource that has been listed or is eligible for listing on the California Historical Register of Historical Resources, a resource included in a local register of historical resources, or a resource identified as significant in a historical survey meeting the requirements of the Public Resources Code. Neither the subject property nor the existing structure located on the otherwise vacant parcel are listed in or eligible for listing in the California Register of Historic Resources or the County of Santa Clara

Historic Resources Inventory. Thus, the vacant parcel is not historical resource pursuant to Section 15064.5 of the CEQA Guidelines.

b and c) Less Than Significant With Mitigation Incorporated. Based on a review of available literature on the prehistoric and historic resources of the area, notably Llagas creek, as well as a field survey, ARS determined that the potential for the discovery of cultural resources on the subject site is minute. No significant or potentially significant artifacts, archaeological deposits, or features were noted during surface reconnaissance conducted by ARS on June 23rd, 2022. There is evidence of prehistoric populations within the local vicinity (closest prehistoric site being one and a quarter mile southeast of the subject property), however there are no traces that they were actively occupying the land within the project area. Artifacts that are typically associated with prehistoric sites include human-modified stone, shell, bone or other cultural materials such as charcoal, ash, and burnt rocks that indicate food procurement or processing activities. Prehistoric domestic features include firepits, hearths, or house/floor depressions whereas human skeletal remains in a prepared pit or depression in a culturally modified soil deposit typically represent mortuary features. Historic artifacts can encompass a wide range of physical deposits, such as glass, charcoal, nails, ceramics, gun-shells, as they can potentially include all byproducts of human land use greater than 50 years of age. None of these potential physical indications of a site were observed.

However, upon approval of the project, the frontage improvements and future development of the site would include ground disturbance and grading activity which has the potential for uncovering previously unknown cultural resources. In the unlikely event that a potentially significant cultural resource is discovered, the following mitigation measures will ensure the proper actions are taken to reduce the adverse environmental impacts to cultural resources to a less than significant level.

MITIGATION:

CUL- 1: Should prehistoric or historic archaeological features, such as a concentration of flaked stone artifacts, culturally modified soil, dietary shell, or the remnants of a historic trash deposit over 50 years old be uncovered during grading, trenching, or other on-site excavation(s), all project-related work shall cease within a 50-foot radius until the County has been notified, and a qualified archeologist is contacted and retained by the applicant to evaluate the significance of the find, and, if deemed necessary, suggest appropriate mitigation(s)

CUL- 2: In the event that human skeletal remains are encountered, the applicant is required by County Ordinance No. B6-18 to immediately notify the County Coroner. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of state law and this chapter. If artifacts are found on the site a qualified archaeologist shall be contacted along with the County Planning Office. No further disturbance of the artifacts may be made except as authorized by the County Planning Office.

F. ENERGY					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
a) Result in potentially significant environmental impact do to wasteful, inefficient, or unnecessary construction of energy resources during project consumption or operation?	☐	☐	☒	☐	3, 5
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐	5

SETTING:

The proposed two-lot minor subdivision does not include any construction and as such does not propose to consume any energy resources that would potentially be inefficient or unnecessary. However, if approved, it is reasonable to anticipate the project may result in the future construction of two new single-family residences, accessory dwelling units, and associated site improvements.

California Code of Regulations, Title 24, Part 6, is California's Energy Efficiency Standards for Residential and Non-Residential Buildings. Title 24 was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and non-residential buildings.

DISCUSSION:

a & b) Less Than Significant. The project would increase electricity and natural gas consumption at the site relative to existing conditions. The project would be required to meet the California Code of Regulations Title 24 standards for building energy efficiency. Construction energy consumption would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. The project would not result in wasteful, inefficient, or unnecessary consumption of energy.

MITIGATION:

No mitigation required.

G. GEOLOGY AND SOILS					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:					

G. GEOLOGY AND SOILS					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
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.	☐	☐	☐	☒	6, 17c, 43
ii) Strong seismic ground shaking?	☐	☐	☐	☒	6, 17c
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	6, 17c, 17n, 18b
iv) Landslides	☐	☐	☐	☒	6, 17L, 118b
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	6, 14, 23, 24
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?	☐	☐	☒	☐	2, 3, 17c, 23, 24, 42
d) Be located on expansive soil, as defined in the report, *Soils of Santa Clara County*, creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐	14,23, 24,
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 waste water?	☐	☐	☒	☐	3,6, 23,24,
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐	2,3,4,40,41

SETTING:

The topography of the project site is flat with an approximate slope of 1.5 percent (1.5%) towards the southwest of the property. The property is located in the County's Liquefaction Hazard Area. A Geotechnical Engineering Investigation (Report) for the proposed subdivision was prepared by consultant Salem Engineering Group, Inc. dated January 12, 2022 (Attachment E), which was reviewed and accepted by the County Geologist. A field exploration consisting of site surface reconnaissance and subsurface exploration was conducted on December 6, 2021, and results presented in the Report.

DISCUSSION:

a(i), (ii) & (iv). No Impact. The site is not within a designated State Earthquake Fault Zones, State Seismic Hazard Zone or the State liquification zone.

a(iii), b, c, d & e) Less than Significant Impact. The property is located in the County's Liquefaction Hazard Area. Based on the data collected during field investigation, geotechnical engineering analysis, the Report determined the site suitable for proposed future construction and site improvements, provided the recommendations contained in the Report are incorporated in the project design and construction. The primary critical geotechnical concerns identified in this Report are potential for soil expansiveness and potential for total and differential seismic settlement due to a design level seismic event. The project shall require foundations of future structures to be designed to withstand liquefaction as identified in the Report.

At the time of development, the consulting geologist would review the project and provide verification to the County Geologist that all geologic investigations have been performed, prior to approval of the issuance of building permits. During any construction, the consulting geologist would also observe construction and provide an "as built" letter to the County Geologist prior to final occupancy signoff, certifying that all of the recommendations contained in the study have been followed.

Subdivision frontage improvements and any future development would be subject to the County's Policies and Standards pertaining to Grading and Erosion Control. Erosion control would be required as part of project design through the Grading Approval and permitting process. At the time of development, percolation tests and soil profiles would also be conducted for each proposed parcel, and this data would be reviewed by County Department of Environmental Health (DEH) ensuring that the soils are capable of supporting a septic system which meets County DEH requirements. If grading approval is required, additional review would be required for conformance to the County's Grading Manual and BMPs, ensuring that no over-compaction or over-covering of soil would occur.

f) Less Than Significant With Mitigation Incorporated. The geotechnical report has not identified any unique geologic features which would be directly or indirectly destroyed by the project. The project site consists of soils and other geologic features which are typical in the surrounding area. In addition, there are no known paleontological resources located at the project site that would be designated as unique. Nevertheless, ground disturbance during the project's construction phase has the potential for disturbing previously unknown unique paleontological resources. The following mitigation measure will ensure that in the event any unique paleontological resources are discovered, the proper actions are taken to reduce the adverse environmental impacts to less than significant levels.

MITIGATION:

> **GEO- 1:** Should unique paleontological materials be uncovered during grading, trenching, or other on-site excavation(s), all earthwork within 30 yards of the materials shall be stopped until the County has been notified, and a qualified paleontologist contacted and retained by the applicant to evaluate the significance of the find, and, if deemed necessary, suggest appropriate mitigation(s)

H. GREENHOUSE GAS EMISSIONS					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	5,29, 30
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	5,29, 30

SETTING:

Given the overwhelming scope of global climate change, it is not anticipated that a single development project would have an individually discernible effect on global climate change. It is more appropriate to conclude that the greenhouse gas emissions generated by a proposed project would combine with emissions across the state, nation, and globe to cumulatively contribute to global climate change. The primary GHG associated with a development project is carbon dioxide, which is directly generated by fuel combustion (vehicle trips, use of natural gas for buildings) and indirectly generated by use of electricity.

DISCUSSION:

a & b) Less Than Significant. Future development of two single family residences, two ADUs, two JADUs and associated site improvements would involve grading and construction activities. Operations would generate emissions from vehicle trips. However, emissions generated from construction and operation of the residences would be well below the BAAQMD's screening size level of 56 dwelling units for both operational- and construction related GHG emissions. Therefore, the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

MITIGATION:

No mitigation is required.

I. HAZARDS & HAZARDOUS MATERIALS					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Source
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒	1, 3, 4, 5
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?	☐	☐	☐	☒	2, 3, 5
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school?	☐	☐	☐	☒	46
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?	☐	☐	☐	☒	47
e) For a project located within an airport land use plan referral area or, where such a plan has not been adopted, within two miles of a public airport or public use airport, or in the vicinity of a private airstrip, would the project result in a safety hazard, or excessive noise for people residing or working in the project area?	☐	☐	☐	☒	3, 22a
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	5, 48
g) Expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒	4, 17g

SETTING:

The project site is located in a rural residential area of south Santa Clara County in the unincorporated community of San Martin. It is not located within ¼ mile of a school or within the Wildland Urban Interface. San Martin Airport is located approximately ½ mile from the project site.

DISCUSSION:

a, b, c, d, e, f & g) No Impact. The project is a two-lot residential subdivision. Therefore, it would not involve transport of hazardous materials or foreseeable risk of accident conditions that could release hazardous materials into the environment. The project site is not located within ¼ of a school. The site is located within two miles of a public airport. However, the project would not result in a safety hazard, or excessive noise for people residing or working in the project area. The project site would use as access Harding Avenue, which is not part of an adopted emergency response plan or emergency evacuation plan. The site is not within the Wildland Urban Interface and therefore would not expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires.

MITIGATION:

No mitigation is required.

J. HYDROLOGY AND WATER QUALITY					
	IMPACT				
Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐	17b, 36
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐	3, 4
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:	☐	☐	☒	☐	3, 17n,
i) Result in substantial erosion or siltation on- or off-site	☐	☐	☒	☐	3 , 17p
II) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐	1, 3, 5, 36, 21a
III) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐	1, 3, 5
IV) Impede or redirect flood flows?	☐	☐	☒	☐	3, 17p, 18b, 18d
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐	3, 18b, 18d
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐	2, 3, 4, 17p

SETTING:

The Santa Clara Valley is a flat alluvial plain situated between the Santa Cruz Mountains to the west and the southern Diablo Range to the east. The majority of the County drains in a northerly direction into the San Francisco Bay, although the site is located within the Uvas-Llagas Watershed, a 104-square-mile region which is distinguished by its agricultural lands and natural areas and drains to the Pajaro River. Part of the larger Pajaro River Watershed, the creeks in this watershed are the only waterways in Santa Clara County that flow southward.

One stream channel traverses the western portion of the site which is approximately 12 to14 feet in width between the tops of the banks. This stream feature is a tributary of the West Branch Llagas Creek, which occurs approximately 0.25 miles south of the site, and the Pajaro River. In addition, two seasonal wetlands occur on the site, one in the southeastern portion of the site and one along the south-central boundary of the site (Figure 4). The property is located in Federal Emergency Management Agency (FEMA) Flood Zone AE (Special Flood Hazard Area), subject to inundation by the 1% annual chance flood.

DISCUSSION:

a, b, c, d, e) Less than Significant impact. Once the property is subdivided, Parcel 1 and Parcel 2 could be developed with a single-family residence, ADU and a JADU. Grading of the site for future development may slightly alter on-site drainage patterns. In addition, future development of the structures, and driveways would add impervious surfaces to the project site. The County requires erosion control standards be incorporated into project design in order to avoid erosion on- and off-site that could violate water quality standards during construction. The site is flat, and all stormwater run-off would be required to be retained on site. Therefore, site development would not substantially alter the existing drainage pattern of the site or area, increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or 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.

The project site is located within the regulatory 100-year floodplain. Since the project is located within the floodplain, the project will be conditioned to ensure compliance with FEMA requirements to ensure it does not impede or redirect floodwaters. County Land Development Engineering has reviewed the proposed project and provided conditions of approval, such that the project will not impact the floodplain. The project site is not located in tsunami, or seiche zones

MITIGATION:

No mitigation is required.

K. LAND USE						
	IMPACT					
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	SOURCE
a) Physically divide an established community?	☐	☐	☐	☒	2, 4
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?	☐	☐	☐	☒	8a, 9, 18a

SETTING:

The parcel is designated in the General Plan as Rural Residential and is zoned RR-5Ac. Surrounding uses are rural residences and undeveloped parcels.

DISCUSSION:

a & b) No impact. The project meets the allowable density of development for the Rural Residential general plan designation (R-LU 58) and minimum lot size and density requirements for the RR-5Ac zoning district (Zoning Ordinance Sections 2.20.040 and 3.10.030). The project will create two lots of 5 gross acres (Parcel 1 and Parcel 2), resulting in a density of 0.2 dwelling unit/acre. The project would subdivide for future construction of two residences, which are allowed uses in this zoning. This use would not physically divide an established community or conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

MITIGATION:

No mitigation is required.

L. MINERAL RESOURCES						
	IMPACT					
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	SOURCE
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?	☐	☐	☒	☐	1, 2, 3, 6, 44
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?	☐	☐	☒	☐	1, 2, 3, 6, 8a

SETTING:

The project site is located within a Mineral Resource Zone (MRZ-1), which is classified as an area that has no significant mineral deposits or where it is judged that little likelihood exists for their presence.

DISCUSSION:
a & b) Less Than Significant. The project is located on MRZ-1, which is an area that has no significant mineral deposits or where it is judged that little likelihood exists for their presence. The project would restrict access to potential mineral resources on the project site; however, given the relatively small size of the site and the fact that it is not considered a locally important mineral resource recovery site as designated by the Santa Clara County General Plan (Santa Clara County 1994b), a substantial loss of mineral resources would not occur. Therefore, the project would not result in the loss of availability of a known mineral resource that would be of regional or statewide value.

MITIGATION:

No mitigation is required.

M. NOISE					
	IMPACTS				
WOULD THE PROJECT RESULT IN:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
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?	☐	☐	☒	☐	8a, 13, 22a, 45
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	13, 45
c) For a project located within the vicinity of a private airstrip or an airport land use plan referral area or, where such a plan has not been adopted, within two miles of a public airport, public use airport, or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐	1, 5, 22a

SETTING:

The project site is located in an area of rural residential uses approximately ½ mile east of State Route 101 and South County Airport. Single family residences are located on three sides of the property, with the closest being on the north side, approximately 200 feet from the future proposed development sites. The County noise ordinance restricts construction-related noise near single-family residential areas to 60 dBA for mobile equipment operated Monday through Saturday from 7:00 AM to 7:00 PM.

DISCUSSION:

a, b & c) Less Than Significant. A temporary noise increase during construction would be generated by grading for subdivision improvements and future construction of residential buildings and driveways. However, noise from operating equipment would not exceed the 60 DBA ordinance limit for mobile equipment. Occupancy of the two residences would not be a significant new source of noise. Therefore, the proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards. Future construction of the two residences would not involve use of equipment that would cause groundborne vibration or groundborne noise levels.

MITIGATION:

No mitigation required.

N. POPULATION AND HOUSING					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
a) 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)?	☐	☐	☐	☒	1, 3, 4
b) Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	1, 2, 3, 4

SETTING:

The project site is located in an area of rural residential uses.

DISCUSSION:

a & b) No Impact - The project would involve demolition of a shed, and future construction of two single residences. The project would not change the density upon which the General Plan's population projections were based. Therefore, it would not induce substantial unplanned population growth in an area. No extension of roads or infrastructure is proposed as part of this project.

MITIGATION:

No mitigation required.

O. PUBLIC SERVICES					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	SOURCE
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:					
i) Fire Protection?	☐	☐	☒	☐	1, 3, 5
ii) Police Protection?	☐	☐	☒	☐	1, 3, 5
iii) School facilities?	☐	☐	☒	☐	1, 3, 5
iv) Parks?	☐	☐	☒	☐	1, 3, 5, 17h
v) Other public facilities?	☐	☐	☒	☐	1, 3, 5

SETTING:

The project site is located in the unincorporated community of San Martin. Fire protection is provided by the South Santa Clara County Fire District. The Santa Clara County Sheriff's Office provides police protection service. The project site is located within the Morgan Hill Unified School District. It is served by the San Martin/Gwinn Elementary School (located at 100 North St.), Britton Middle School (located at 80 W. Central Ave.), and Live Oak High School (located at 1505 East Main Ave).

DISCUSSION:

a) Less Than Significant. The future increase of two residences as part of the proposed subdivision, would not result in substantial adverse physical impacts to the public facilities that would provide services in this area. Any new square footage will have to pay the school impact fees.

MITIGATION:

No mitigation is required.

P. RECREATION					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	SOURCE
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that	☐	☐	☒	☐	1, 2, 4, 5, 17h

	substantial physical deterioration of the facility would occur or be accelerated?					
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐	1, 3, 4, 5

SETTING:

The Santa Clara County Parks and Recreation Department operates and maintains several parks and recreational facilities in unincorporated Santa Clara County.

DISCUSSION:

a & b) Less Than Significant. The future increase of two residences as part of the proposed subdivision would not result in substantial adverse physical impacts to the recreation facilities in the area or require construction or expansion of such facilities.

MITIGATION:

No mitigation is required.

Q. TRANSPORTATION						
		IMPACT				
WOULD THE PROJECT:		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐	1, 4, 5, 6, 7, 49, 52
b)	Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐	6, 49, 50, 52
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐	3, 5, 6,7, 52
d)	Result in inadequate emergency access?	☐	☐	☒	☐	1, 3, 5, 48, 52

SETTING:

The project site is accessed from Harding Avenue and approximately 900 feet north of Highland Avenue in the unincorporated area of San Martin.

VMT

Senate Bill 743 (SB 743), which became effective September 2013, initiated reforms to the CEQA Guidelines to establish new criteria for determining the significance of transportation impacts that "promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses." Specifically, SB 743 directed the Governor's Office of Planning and Research to update the CEQA Guidelines to replace automobile delay—as described solely by LOS or similar measures of vehicular capacity or traffic congestion—with VMT as the recommended metric for determining the significance of transportation impacts. The Office of Planning and Research has updated the CEQA Guidelines for this purpose by adding a new section 15064.3 to the Guidelines, which became effective statewide July 1, 2020. CEQA Guidelines section 15064.3, subdivision (b), establishes criteria for evaluating a project's transportation impacts under CEQA. The lead agency has discretion to choose the most appropriate methodology to evaluate VMT.

DISCUSSION:

a, b, c & d) Less Than Significant. The Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA[1] recommends a method for screening out small projects that would be presumed to have less-than-significant VMT impacts. The method uses a daily trip rate as a screening level threshold based on the Class 1 and 3 Categorical Exemptions (Sections 15301 and 15303 of the CEQA Guidelines). For rural areas, this daily trip rate screening level would be 27.[2] The project is a 2-lot residential subdivision in a rural area. However, approval would only enable two new single-family residence. The daily trip rate for a single-family residence provided by the Institute of Transportation Engineers (ITE) is 9.57.[3] This would be below the screening level of 24. Therefore, the proposed project would not conflict with CEQA Guidelines Section 15064.3, subdivision (b).

As part of development of the proposed subdivision, each new parcel would have a 15-foot-wide driveway connecting with Harding Avenue, as shown on Figure 3. The driveways would be approximately 120 feet apart. The County's Zoning Ordinance [4.20.050(B)(1) would restrict fence height to 3 feet within 20 feet of the right-of-way. In addition, the required setback for accessory structures would be 75 feet from Harding Avenue. With these restrictions and given that Harding Avenue is a straight road that is lightly traveled, the proposed development would not substantially increase hazards due to a geometric design feature. The subdivision and driveway design has also been reviewed by the Fire Marshal's Office and provides adequate emergency access to both lots.

MITIGATION:

No mitigation is required.

[1]Office of Planning and Research. December 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA.
[2]According to OPR's analysis, typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact. However, the 10,000 square-foot limit examples in the Class 1 and 3 applies to urban areas. Outside of urban areas, the example limit is 2,500 square feet, which would yield a trip rate of 24, which is the rate that would be considered not to lead to a significant VMT impact.
[3]ITE Trip Generation, 10th Edition, 2018.

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

SETTING:

CEQA requires that lead agencies consult with a California Native American tribes that is traditionally and culturally affiliated with the geographic area of a proposed project, if requested by the tribes. Section 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource (TCR) is a project that may have a significant effect on the environment.

DISCUSSION:

a) Less Than Significant. No tribe has requested that the County notify it when development applications in the unincorporated areas of the County are submitted and undergo CEQA review, which is the required precursor for consultation under AB 52. There are no resources listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources on the project site or in the vicinity. Mitigation measures are included under section E., "Cultural Resources" that require archaeological monitoring and appropriate response if human remains or other potential archaeological resources are uncovered during project construction.

Therefore, impacts related to the implementation of the project would be less than significant with respect to Tribal Cultural Resources.

MITIGATION:

No mitigation is required.

S. UTILITIES AND SERVICE SYSTEMS					
	IMPACT				
WOULD THE PROJECT:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
a) 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?	☐	☐	☒	☐	3,6,70
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	☐	☐	☒	☐	1, 3, 6,24b
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	1, 3,6,70
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐	1, 3, 5,6
e) Be in non-compliance with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐	3,5, 6

SETTING:

The project site is located within PG&E's service area. The project site has no access to water or wastewater utilities.

DISCUSSION:

a, b, c, d & e) Less Than Significant. Electricity and gas would be provided by PG&E. Future residences would each have a well and an on-site wastewater treatment system. Stormwater would be retained on site. Therefore, no expansion of utilities would be required. Construction wastes associated with demolition of the existing shed and construction future new residences would be minor and would not exceed the capacity of existing solid waste disposal facilities.

MITIGATION:

No mitigation is required.

T. WILDFIRE					
	IMPACT				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	**SOURCE**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	1, 2, 3, 6, 44
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐	1, 2, 3, 6,8a
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐	1, 2, 4, 5, 17h
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐	1, 3, 4, 5

SETTING:

The project site is located in a flat area primarily developed with agricultural and rural residential uses. Project access would be from Harding Avenue.

DISCUSSION:

a, b, c & d) Less Than Significant. The proposed project is a two-lot subdivision, demolition of an existing shed, and future development of two new residences. Access to Harding Avenue would not substantially impair an adopted emergency response plan or emergency evacuation plan. The project site is in an area of low risk of wildfire. Fire hydrants would be constructed and supplied by well water stored on site. Project development would not require installation or maintenance of other infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. In addition, because the project is located in a flat area of low fire risk, development would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

MITIGATION:

No mitigation is required.

U. MANDATORY FINDING OF SIGNIFICANCE					
	IMPACT				
WOULD THE PROJECT:	YES			NO	SOURCE
	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact	
a) 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?	☐	☒	☐	☐	1 to 52
b) Have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of an individual 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)?	☐	☐	☒	☐	1 to 52
c) Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒	1 to 52

DISCUSSION:

a) **Less Than Significant Impact with Mitigation Incorporated.** Although the proposed project is to subdivide a 10-gross-acre parcel and does not include any construction, due to the undeveloped nature of the project site, it has the potential for significant impacts in relation to undiscovered biological or cultural or paleontological. However, the project would not substantially degrade the quality of the natural environment because the potentially significant impacts regarding biological resources, cultural resources, and geology/soils as identified throughout this study can be mitigated to less than significant levels. Where mitigation measures are enforced as proposed in this Initial Study, the measures will be conditions of approval of the proposed project and the applicant will be responsible for implementation of the measures. Therefore, the potential for substantial impacts to biological, historical, cultural or other resources as a result of the proposed project is reduced to a less than significant level

b) **Less Than Significant.** No past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would result in cumulatively considerable

impacts. No cumulatively considerable impacts would occur with development of the proposed project. As discussed in the analyses provided in this Initial Study, project impacts were found to be less than significant. The incremental effects of the proposed project are not cumulatively significant when viewed in context of the past, current, and/or probable future projects. No cumulative impacts would occur.

c) **No Impact.** The proposed project is a two-lot subdivision and future development of two single family residences. As described in the environmental topic sections of this Initial Study, the proposed project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

Initial Study Source List*

1. **Environmental Information Form**
   https://www.sccgov.org/sites/dpd/DocsForms/Documents/EnvAss_Form.pdf

2. **Field Inspection**

3. **Project Plans**

4. **Working knowledge of site and conditions**

5. **Experience with other Projects of This Size and Nature**

6. **County Expert Sources:**
   Geologist
   https://www.sccgov.org/sites/dpd/PlansOrdinances/GeoHazards/Pages/Geology.aspx
   Fire Marshal
   https://www.sccgov.org/sites/dpd/AboutUs/Fire/Pages/Fire.aspx
   Roads & Airports
   https://www.sccgov.org/sites/rda/Pages/rda.aspx
   Environmental Health
   https://www.sccgov.org/sites/deh/Pages/deh.aspx
   Land Development Engineering
   https://www.sccgov.org/sites/dpd/AboutUs/LDE/Pages/LDE.aspx
   Parks & Recreation
   https://www.sccgov.org/sites/parks/Pages/Welcome-to-Santa-Clara-County-Parks.aspx
   Zoning Administration,
   Comprehensive Planning,
   Secretary

7. **Agency Sources:**
   Santa Clara Valley Water District
   https://www.valleywater.org/
   Santa Clara Valley Transportation Authority
   http://www.vta.org/
   Midpeninsula Regional Open Space District
   https://openspace.org/
   U.S. Fish & Wildlife Service
   https://www.fws.gov/
   CA Dept. of Fish & Game
   https://www.wildlife.ca.gov/
   Caltrans
   https://dot.ca.gov/
   U.S. Army Corps of Engineers
   https://www.usace.army.mil/
   Regional Water Quality Control Board
   https://www.waterboards.ca.gov/
   Public Works Depts. of individual cities
   Santa Clara County Habitat Agency
   https://www.scv-habitatagency.org

8. **Planning Depts. of individual cities:**
   Santa Clara County (SCC) General Plan
   https://www.sccgov.org/sites/dpd/PlansOrdinances/GP/Pages/GP.aspx
   The South County Joint Area Plan
   https://www.sccgov.org/sites/dpd/DocsForms/Documents/GP_Book_B.pdf

9. **SCC Zoning Regulations (Ordinance)**
   https://www.sccgov.org/sites/dpd/DocsForms/Documents/ZonOrd.pdf

10. **County Grading Ordinance**
    https://library.municode.com/ca/santa_clara_county/codes/code_of_ordinances?nodeId=TITCCODELAUS_DIVC12SULADE_CHIIIGRDR#TOPTITLE

11. **SCC Guidelines for Architecture and Site Approval**
    https://www.sccgov.org/sites/dpd/DocsForms/Documents/ASA_Guidelines.pdf

12. **SCC Development Guidelines for Design Review**
    https://www.sccgov.org/sites/dpd/DocsForms/Documents/DR_Guidelines.pdf

13. **County Standards and Policies Manual (Vol. I - Land Development)**
    https://www.sccgov.org/sites/dpd/DocsForms/Documents/StandardsPoliciesManual_Vol1.pdf

14. **Table 18-1-B of the Uniform Building Code (expansive soil regulations) [1994 version]**
    http://digitalassets.lib.berkeley.edu/ubc/UBC_1994_v2.pdf

15. **SCC Land Use Database**

16. **Santa Clara County Heritage Resource (including Trees) Inventory [computer database]**

17. **GIS Database**
    a. SCC General Plan Land Use, and Zoning
    b. USFWS Critical Habitat & Riparian Habitat
    c. Geologic Hazards
    d. Archaeological Resources
    e. Water Resources
    f. Viewshed and Scenic Roads
    g. Fire Hazard
    h. Parks, Public Open Space, and Trails
    i. Heritage Resources - Trees
    j. Topography, Contours, Average Slope
    k. Soils
    l. HCP Data (habitat models, land use coverage etc)
    m. Air photos
    n. USGS Topographic
    o. Dept. of Fish & Game, Natural Diversity Data
    p. FEMA Flood Zones
    q. Williamson Act
    r. Farmland monitoring program
    s. Traffic Analysis Zones
    t. Base Map Overlays & Textual Reports (GIS)

18. **Paper Maps**
    a. SCC Zoning
    b. Barclay's Santa Clara County Locaide Street Atlas
    c. Color Air Photos (MPSI)
    d. Santa Clara Valley Water District - Maps of Flood Control Facilities & Limits of 1% Flooding
    e. Soils Overlay Air Photos
    f. "Future Width Line" map set

Initial Study Source List*

19. 2019 CEQA Statute Guidelines [Current Edition] http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf

Area Specific: San Martin, Stanford, and Other Areas

San Martin

20a. San Martin Integrated Design Guidelines https://www.sccgov.org/sites/dpd/DocsForms/Documents/SanMartin_DesignGuidelines.pdf

20b. San Martin Water Quality Study

20c. Memorandum of Understanding (MOU) between Santa Clara County & Santa Clara Valley Water District

Stanford

21a. Stanford University General Use Permit (GUP), Community Plan (CP), Mitigation and Monitoring Reporting Program (MMRP) and Environmental Impact Report (EIR) https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/Docs.aspx

21b. Stanford Protocol and Land Use Policy Agreement https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/Docs.aspx

Other Areas

22a. South County Airport Comprehensive Land Use Plan and Palo Alto Airport Comprehensive Land Use Plan [November 19, 2008]

22b. Los Gatos Hillsides Specific Area Plan https://www.sccgov.org/sites/dpd/DocsForms/Documents/GP_Book_B.pdf

22c. County Lexington Basin Ordinance Relating to Sewage Disposal

22d. User Manual Guidelines & Standards for Land Uses Near Streams: A Manual of Tools, Standards and Procedures to Protect Streams and Streamside Resources in Santa Clara County by Valley Water Resources Protection Collaborative, August 2005 – Revised July 2006. https://www.valleywater.org/contractors/doing-businesses-with-the-district/permits-for-working-on-district-land-or-easement/guidelines-and-standards-for-land-use-near-streams

22e. Guidelines and Standards for Land Use Near Streams: Streamside Review Area – Summary prepared by Santa Clara County Planning Office, September 2007.

22f. Monterey Highway Use Permit Area https://www.sccgov.org/sites/dpd/DocsForms/Documents/SanMartin_GeneralPlanInformation.pdf

Soils

23. USDA, SCS, "Soils of Santa Clara County

24. USDA, SCS, "Soil Survey of Eastern Santa Clara County"

Agricultural Resources/Open Space

25. Right to Farm Ordinance

26. State Dept. of Conservation, "CA Agricultural Land Evaluation and Site Assessment Model" https://www.conservation.ca.gov/dlrp/Documents/TOC%20and%20Intro.pdf

27. Open Space Preservation, Report of the Preservation 2020 Task Force, April 1987 [Chapter IV]

28. Williamson Act Ordinance and Guidelines (current version) https://www.sccgov.org/sites/dpd/Programs/WA/Pages/WA.aspx

Air Quality

29. BAAQMD Clean Air Plan http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en

30. BAAQMD CEQA Air Quality Guidelines (2010)- http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

31. BAAQMD Annual Summary of Contaminant Excesses & BAAQMD, "Air Quality & Urban Development - Guidelines for Assessing Impacts of Projects & Plans" [current version]

Biological Resources/ Water Quality & Hydrological Resources/ Utilities & Service Systems"

32. Site-Specific Biological Report

33. Santa Clara County Tree Preservation Ordinance https://www.sccgov.org/sites/dpd/DocsForms/Documents/Tree_Ordinance.pdf

Section C16, Santa Clara County Guide to Evaluating Oak Woodlands Impacts https://www.sccgov.org/sites/dpd/DocsForms/Documents/Oakwoodlands_Guide.pdf

Santa Clara County Guidelines for Tree Protection and Preservation for Land Use Applications https://www.sccgov.org/sites/dpd/DocsForms/Documents/Brochure_TreePreservation.pdf

34. Clean Water Act, Section 404 https://www.epa.gov/cwa-404/permit-program-under-cwa-section-404

Initial Study Source List*

35. CA Regional Water Quality Control Board, Water Quality Control Plan, San Francisco Bay Region [1995]

36. Santa Clara Valley Water District, Private Well Water Testing Program [12-98]

37. SCC Nonpoint Source Pollution Control Program, Urban Runoff Management Plan [1997]

38. County Environmental Health / Septic Tank Sewage Disposal System - Bulletin "A"

39. County Environmental Health Department Tests and Reports

Archaeological Resources

40. Northwest Information Center, Sonoma State University

41. Site Specific Archaeological Reconnaissance Report

Geological Resources

42. Site Specific Geologic Report

43. State Department of Mines and Geology, Special Report #42

44. State Department of Mines and Geology, Special Report #146

Noise

45. County Noise Ordinance
https://www.sccgov.org/sites/cpd/programs/NP/Documents/NP_Noise_Ordinance.pdf

Hazards & Hazardous Materials

46. Section 21151.4 of California Public Resources Code

47. State Department of Toxic Substances, Hazardous Waste and Substances Sites List

48. County Office of Emergency Services Emergency Response Plan [1994 version]

Transportation/Traffic

49. Transportation Research Board, "Highway Capacity Manual", Special Report 209, 1995.

50. SCC Congestion Management Agency, "Monitoring and Conformance report" (Current Edition)

51. Official County Road Book

52. Site-specific Traffic Impact Analysis Report

***Items listed in bold are the most important sources and should be referred to during the first review of the project, when they are available. The planner should refer to the other sources for a particular environmental factor if the former indicates a potential environmental impact.**

Attachment A

Mitigation Monitoring and Reporting Program County
File Number: PLN22-039
Two-Lot Minor Subdivision of Vacant 10-Gross-Acre Parcel

12645 Harding Avenue, San Martin, CA 95046
(September 30, 2022)

Although the proposed project is to subdivide a 10-gross-acre parcel and does not include any construction, due to the undeveloped nature of the project site, it has the potential for significant impacts in relation to undiscovered biological, cultural or paleontological resources. However, the project would not substantially degrade the quality of the natural environment because the potentially significant impacts regarding biological resources, cultural resources, and geology/soils as identified throughout this study can be mitigated to less than significant levels. Where mitigation measures are enforced as proposed in this Initial Study, the measures will be conditions of approval of the proposed project and the applicant will be responsible for implementation of the measures. Therefore, the potential for substantial impacts to biological, historical, cultural or other resources as a result of the proposed project is reduced to a less than significant level

The following mitigation monitoring & reporting program is designed to ensure compliance with mitigation measures proposed in the Mitigated Negative Declaration to reduce or avoid potentially significant impacts:

SECTION D: BIOLOGICAL RESOURCES
Mitigation Measure(s):
<u>BIO-1a:</u> 17. Habitat assessment for burrowing owls shall be conducted no more than 30 days prior to the initiation of grading, or construction activities for the future proposed residences that shall result in ground disturbance, to confirm that habitat for burrowing owls remains absent from the site. If the habitat assessment confirms that habitat for this species remains absent from the site, then no further mitigation for burrowing owls would be required. **<u>BIO-1b:</u> Preconstruction Surveys for Burrowing Owls** - Should a habitat assessment for burrowing owls confirm that site conditions have changed and that there is potential habitat present for this species (i.e., California ground squirrel burrows or other burrows of sufficient size), then the following measures shall be implemented to ensure that the project does not impact this species. *Pre-construction surveys* **A pre-construction survey shall be conducted by a qualified biologist for burrowing owls no more than 30 days prior to onset of grading, or construction activities**. This survey shall be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). *Avoidance During the Breeding Season***.** If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent shall avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance shall include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the project proponent develops an avoidance, minimization, and monitoring plan that shall be reviewed by the County and CDFW prior to project construction based on the following criteria.

- The County and CDFW approves of the avoidance and minimization plan provided by the project applicant.
- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction). The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.

Avoidance During the Non-Breeding Season. During the non-breeding season (September 1–January 31), the project proponent shall establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the County that a qualified biologist excavates usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone shall be removed and construction may continue. Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Construction Monitoring. Based on the avoidance, minimization, and monitoring plan developed (as required in the above section), during construction, the non-disturbance buffer zones shall be established and maintained if applicable. A qualified biologist shall monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor shall also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Passive Relocation. Any passive relocation plan would need to be approved by the County and CDFW, and would only occur during the non-breeding season (September 1–January 31) if the

other measures described above do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors shall be in place for 48 hours to ensure owls have left the burrow, and then the biologist shall excavate the burrow to prevent reoccupation. Burrows shall be excavated using hand tools. During excavation an escape route shall be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside.

Exceptions to Passive Relocation Prohibition. Any exceptions to passive relocation prohibitions would be subject to the approval of the County and CDFW.

BIO- 2: Alternative Mitigation BIO-MIT-1b, the project can opt-in to the Santa Clara Valley Habitat Plan and follow the mitigations measures for burrowing owls included under Condition 15 of the Habitat Plan (6-62, Santa Clara Valley Habitat Plan)

Western Burrowing Owl Habitat Survey - Habitat surveys in occupied nesting habitat are required in both breeding and non-breeding seasons. If the project site falls within occupied nesting habitat, a qualified biologist will map areas with burrows (i.e., areas of highest likelihood of burrowing owl activity) and all burrows that may be occupied (as indicated by tracks, feathers, eggshell fragments, pellets, prey remains, or excrement) on the project site. This mapping will be conducted while walking transects throughout the entire project footprint, plus all accessible areas within a 250-foot radius from the project footprint. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, while in open areas with little vegetation they can be 50 feet apart.

This methodology is consistent with other accepted survey protocols for this species (California Burrowing Owl Consortium 1993). The Implementing Entity may update this protocol during the permit term based on changes to the accepted protocol with the concurrence of the Wildlife Agencies. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. If suitable habitat is identified during the habitat survey, and if the project does not fully avoid impacts to the suitable habitat, preconstruction surveys will be required. Suitable habitat is fully avoided if the project footprint does not impinge on a 250-foot buffer around the suitable burrow

Preconstruction Survey Prior to any ground disturbance related to covered activities, a qualified biologist will conduct preconstruction surveys in all suitable habitat areas as identified during habitat surveys. The purpose of the preconstruction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activity.

To maximize the likelihood of detecting owls, the preconstruction survey will last a minimum of three hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped.

Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the project proponent must begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last minute changes in schedule or contracting that may occur if burrowing owls are found, the project proponent may also conduct a preliminary survey up to 14 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.

Implementation of Covered Activities in Burrowing Owl Habitat In order to allow covered activities to go forward in burrowing owl habitat prior to the formal take authorization of individuals described above, project applicants will employ avoidance measures described below to ensure that direct take does not occur. The below avoidance measures apply to all projects that affect any burrowing owl habitat, regardless of whether surveys are required by this condition. In other words, if a project is occurring outside of modeled occupied nesting habitat, the project proponent is obligated to ensure avoidance and minimization of impact to burrowing owls according to the measures described below.

Avoidance Measures

Breeding Season If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance will include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if:

- the nest is not disturbed, and
- the project proponent develops an avoidance, minimization, and monitoring plan that will be reviewed by the Implementing Entity and the Wildlife Agencies prior to project construction based on the following criteria.
    - The Implementing Entity and the Wildlife Agencies approves of the avoidance and minimization plan provided by the project applicant.
    - A qualified biologist monitors the owls for at least 3 days prior to construction

to determine baseline nesting and foraging behavior (i.e., behavior without construction).

- The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.
- If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the non-disturbance buffer zone may be removed. The biologist will excavate the burrow to prevent reoccupation after receiving approval from the Wildlife Agencies.

The Implementing Entity and the Wildlife Agencies have 21 calendar days to respond to a request from the project proponent to review the proposed construction monitoring plan. If these parties do not respond within 21 calendar days, it will be presumed that they concur with the proposal and work can commence.

Non-Breeding Season
During the non-breeding season (September 1–January 31), the project proponent will establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the Implementing Entity that a qualified biologist excavate usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Construction Monitoring Based on the avoidance, minimization, and monitoring plan developed

(as required in the above section), during construction, the non-disturbance buffer zones will be established and maintained if applicable. A qualified biologist will monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor will also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Passive Relocation Passive relocation would not be allowed under the Plan until the positive growth trend described in Section 5.4.6 is achieved. Once this occurs, passive owl relocation may be allowed, with the approval of the Wildlife Agencies, on project sites in the non-breeding season (September 1–January 31) if the other measures described in this condition do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies during Plan implementation.

Exceptions to Passive Relocation Prohibition Due to the relatively low numbers of burrowing owls in the study area, it is not expected that the prohibition of passive relocation will result in project delays. However, it is possible that a covered activity could not proceed due to avoidance measures for burrowing owl in this condition if owls continually persist on a site where avoidance is not feasible. In such cases, a project proponent may apply for an exception based on the following process. For this condition, the term exception means an allowance to conduct passive relocation of burrowing owls during the non-breeding season only when this activity is not otherwise allowed. This exception process is necessary to allow reasonable use and development of a property based on the variety of constraints and factors that may affect the property. In situations where exceptions are granted, other portions of this condition may still apply. Exceptions will be used in a minority of cases with special circumstances that limit or restrict the ability of a landowner to fully apply the condition. Exceptions may be requested through the standard application process described in Section 6.8, or through a separate request process. Private applicants must apply for a passive relocation exception through their local jurisdiction. Project proponents must develop and submit with the request for exception a passive relocation plan. The passive relocation plan must document the following.

1. That owls have occupied the site for a full year without relocating voluntarily. Surveys documenting presence must be completed by a qualified biologist and results must be provided in a written report. The report should confirm that one or more individuals (i.e., unique owl[s]) were monitored for a year and that the owl(s) had used the site for a full

year.

2. The proposed process for relocation, including schedule for the proposed passive relocation and name of the qualified biologist.

The local jurisdiction, the Implementing Entity, and the Wildlife Agencies will meet to discuss the proposed passive relocation plan. Exceptions will be considered based on, but not limited to, the following factors:

1. The parcel is equal to or less than 3 acres and is more than 1,000 feet from other suitable nesting or foraging habitat such that it is unlikely the site can sustain burrowing owls into the future.

2. If the site has historically been used for nesting (within the last 3 years).

3. If the site is a target for a burrowing owl temporary or permanent management agreement.

As part of the review process, the Implementing Entity and Wildlife Agencies will consider the implications of an exception on the burrowing owl population and progress toward the biological goals and objective of the Plan. A passive relocation exception will not be granted if the Implementing Entity and Wildlife Agencies determine that such an exception, as mitigated, would preclude implementation of the conservation strategy of the Habitat Plan or conflict with other applicable requirements of the Habitat Plan and local policies. The local jurisdiction or the Implementing Entity must make written findings that document these considerations and the rationale for the exception.

Additional mitigation may be required as part of an approval to implement passive relocation that is otherwise prohibited by the Plan. The need for and form of additional mitigation will be determined and approved by the Implementing Entity and Wildlife Agencies. Additional mitigation could include payment of additional fees, or contribution of occupied lands to the Reserve System. Applicable fees may be imposed by the local jurisdiction for processing exception requests. Mitigation will be proportional to the impact occurring as a result of a specific eviction and will fully mitigate such evictions.

The Implementing Entity will compile a list of all exceptions granted each calendar year for inclusion in the annual report to the Wildlife Agencies.

BIO-3: Preconstruction Surveys for Badgers - During the course of the preconstruction surveys for other species, no more than 30 days prior to on-set of grading, or construction activities, a qualified biologist shall also determine the presence or absence of badgers prior to the start of construction. If badgers are found to be absent, no other mitigations for the protection of badgers shall be warranted.

Preconstruction Surveys for Badgers - If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once the biologist

has determined that badger has vacated the burrow, the burrow can be collapsed or excavated, and ground disturbance could proceed.

Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present onsite during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor shall be required to be present until it is determined that young are of an independent age and construction activities would not harm individual badgers.

BIO-4: Workers Environmental Training - If need for preconstruction surveys for Burrowing Owl or American badger arises, **prior development permit issuance, a worker's environmental training shall be performed with the entire construction team.** All workers on the project shall attend a training that includes a description of the species, a summary of its biology, and minimization measures and instructions on what to do if a Burrowing Owl or American badger is observed.

BIO- 5: Preconstruction Surveys for Ground Nesting Migratory Birds - To the extent possible, any project-related ground disturbance or vegetation removal activities should occur outside of the bird breeding season, i.e., during the period from September 1st through January 31st. Project-related activities that occur during the bird breeding season, i.e., during the period from February 1st through August 31st, could be constrained in the vicinity of any active of ground nesting migratory birds. **If tree removal or ground disturbance activities are scheduled to commence during the breeding season, a qualified biologist shall conduct pre-construction nesting bird surveys to identify possible nesting activity within 15 days prior to such activities.** A construction-free buffer of suitable dimensions as determined by a qualified biologist must be established around any active raptor or migratory bird nest for the duration of the project, or until it has been determined that the young have fledged and are foraging independently from their parents

BIO- 6a: Avoidance and Minimization of Impact to Wetlands - The preferred method of mitigation would be avoidance of all waters of the U.S. and State to the maximum extent practicable by designing the project so that it avoids the placement of fill within potential jurisdictional waters.

BIO- 6b: Wetland Compensation - If development of the site is not designed to completely avoid the wetland features, then a **formal wetland delineation** should be conducted and verified by the U.S. Army Corps to determine the jurisdictional status of these features. Compensation measures for a loss of wetland habitat would include the replacement of the lost habitat value of these impacts through the creation, restoration, and/or enhancement of jurisdictional waters at a minimum 1:1 replacement-to-loss ratio. The final mitigation amounts shall be based on actual impacts to be determined during the design phase. Mitigation can be accomplished at an appropriate onsite or nearby offsite location. Alternatively, mitigation can be accomplished via the purchase of an appropriate number of credits from an agency approved mitigation bank.

Implementing Action:	Conditions of Approval Nos. 18-24
Timing of Verification:	Prior to approval of grading, or construction permits for the future proposed residences and site improvements, and during construction.
Party Responsible for Verification:	Property Owner, SCC Planning Staff, consulting Biologist
Compliance Verification:	Review of Biologist's surveys and (if necessary); copies of other agency permits (if any); or other verification provided to SCC Planning staff

SECTION E: CULTURAL RESOURCES

Mitigation Measure(s):

CUL- 1: Should prehistoric or historic archaeological features, such as a concentration of flaked stone artifacts, culturally modified soil, dietary shell, or the remnants of a historic trash deposit over 50 years old be uncovered during grading, trenching, or other on-site excavation(s), all project-related work shall cease within a 50-foot radius until the County has been notified, and a qualified archeologist is contacted and retained by the applicant to evaluate the significance of the find, and, if deemed necessary, suggest appropriate mitigation(s)

CUL- 2: In the event that human skeletal remains are encountered, the applicant is required by County Ordinance No. B6-18 to immediately notify the County Coroner. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of state law and this chapter. If artifacts are found on the site a qualified archaeologist shall be contacted along with the County Planning Office. No further disturbance of the artifacts may be made except as authorized by the County Planning Office.

Implementing Action:	Conditions of Approval No. 7 and 8
Timing of Verification:	Upon discovery of archaeological materials or human remains
Party Responsible for Verification:	Property Owner, SCC Planning Staff, consulting Archaeologist
Compliance Verification:	Review of archaeologist's report

SECTION G: GEOLOGY AND SOILS

Mitigation Measure(s):

GEO- 1: Should unique paleontological materials be uncovered during grading, trenching, or other on-site excavation(s), all earthwork within 30 yards of the materials shall be stopped until the County has been notified, and a qualified paleontologist contacted and retained by the applicant to evaluate the significance of the find, and, if deemed necessary, suggest appropriate mitigation(s)	
Implementing Action:	Condition of Approval No. 9
Timing of Verification:	Upon discovery of paleontological materials or human remains; during construction.
Party Responsible for Verification:	Property Owner, SCC Planning Staff, Consulting Geotechnical Engineer, County Geologist
Compliance Verification:	Review of paleontologist's report

Attachment B

Santa Clara Valley Habitat Plan Condition 15 – Western Burrowing Owl Mitigation
(scv-habitatagency.org)

6.6.1 Selected Covered Wildlife Species

Conditions 15–18 identify conditions on covered activities that are specific to some of the covered species. Activities that may affect these covered species must also adhere to other applicable conditions in this chapter, including Condition 1, *Avoid Direct Impacts on Legally Protected Plant and Wildlife Species*. A summary of species surveys, preconstruction surveys, and construction monitoring requirements is provided in **Table 6-8**.

Condition 15. Western Burrowing Owl

To avoid or minimize direct impacts of covered activities on western burrowing owls, the procedures described below will be implemented. This condition incorporates survey, avoidance, and minimization guidelines from the following western burrowing owl conservation plans and other sources pertaining to the study area. The avoidance and minimization process for western burrowing owl as required in this condition is illustrated in **Figure 6-4**.

- CDFG *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995).
- CDFG *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012).
- *Draft Burrowing Owl Habitat Conservation Strategy and Implementation Plan* (City of San José 2000).
- *City of Morgan Hill—Citywide Burrowing Owl Habitat Mitigation Plan* (City of Morgan Hill 2003).
- Personal communication with Jack Barclay regarding ongoing monitoring efforts in the study area including annual monitoring at San José International Airport.
- Various unpublished reports from survey efforts in the study area.
- Guidance from CDFG.

Western Burrowing Owl Habitat Survey

Western burrowing owl habitat surveys will be required in the study area in all modeled occupied nesting habitat (see **Figure 5-11**). Surveys are not required in sites that are mapped as potential burrowing owl nesting or only overwintering habitat. Modeled habitat types may change throughout the permit term based on the best available scientific data. For example, the Implementing Entity will be conducting annual surveys or collecting annual survey data of other organizations in occupied nesting habitat throughout the permitarea to determine the annual status of known nesting areas the number of adult breeding owls present. The Implementing Entity will also coordinate with other South Bay local

governments, special districts, and non-profit organizations every 3 years to assess status of the burrowing owl population in the entire study area and the expanded study area for burrowing owl conservation, outside areas of modeled occupied habitat.

Habitat surveys in occupied nesting habitat are required in both breeding and non-breeding seasons. If the project site falls within occupied nesting habitat, a qualified biologist will map areas with burrows (i.e., areas of highest likelihood of burrowing owl activity) and all burrows that may be occupied (as indicated by tracks, feathers, egg shell fragments, pellets, prey remains, or excrement) on the project site. This mapping will be conducted while walking transects throughout the entire project footprint, plus all accessible areas within a 250-foot radius from the project footprint. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, while in open areas with little vegetation they can be 50 feet apart.

This methodology is consistent with other accepted survey protocols for this species (California Burrowing Owl Consortium 1993). The Implementing Entity may update this protocol during the permit term based on changes to the accepted protocol with the concurrence of the Wildlife Agencies. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If suitable habitat is identified during the habitat survey, and if the project does not fully avoid impacts to the suitable habitat, preconstruction surveys will be required. Suitable habitat is fully avoided if the project footprint does not impinge on a 250-foot buffer around the suitable burrow.

Preconstruction Survey

Prior to any ground disturbance related to covered activities, a qualified biologist will conduct preconstruction surveys in all suitable habitat areas as identified during habitat surveys. The purpose of the preconstruction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activity.

To maximize the likelihood of detecting owls, the preconstruction survey will last a minimum of three hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped.

Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the project proponent must begin surveys no more than 4 days prior to

construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last minute changes in schedule or contracting that may occur if burrowing owls are found, the project proponent may also conduct a preliminary survey up to 14 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.

Implementation of Covered Activities in Burrowing Owl Habitat

In order to allow covered activities to go forward in burrowing owl habitat prior to the formal take authorization of individuals described above, project applicants will employ avoidance measures described below to ensure that direct take does not occur. Application of these measures is illustrated in **Figure 6-4**. The below avoidance measures apply to all projects that affect any burrowing owl habitat, regardless of whether surveys are required by this condition. In other words, if a project is occurring outside of modeled occupied nesting habitat, the project proponent is obligated to ensure avoidance and minimization of impact to burrowing owls according to the measures described below.

Avoidance Measures

Breeding Season

If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance will include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if:

- the nest is not disturbed, and
- the project proponent develops an avoidance, minimization, and monitoring plan that will be reviewed by the Implementing Entity and the Wildlife Agencies prior to project construction based on the following criteria.
  - The Implementing Entity and the Wildlife Agencies approves of the avoidance and minimization plan provided by the project applicant.
  - A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
  - The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.

- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.
- If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the non-disturbance buffer zone may be removed. The biologist will excavate the burrow to prevent reoccupation after receiving approval from the Wildlife Agencies.

The Implementing Entity and the Wildlife Agencies have 21 calendar days to respond to a request from the project proponent to review the proposed construction monitoring plan. If these parties do not respond within 21 calendar days, it will be presumed that they concur with the proposal and work can commence.

Non-Breeding Season

During the non-breeding season (September 1–January 31), the project proponent will establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the Implementing Entity that a qualified biologist excavate usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Construction Monitoring

Based on the avoidance, minimization, and monitoring plan developed (as required in the above section), during construction, the non-disturbance buffer zones will be established and maintained if applicable. A qualified biologist will

monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor will also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Passive Relocation

Passive relocation would not be allowed under the Plan until the positive growth trend described in Section 5.4.6 is achieved. Once this occurs, passive owl relocation may be allowed, with the approval of the Wildlife Agencies, on project sites in the non-breeding season (September 1–January 31) if the other measures described in this condition do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies during Plan implementation.

Exceptions to Passive Relocation Prohibition

Due to the relatively low numbers of burrowing owls in the study area, it is not expected that the prohibition of passive relocation will result in project delays. However, it is possible that a covered activity could not proceed due to avoidance measures for burrowing owl in this condition if owls continually persist on a site where avoidance is not feasible. In such cases, a project proponent may apply for an exception based on the following process. For this condition, the term exception means an allowance to conduct passive relocation of burrowing owls during the non-breeding season only when this activity is not otherwise allowed. This exception process is necessary to allow reasonable use and development of a property based on the variety of constraints and factors that may affect the property. In situations where exceptions are granted, other portions of this condition may still apply. Exceptions will be used in a minority of cases with special circumstances that limit or restrict the ability of a landowner to fully apply the condition.

Exceptions may be requested through the standard application process described in Section 6.8, or through a separate request process. Private applicants must apply for a passive relocation exception through their local jurisdiction. Project

proponents must develop and submit with the request for exception a passive relocation plan. The passive relocation plan must document the following.

1. That owls have occupied the site for a full year without relocating voluntarily. Surveys documenting presence must be completed by a qualified biologist and results must be provided in a written report. The report should confirm that one or more individuals (i.e., unique owl[s]) were monitored for a year and that the owl(s) had used the site for a full year[20].
2. The proposed process for relocation, including schedule for the proposed passive relocation and name of the qualified biologist.

The local jurisdiction, the Implementing Entity, and the Wildlife Agencies will meet to discuss the proposed passive relocation plan. Exceptions will be considered based on, but not limited to, the following factors:

1. The parcel is equal to or less than 3 acres and is more than 1,000 feet from other suitable nesting or foraging habitat such that it is unlikely the site can sustain burrowing owls into the future.
2. If the site has historically been used for nesting (within the last 3 years).
3. If the site is a target for a burrowing owl temporary or permanent management agreement.

As part of the review process, the Implementing Entity and Wildlife Agencies will consider the implications of an exception on the burrowing owl population and progress toward the biological goals and objective of the Plan. A passive relocation exception will not be granted if the Implementing Entity and Wildlife Agencies determine that such an exception, as mitigated, would preclude implementation of the conservation strategy of the Habitat Plan or conflict with other applicable requirements of the Habitat Plan and local policies. The local jurisdiction or the Implementing Entity must make written findings that document these considerations and the rationale for the exception.

Additional mitigation may be required as part of an approval to implement passive relocation that is otherwise prohibited by the Plan. The need for and form of additional mitigation will be determined and approved by the Implementing Entity and Wildlife Agencies. Additional mitigation could include payment of additional fees, or contribution of occupied lands to the Reserve System. Applicable fees may be imposed by the local jurisdiction for processing exception requests. Mitigation will be proportional to the impact occurring as a result of a specific eviction and will fully mitigate such evictions.

The Implementing Entity will compile a list of all exceptions granted each calendar year for inclusion in the annual report to the Wildlife Agencies.

[20] If monitoring reveals that an owl(s) has vacated the site for 10 consecutive days or more, the project applicant may assume that the owl has voluntarily relocated and a qualified biologist may take measures to collapse suitable habitat to discourage new owls from occupying the site.

Attachment C

Biological Resources Assessment prepared by Live Oak Associates, Inc.
(dated April 25, 2022)

LIVE OAK ASSOCIATES, INC.
an Ecological Consulting Firm

April 25, 2022

Gloria Ballard
16075 Vineyard Blvd.
Morgan Hill, CA 95038

RE: Biological Evaluation of the approximately 10-acre Lewis Property project, located at 12645 Harding Avenue in San Martin, Santa Clara County, California (APN 779-12-006).

Dear Gloria,

At your request, Live Oak Associates, Inc. (LOA) completed a biological evaluation for the approximately 10-acre project site, located at 12645 Harding Avenue, located on the west side of Harding between its intersections with Cox Avenue and Highland, in San Martin, Santa Clara County (APN 779-12-006).

As we understand it, based on the Lewis Tentative Vesting Map provided to us from M.H. Engineering dated 8/17/2021, the proposed project is the subdivision of the parcel into two approximately 5-acre parcels and the construction of single-family homes on each of the two parcels, along with associated infrastructure for each home, including, but not necessarily limited to, septic tanks, leach fields, and driveways. Except for a small run-in shed in the northwestern portion of the site which is proposed to be removed, the site is currently undeveloped.

LOA plant and wetland ecologist Pamela Peterson conducted a reconnaissance-level survey of the property on March 30, 2022. The primary objective of the site visit was to 1) identify the constituent species and habitats of the site; and 2) assess the potential of the site to support sensitive habitats (e.g., wetland and riparian habitats) or suitable habitat for special status plant or animal species. Photos of the project site taken during the March survey are included in Appendix B.

Prior to the site visit, background sources of information were reviewed, including but not necessarily limited to, Google Earth aerial images of the site (1998 thru 2021), the site plan prepared by MH Engineers dated August 17, 2021, the Natural Resource Conservation Service's (NRCS) websoil survey (accessed on-line on March 30, 2022), the on-line National Wetlands Inventory (accessed on-line on March 30, 2022), the *California Natural Diversity Data Base*

(accessed on-line on March 30, 2022), special status species lists prepared by the California Department of Fish and Wildlife (CDFW 2022), U.S. Fish and Wildlife Service (USFWS 2022), and California Native Plant Society (CNPS 2022), the Santa Clara Valley Habitat Plan (SCVHP) Geobrowser (accessed on-line on March 30, 2022), and manuals and references related to plants and animals found in and around Santa Clara County.

EXISTING CONDITIONS

Regional Setting

The project site occurs on the west side of Harding Avenue at 12645 Harding Avenue, between its intersections with Cox Avenue and Highland, in San Martin (Figure 1). The site is bounded by rural residential development to the west (homes on 2-to-3-acre parcels), and less dense rural residential development and agricultural lands to the north, east and south. The site occurs approximately 0.4 miles east of more natural lands of the foothills of the Santa Cruz Range and more than three miles west of more natural lands of the foothills of the Diablo Range.

West Branch Llagas Creek occurs approximately 0.25 miles south of the site, and a tributary of the creek occurs on the site, as is further described later in this section.

The site itself is undeveloped except for a small run-in shed in the northwestern portion of the site and is currently used as a horse pasture and is completely fenced, primarily with cyclone fencing that is approximately five feet tall. Access to the site from Harding Avenue is via a gate at the northeast corner.

The project site occurs in the Gilroy 7.5" U.S. Geological Survey (USGS) quadrangle and is generally topographically level at an approximate elevation of 270 feet (94 meters) National Geodetic Vertical Datum (NGVD) (Figure 2).

Regional Wildlife Corridors

General Discussion. Landscape linkages are defined as "areas that allow for the movement of species from one area of suitable habitat to another. A linkage can vary from a narrow strip of habitat that only functions as a conduit for movement (i.e., a corridor) or a large area of intact habitat that is used for movement, dispersal, and other life functions such as foraging and breeding" (ICF International 2012). Many wildlife linkages are broad areas of regional movement corridors for wildlife that generally includes a wide swath of land used for movement between two or more core areas for multiple regional species.

Habitat corridors are vital to terrestrial animals for connectivity between core habitat areas (i.e., larger intact habitat areas where species make their living). Connections between two or more core habitat areas help ensure that genetic diversity is maintained, thereby diminishing the probability of inbreeding depression and geographic extinctions.

The quality of habitat within the corridors is important. In general, "better" habitat has less human interference (e.g., roads, homes, etc.) and is more desirable to more species than areas

with sparse vegetation and high-density roads. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles.

Healthy riparian areas (supporting structural diversity, i.e., understory species to saplings to mature riparian trees) not only support a rich and diverse wildlife community but have also been shown to facilitate regional wildlife movement. Riparian areas can vary from tributaries winding through scrubland to densely vegetated riparian forests.

Beier and Loe (1992) noted five functions of corridors (rather than physical traits) that are relevant when conducting an analysis regarding the value of linkages. The following five functions should be used to evaluate the suitability of a given tract of land for use as a habitat corridor:

1. Wide ranging mammals can migrate and find mates;
2. Plants can propagate within the corridor and beyond;
3. Genetic integrity can be maintained;
4. Animals can use the corridor in response to environmental changes or a catastrophic event;
5. Individuals can recolonize areas where local extinctions have occurred.

A corridor is "wide enough" when it meets these functions for the suite of animals in the area. It is important to note that landscape linkages are used differently by different species. For instance, medium to large mammals (or some bird species) may traverse a corridor in a matter of minutes or hours, while smaller mammals or other species may take a longer period of time to move through the same corridor (e.g., measured in days, weeks and even years). For example, an individual cougar may traverse the entire length of a long narrow corridor in an hour while travel of smaller species (such as rodent or rabbit species) may best be measured as gene flow within regional populations. These examples demonstrate that landscape linkages are not simply highways that animals use to move back and forth. While linkages may serve this purpose, they also allow for slower or more infrequent movement. Width and length must be considered in evaluating the value of a landscape linkage. A long narrow corridor would most likely only be useful to wide ranging animals such as cougars and coyotes when moving between core habitat areas.

To the extent practicable, conservation of linkages should address the needs of "passage species" (those species that typically use a corridor for the express purpose of moving from one intact area to another) *and* "corridor dwellers" (slow moving species such as plants and some amphibians and reptiles that require days or generations to move through the corridor).

Local Regional Discussion. The site occurs more than nine miles south of the closest landscape-level linkage identified as important for wildlife movement and linkage by both the SCVHP (ICF International 2012) and Conservation Lands Network, i.e. Linkage 10 which connects the Santa Cruz Mountains with Coyote Ridge and the Mt. Diablo Range through the Coyote Valley area.

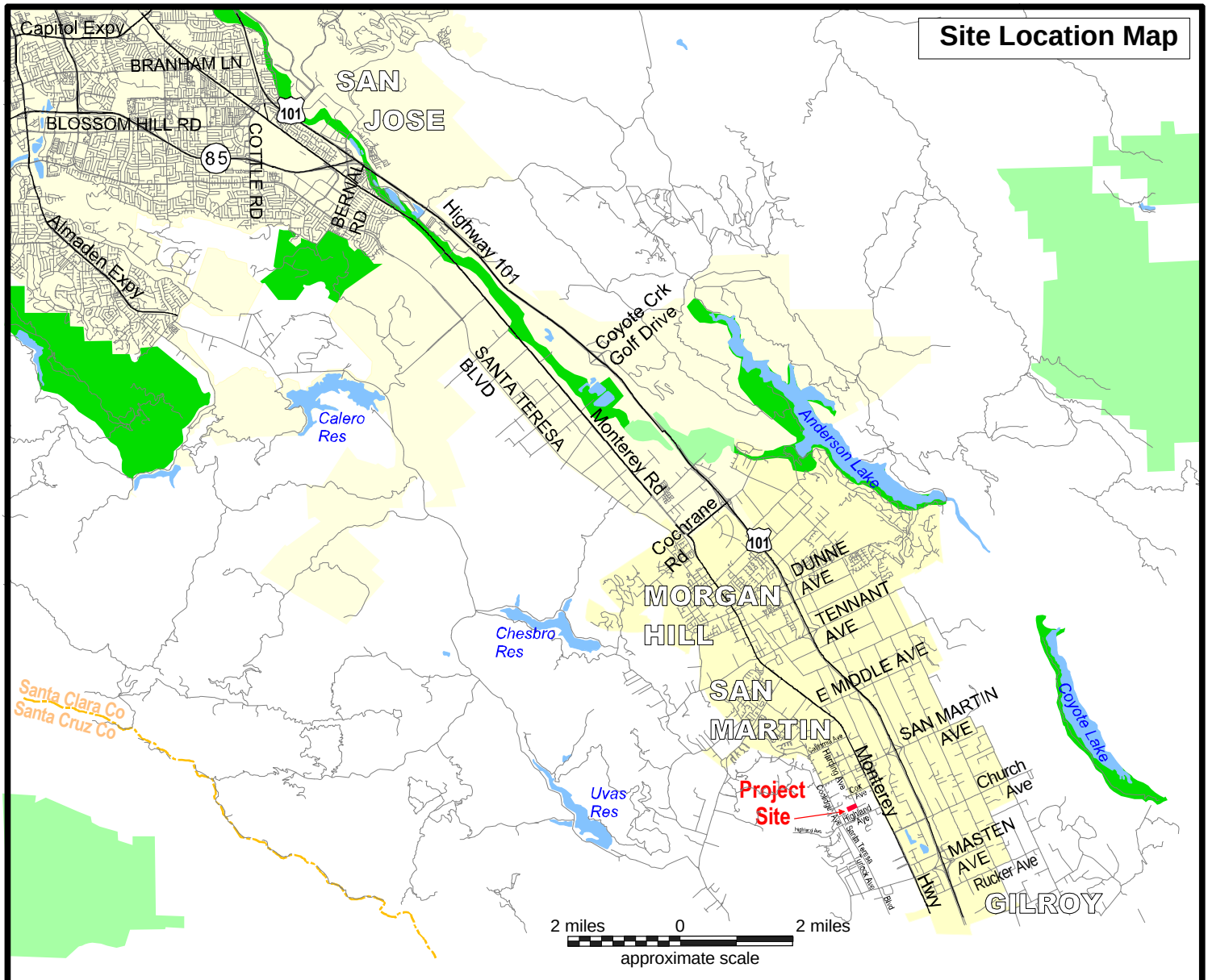
Site-specific Discussion. As noted above in the local discussion, the site is not located within or adjacent to any areas identified as regionally important wildlife corridors. While some local species may move through the site during normal movements, animals in the region are not expected to be significantly affected by the proposed residential development of the site, and other ample agricultural and other open habitat occurs in the site's vicinity that would provide the same movement habitat for these species.

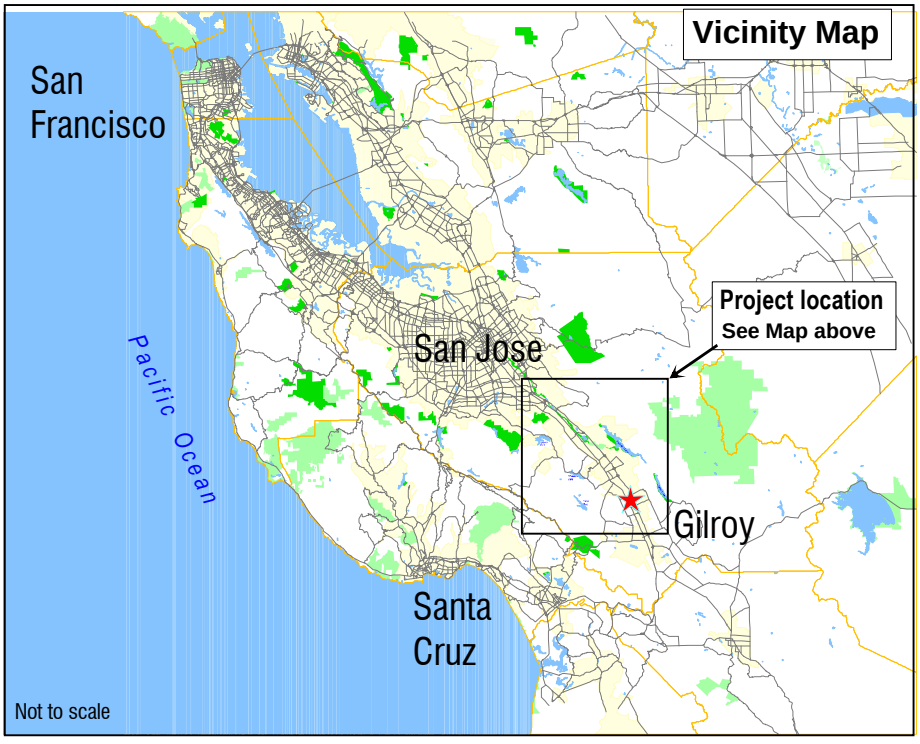
Soils

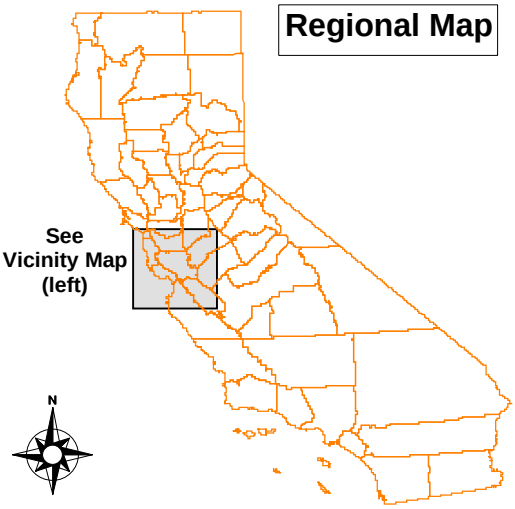
Four soil types occur on the site (NRCS 2022; accessed on-line on March 29, 2022) (Table 1). Clear Lake clay soils underlay the majority of the site. This soil type is considered a hydric soil, which is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part, and which may support hydrophytic (wetland) vegetation when there is suitable wetland hydrology. Although Los Robles soils are not considered hydric, hydric inclusions may occur within this soil type as well. None of the soils of the site are serpentine soils, so soils of the site would not support special status plants endemic to serpentine soils. Clear Lake clay soils are neutral to mildly alkaline and could provide marginal potential habitat for special status plants adapted to alkaline soils.

Table 1. Soils of the Lewis Property Project Site.

Soil Map Unit	Drainage Class	Other Properties	Hydric?
Clear Lake clay, 0 to 2 percent slopes, occasionally flooded, MLRA 14	Poorly drained	Neutral to slightly alkaline; parent material is alluvium derived from metamorphic and sedimentary rock	Yes
Keefers clay loam, 0 to 2 percent slopes	Well drained	Not alkaline; parent material is alluvium	No
Los Robles clay loam, 0 to 2 percent slopes	Well drained	Not alkaline; parent material is alluvium.	No, but hydric inclusions are possible
San Ysidro loam, 0 to 2 percent slopes, MLRA 14	Moderately well drained	Moderately alkaline; parent material is alluvium derived from sedimentary rock	No



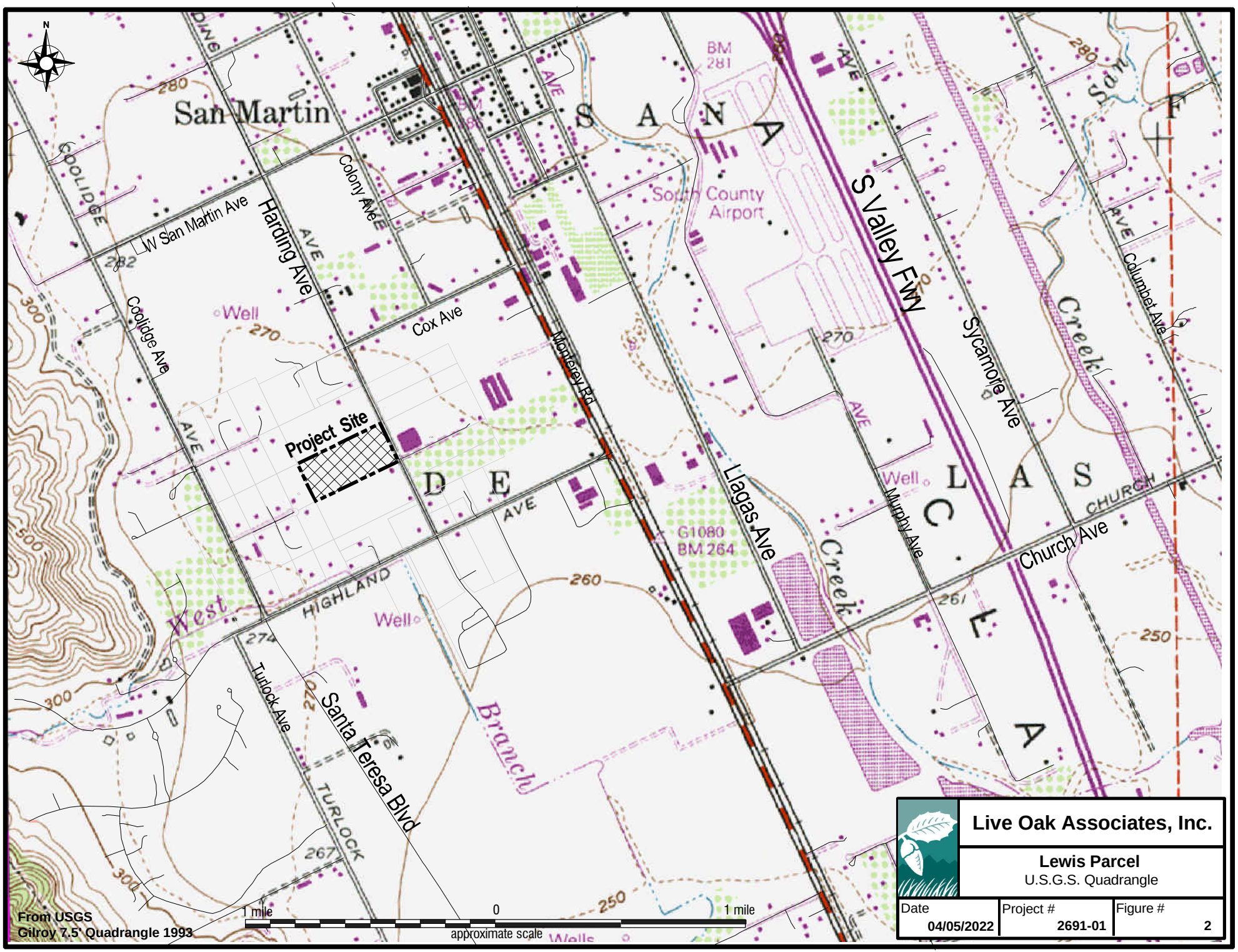




Live Oak Associates, Inc.

Lewis Parcel
Vicinity Map

Date	Project #	Figure #
04/05/2022	2691-01	1


San Martin
Project Site
W San Martin Ave
Harding Ave
Coolidge Ave
Colony Ave
Cox Ave
Monterey Rd
Llagas Ave
S Valley Fwy
Sycamore Ave
Murphy Ave
Church Ave
Columbet Ave
Creek
Branch
Santa Teresa Blvd
Turlock Ave
HIGHLAND
CHURCH
South County Airport
BM 281
G1080 BM 264
Well
From USGS Gilroy 7.5' Quadrangle 1993
1 mile
0
1 mile
approximate scale
Live Oak Associates, Inc.
Lewis Parcel
U.S.G.S. Quadrangle
Date 04/05/2022
Project # 2691-01
Figure # 2

Habitats

Three land cover types occur on the site: Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallow, Seasonal Wetland, and Agricultural Developed (Figure 3). Additionally, an upper reach of the channel of the West Branch Llagas Creek traverses the western portion of the site. Between the property boundary and the paved roadway, there is a roadside depression that is dominated by California annual grassland vegetation. Although the latter occurs off the site, we have included it due to off-site improvements that include a new driveway access. These land cover types are described in greater detail below.

Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallow. The vast majority of the site is comprised of a field that is currently used for grazing horses. Vegetation in the field was well-grazed and comprised of a low but dense cover by herbaceous non-native annual vegetation. The exception was an area along the northeastern boundary that is fenced off from the main pasture field and which, per Google Earth imagery once supported a structure that appears to have been a mobile home residence. Plant species observed within the fields of the site during the April 2022 survey included, but was not necessarily limited to, non-native forbs such as black mustard (*Brassica nigra*), broad-leaf and red-stem filaree (*Erodium botrys and E. cicutarium, respectively*), yellow star-thistle (Centaurea solstitialis), Italian thistle (Carduus pycnocephalus), burclover (*Medicago polymorpha*), mayweed (*Anthemis cotula*), English plantain (Plantago lanceolata), and scarlet pimpernel (Lysimachia arvensis); and non-native grasses such as wild oat (*Avena fatua and A. barbata*), perennial ryegrass (*Festuca perennis*), soft chess (*Bromus hordeaceous*), and foxtail (*Hordeum murinum ssp. leporinum*). Native plant species observed within the fields were limited to meadow barley (*Hordeum brachyanthurum*), blow wives (*Achyrachaena mollis*) and narrow-leaved milkweed (*Asclepias fascicularis*).

Wildlife observed in the site's vicinity during the survey included species commonly found in urban and agricultural environments including red-tailed hawk (*Buteo jamaicensis*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrynchos*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Haemorhous mexicanus*), Botta's pocket gopher (*Thomomys bottae*) sign, and California ground squirrels and their burrows. The latter were mainly clustered around a raised dirt pile in the southeastern portion of the site, and along the northern boundary.

Agricultural Developed. This land cover type is limited to a small run-in shed in the northwestern portion of the site.

California Annual Grassland. This land cover type occurs just off-site between the site and the paved area of Harding Avenue. A roadside depression occurs within this area, parallel to the site's eastern boundary which supports upland non-native vegetation similar to that found in the field of the site.

Sources:

CAD Tentative Vesting Map Courtesy of MH Engineering
Aerial Photo courtesy of U.S.D.A. (NAIP) Aerial Photo Field Office 8/24/2020
Santa Clara Valley Water District LIDAR 1' Contours

Live Oak Associates, Inc.

Lewis Parcel
Biotic Habitats / Land Use

Date	Project #	Figure #
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Seasonal Wetland and Stream. Two seasonal wetlands occur on the site, one in the southeastern portion of the site and one along the south-central boundary of the site. Vegetation within these two features include species that are common to vernal pools of the site's region, including, along with their U.S. Army Corps of Engineers' (USACE) wetland indicator status (USACE 2020), fringed downingia (*Downingia concolor*) (OBL) and stalked-popcornflower (Plagiobothrys stipitatus) (FACW). Other common wetland species observed in these features included curly dock (*Rumex crispus*) (FAC) and bird's-foot-trefoil (*Lotus corniculatus*) (FAC). Although these features were completely dry at the time of the April 2022 survey, evidence of hydrology included deep soil cracks.

A shallow stream channel traverses the western portion of the site which is approximately 12 to 14 feet in width between the tops of the banks. Vegetation on the banks is non-differentiated from the upland herbaceous vegetation of the fields of the site, described above, however the bed of the channel supports wetland vegetation similar to the seasonal wetlands of the site. Like the wetlands, the channel was completely dry but exhibited deep soil cracks as evidence of hydrology. This stream feature is a tributary of the West Branch Llagas Creek, which occurs approximately 0.25 miles south of the site, and the Pajaro River. According to watershed maps of the San Martin area (William Lettis & Associates, Inc. 2009), the on-site stream has been channelized from its original natural alignment and in the field, although the channel is not completely straightened, it is fairly uniform in width. The feature appears to be ephemeral in nature, likely only carrying flows immediately following large storm events.

Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB).

The stream channel of the site is likely to be considered a jurisdictional water of the U.S. and state, and regulated by the USACE, RWQCB, and CDFW. The jurisdiction of the USACE would generally be the Ordinary High Water (OHW) mark on opposing banks or the extent of areas meeting the USACE criteria for jurisdictional wetlands within the bed of the channel, whichever is greater; the jurisdiction of the RWQCB and CDFW would extend to the top of the bank. The two seasonal wetlands on the site would likely be regulated by RWQCB but may not be claimed by USACE since they appear to be isolated features with no hydrological connection to other waters of the U.S.

The roadside depression just outside and parallel to the site's eastern boundary, as a manmade feature created in uplands, and which does not appear to meet the USACE wetland criteria is unlikely to be considered a water of the U.S. and state.

None the less, whether features of the site would be considered jurisdictional waters of the U.S. and state is ultimately at the discretion of the regulatory agencies.

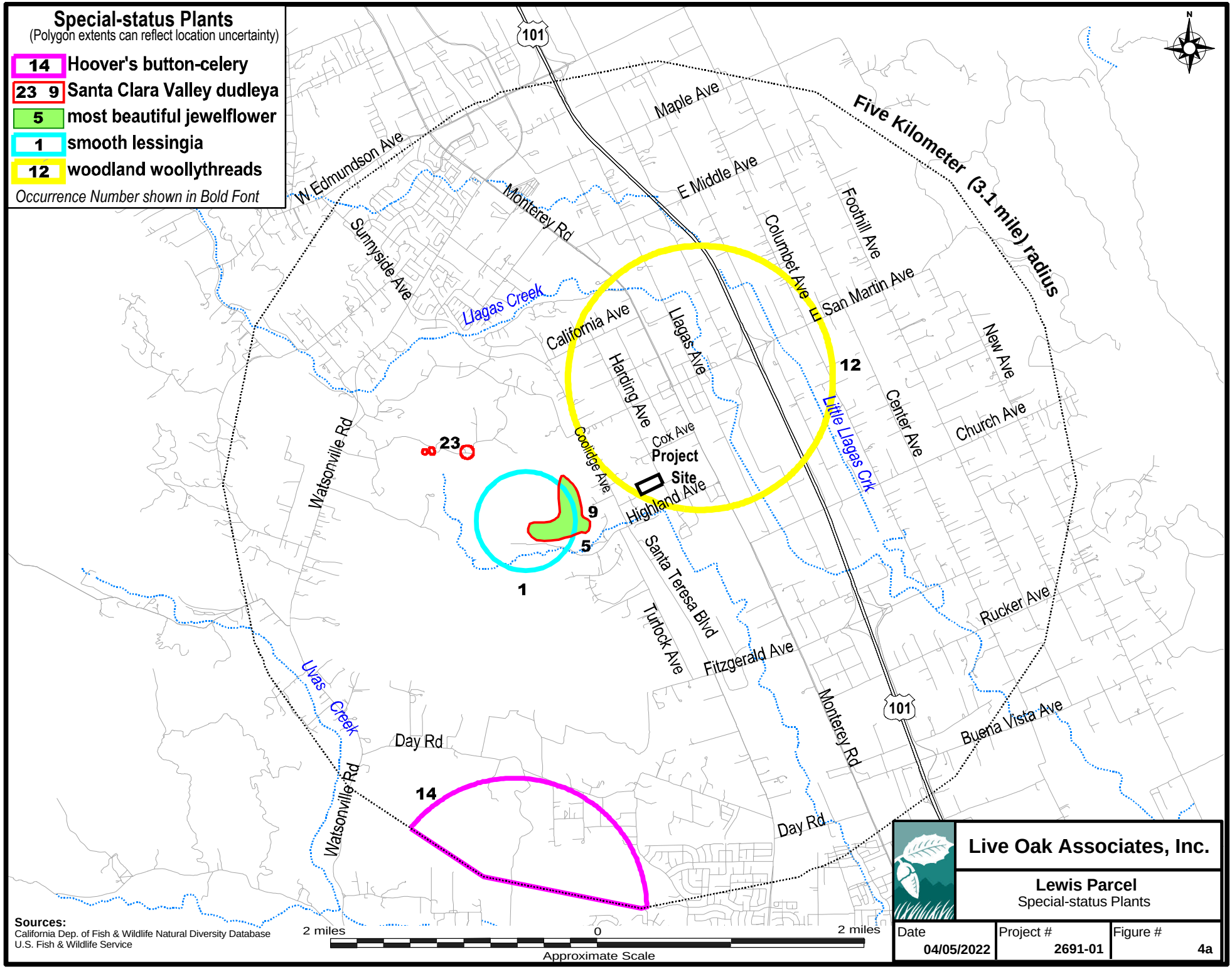
Special Status Species

Special status species include plants and animals that are listed as threatened or endangered under the state and federal Endangered Species Acts (ESA); other plant and animal species considered to be species of concern or fully protected species in California; and plants maintained on lists compiled by CDFW and the California Native Plant Society (CNPS).

A search of published accounts for all relevant special status plant and animal species was conducted for the Gilroy USGS 7.5" quadrangle in which the project site occurs and for the eight surrounding quadrangles (Morgan Hill, Mt. Sizer, Mississippi Creek, Mt. Madonna, Gilroy Hot Springs, Watsonville East, Chittenden, and San Felipe) using the California Natural Diversity Data Base (CNDDB) Rarefind (CDFW 2022; accessed on-line on March 30, 2022). Special status species documented as occurring, or historically occurring, within a five-kilometer (approximately three-mile) radius of the project site are depicted in Figure 4a (plants) and Figure 4b (animals).

Special status plants and animals known to occur, or to once have occurred, in the project vicinity, and their likelihood of occurrence on the site, are included in Table 2, below. Some special status plants and animals have been eliminated from consideration in Table 2 because these species are endemic on serpentine soils of the study area vicinity and serpentine soils are absent from the study area. These latter species include the Bay checkerspot butterfly (*Euphydryas editha bayensis*) and the following special status plants: Coyote ceanothus (*Ceanothus ferrisiae*), Tiburon paintbrush (*Castilleja affinis* var. *neglecta*), San Francisco collinsia (*Collinsia multicolor*), Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*), pink creamsacs (*Castilleja rubicunda* ssp. *rubicunda*), Mt. Hamilton thistle (*Cirsium fontinale* var. *campylon*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Metcalf Canyon jewel-flower (*Streptanthus albidus* ssp. *albidus*), and most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*).

Other special status species eliminated from consideration in Table 2 are those animals that occur in aquatic habitats which are absent on the site, including steelhead (*Oncorhynchus mykiss*), Monterey hitch (*Lavinia exilicauda harengus*), southern coastal roach (*Hesperoleucus venustus subditus*), California giant salamander (*Dicamptodon ensatus*), and western pond turtle (*Emys marmorata*).


Special-status Plants
(Polygon extents can reflect location uncertainty)
14 Hoover's button-celery
23 9 Santa Clara Valley dudleya
5 most beautiful jewelflower
1 smooth lessingia
12 woodland woollythreads
Occurrence Number shown in Bold Font
Five Kilometer (3.1 mile) radius
Project Site
101
Maple Ave
E Middle Ave
W Edmundson Ave
Monterey Rd
Sunnyside Ave
Llagas Creek
California Ave
Harding Ave
Llagas Ave
Columbet Ave
Foothill Ave
San Martin Ave
New Ave
Center Ave
Church Ave
Little Llagas Crk
Cox Ave
Coolidge Ave
Highland Ave
Watsonville Rd
Santa Teresa Blvd
Turlock Ave
Fitzgerald Ave
Rucker Ave
Buena Vista Ave
Uvas Creek
Day Rd
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service
2 miles
0
2 miles
Approximate Scale
Live Oak Associates, Inc.
Lewis Parcel
Special-status Plants
Date 04/05/2022
Project # 2691-01
Figure # 4a

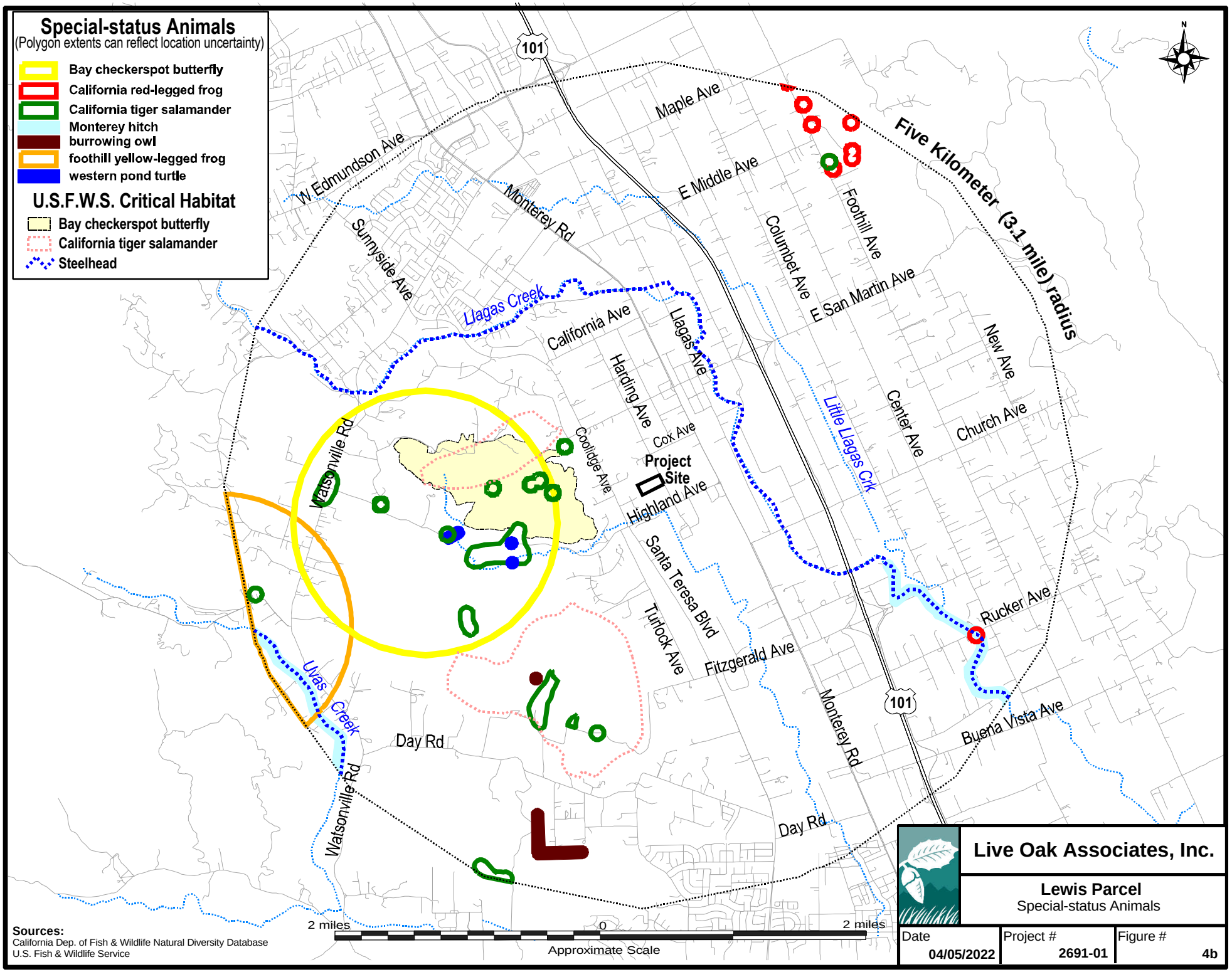

Special-status Animals
(Polygon extents can reflect location uncertainty)
Bay checkerspot butterfly
California red-legged frog
California tiger salamander
Monterey hitch
burrowing owl
foothill yellow-legged frog
western pond turtle
U.S.F.W.S. Critical Habitat
Bay checkerspot butterfly
California tiger salamander
Steelhead
Five Kilometer (3.1 mile) radius
Project Site
101
Maple Ave
W Edmundson Ave
Monterey Rd
E Middle Ave
Foothill Ave
Columbet Ave
E San Martin Ave
Sunnyside Ave
Llagas Creek
California Ave
Llagas Ave
Harding Ave
Cox Ave
Coolidge Ave
Watsonville Rd
Highland Ave
Little Llagas Crk
Center Ave
New Ave
Church Ave
Santa Teresa Blvd
Turlock Ave
Fitzgerald Ave
Rucker Ave
Buena Vista Ave
Uvas Creek
Day Rd
Watsonville Rd
Monterey Rd
Day Rd
N
2 miles
0
2 miles
Approximate Scale
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service
Live Oak Associates, Inc.
Lewis Parcel
Special-status Animals
Date
04/05/2022
Project #
2691-01
Figure #
4b

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2022 and CNPS 2022)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	FT, CRPR 1B	Habitat: Sandy soils within chaparral, cismontane woodland, coastal dunes, coastal scrub and valley and foothill grassland. Elevation: 3-450 meters. Blooms: Annual herb; April-June.	**Absent**. Suitable habitat is absent from the study area for this species.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2022 and CNPS 2022)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Anderson's manzanita (*Arctostaphylos andersonii*)	CRPR 1B	Habitat: Occurs in openings and at edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Elevation: 60-730 meters. Blooms: Evergreen shrub; November–May.	**Absent.** Manzanita species are absent from the study area.
Pajaro manzanita (*Arctostaphylos pajaroensis*)	CRPR 1B	Habitat: Occurs in sandy soils within chaparral. Elevation: 30-760 meters. Blooms: Evergreen shrub; December-March.	**Absent.** Manzanita species are absent from the study area.
San Joaquin spearscale (*Extriplex joaquiniana*)	CRPR 1B	Habitat: Occurs in seasonal alkali wetlands or alkali sink scrub within chenopod scrub and grassland habitats. Elevation: 1-835 meters Blooms: Annual herb; April-October	**Unlikely.** The site provides marginal habitat for this species due to ongoing grazing impacts and there are no known occurrences within three miles of the site.
Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)	CRPR 1B	Habitat: Chaparral, cismontane woodlands, and valley and foothill grasslands (sometimes on serpentine) Elevation: 90-1400 meters Blooms: Perennial herb; March-June	**Absent.** Serpentine habitat is absent from the study area, and this perennial herb would have been identifiable if present during the April survey and it was not observed.
Chaparral harebell (*Campanula exigua*)	CRPR 1B	Habitat: Rocky chaparral, often on serpentine Elevation: 275-1250 meters Blooms: Annual herb; May-June	**Absent**. Suitable habitat is absent from the study area.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2022 and CNPS 2022)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CRPR 1B	Habitat: Alkaline soils within valley and foothill grasslands. Elevation: 1-230 meters Blooms: Annual herb; May-November.	**Absent.** Although potentially suitable habitat is present on the site, this species would have been emerging on the site at the time of the April survey and no tarplant species were observed. Additionally, there are no known occurrences in the project vicinity, with the closest documented occurrences more than 30 miles north of the site in the north San Jose and Milpitas areas.
Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*)	CRPR 1B	Habitat: Vernal pools. Elevation: 3-45 meters. Blooms: Annual/perennial herb; July.	**Absent.** While the vernal pools of the site may have once provided some suitable habitat for this species, they have been heavily impacted by grazing. Additionally, this species has a unique morphology and would have been identifiable if present during the April survey. There is one documented occurrence (Occurrence #14; Figure 4a) approximately 2.5 to 3 miles southwest of the site, last observed in 2009. A survey within the appropriate blooming season in July would be necessary to rule out its occurrence on the site.
Fragrant fritillary (*Fritillaria liliacea*)	CRPR 1B	Habitat: Clay soils within coastal prairie, and scrub, and valley and foothill grasslands, often on serpentine. Elevation: 3-410 meters. Blooms: Bulbiferous; February-April.	**Absent.** Although marginally suitable (non-serpentine) clay soils are present on the project site for this species, the site has been highly disturbed by agricultural practices over time, there are no known occurrences within three miles of the site, and this species would have been observed if present during the April site visit and it was not observed.
Loma Prieta hoita (*Hoita strobilina*)	CRPR 1B	Habitat: Grassland, chaparral, cismontane woodland, riparian woodland, often on serpentine. Elevation: 30-860 meters. Blooms: Perennial herb; May-October.	**Absent.** Serpentine soils are absent from the study area and this perennial species would have been observed, if present, during the April survey and it was not observed.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2022 and CNPS 2022)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Legenere (*Legenere limosa*)	CRPR 1B	Habitat: Vernal pools. Elevation: 1-880 meters. Blooms: Annual herb; April–June.	**Unlikely.** Marginally suitable habitat is present on the site within the seasonal wetlands for this species; however, it was not observed during the April survey and there is only one documented occurrence (Occurrence #54) in Santa Clara County on the east side of Coyote Lake, more than five miles east of the site, last observed in 2003.
Arcuate bush mallow (*Malacothamnus arcuatus*)	CRPR 1B	Habitat: Gravelly soils within chaparral. Elevation: 15-355 meters Blooms: Evergreen shrub; April-September	**Absent.** Suitable habitat is absent from the site for this species.
Hall's bush mallow (*Malacothamnus hallii*)	CRPR 1B	Habitat: Chaparral and coastal scrub. Elevation: 10-760 meters. Blooms: Evergreen shrub; May-October	**Absent.** Suitable habitat is absent from the study area for this species.
Woodland woollythreads (*Monolopia gracilens*)	CRPR 1B	Habitat: On serpentine soils within broadleaved upland forests, chaparral, cismontane woodland, North Coast coniferous forests, and valley and foothill grasslands Elevation: 10-1200 meters Blooms: Annual herb; February-July	**Absent.** There is a CNDDB occurrence of this species (Occurrence #12; Figure 4a) attributed to the vicinity of the study area; however, this location was estimated based on a 1901 collection and serpentine soils required by this species are absent from the study area.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CRPR 1B	Habitat: Coastal scrub, meadows and seeps, valley and foothill grasslands (alkaline), and vernal pools. Elevation: 3 -1210 meters. Blooms: Annual herb; April - July.	**Unlikely.** The seasonal wetlands of the site provide marginally suitable habitat for this species, however, there are only two known occurrences in the project region, one which is more than 10 miles north of the site and one which is more than 10 miles southeast of the site in northern San Benito County.
Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*)	CRPR 1B	Habitat: Chaparral, lower montane coniferous forest, and north coast coniferous forest. Elevation: 400-1100 meters. Blooms: Perennial herb; May-June.	**Absent.** Suitable habitat for this species is absent from the study area.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2022 and CNPS 2022)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Hairless popcorn-Flower (*Plagiobothrys glaber*)	CNPS 1A	Habitat: Alkaline meadows and seeps and coastal salt marshes and swamps Elevation: 15-180 meters Blooms: Annual herb; March-May	**Absent.** Suitable habitat for this species is absent from the study area. This species was last observed in the project region in 1954 in San Benito County and is presumed extinct in the wild.
California alkali grass (*Puccinellia simplex*)		Habitat: Chenopod scrub, meadows and seeps, valley and foothill grasslands, and vernal pools. Elevation: 2 – 930m. Blooms: Annual herb; March - May.	**Possible.** Suitable habitat is present on the project site for this species within the seasonal wetland habitat.
Rock sanicle (*Sanicula saxatilis*)	CRPR 1B	Habitat: Rocky, scree, and talus slopes within broadleaved upland forest, chaparral, and grassland. Elevation: 620 – 1175m. Blooms: Perennial; April – May.	**Absent.** Suitable habitat for this species is absent from the site.
Mt. Hamilton jewel-flower (*Streptanthus callistus*)	CRPR 1B	Habitat: Open talus slopes on shale within chaparral and cismontane woodland. Elevation: Blooms:	**Absent.** Suitable habitat for this species is absent from the site.
Santa Cruz clover (*Trifolium buckwestiorum*)	CRPR 1B	Habitat: Gravelly margins within cismontane woodland and coastal prairie. Elevation: 105-610m. Blooms: Annual herb; April-October.	**Absent.** Suitable habitat for this species is absent from the site.
Saline clover (*Trifolium hydrophilum*)	CRPR 1B	Habitat: Marshes and swamps, mesic and alkaline areas of valley and foothill grasslands, and vernal pools. Elevation: 0-300 meters. Blooms: Annual herb; April-June.	**Possible.** Suitable habitat is present on the project site for this species within the seasonal wetland habitat.

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
California tiger salamander (*Ambystoma californiense*)	FT, CT	Breeds in stagnant pools with continuous inundation for a minimum of three months, which may include vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	**Unlikely.** Breeding habitat is absent from the site, as the seasonal wetlands on the site are shallow and lack a suitable hydrological regime for this species. There are several occurrences of this species documented to the west of the site breeding in old stock ponds on the Cordevalle Country Club property within approximately 0.6 and one mile of the site. However, Santa Teresa Blvd., agricultural lands and rural residential development between the site and these ponds, along with the fact that there are no known occurrences of this species on the east side of Santa Teresa, makes it unlikely this species would occur on the site.
Foothill yellow-legged frog (*Rana boylii*)	CE	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools and ponds.	**Absent.** Suitable habitat is absent from the site for this species.
California red-legged frog (*Rana draytonii*)	FT, CSC	Dense, shrubby riparian vegetation such as arroyo willow, cattails, and bulrushes with still or slow-moving water. Perennial streams or ponds are preferred, and a salinity of no more than 4.5$^{o}/_{o}$.	**Absent.** Suitable habitat is absent from the site for this species. The closest recorded occurrences of this species are between 2.5 and 3 miles northeast and southeast of the site.
Swainson's hawk (*Buteo swainsonii*)	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Unlikely.** Breeding habitat is absent on the site for this species; however, this species may occasionally forage over the site. Currently, the only breeding pair known in Santa Clara County nests annually over 10 miles north of the site in the Coyote Valley area.
Bank swallow (*Riparia riparia*)	CT	Occurs in open areas near flowing water, nests in steep banks along inland water or coast. State-wide.	**Absent.** Suitable habitat for this species is absent from the site and the vicinity of the site.
Tricolored blackbird (*Agelaius tricolor*)	CT	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Unlikely.** Breeding habitat is absent from the site for this species, but this species may rarely forage on the site.

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Least Bell's vireo (*Vireo bellii pusillus*)	FE, CE	Breeds in dense early successional riparian vegetation. Forages primarily in riparian habitats.	**Absent.** Suitable habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Santa Cruz black salamander (*Aneides niger*)	CSC	Occurs in deciduous woodland, coniferous forests, and coastal grasslands around the Santa Cruz Mountains and foothills. This species is also known to occur on the developed flats in pockets within older developments. They can be found under rocks near streams, in talus, under damp logs, rotting wood, and other objects.	**Absent.** Suitable habitat for this species is absent from the site.
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Occurs in grasslands, scrublands, oak woodlands, etc. of central California. Common in sandy washes with scattered shrubs. Prefers open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects.	**Absent.** Suitable habitat for this species is absent from the site.
Yellow-breasted chat (*Icteria virens*)	CSC	Breeds in dense, shrubby vegetation, including riparian vegetation.	**Absent.** Suitable habitat for this species is absent from the site.
Grasshopper sparrow (*Ammodramus savannarum*)	CSC	Breeds in dense grassland vegetation, including hay fields.	**Unlikely.** The field on the site is well-grazed and would provide poor nesting and foraging habitat for this species.
Loggerhead shrike (*Lanius ludovicianus*)	CSC	Nests in shrubs and trees; forages in a variety of habitats including grasslands and agricultural lands.	**Possible.** Nesting habitat is absent from the site; however, this species may occasionally forage over the site.

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
White-tailed kite (*Elanus leucurus*)	CP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Possible.** Nesting habitat is absent from the site; however, this species may occasionally forage over the site.
Golden eagle (*Aquila chrysaetos*)	CP	Rolling foothills, mountain areas, sage-juniper flats, and deserts. Prefers cliff-walled canyons or large trees for provide nesting and forages in open areas.	**Unlikely.** Nesting habitat is absent from the site and immediate surroundings, and the site provides only very marginal foraging habitat for this species.
Burrowing owl (*Athene cunicularia*)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Unlikely.** Suitable roosting and nesting habitat for BUOW is present on the site due to the presence of ground squirrel burrows; however, no BUOW or their sign was observed at any of the burrows during the April survey. None the less, there is some small potential that BUOW could use the site in the future, as the short grasses and raised dirt mounds with burrows could be attractive to this species and there are known occurrences within 2 to 3 miles south of the site.
Pallid bat (*Antrozous pallidus*)	CSC	Occurs in grasslands, chaparral, woodlands, and forests; most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities of trees.	**Possible.** Suitable roosting habitat is absent from the site, but this species may occasionally forage over the site.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSC	Primarily a cave-dwelling bat that may also roost in buildings, bridges, rock crevices, and hollow trees. Occurs in a variety of habitats.	**Possible.** Suitable roosting habitat is absent from the site, but this species may occasionally forage over the site.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSC	Found in hardwood forests, oak riparian and shrub habitats.	**Absent.** Suitable habitat for this species is absent from the site.

Table 2: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2022 and USFWS 2022)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
American badger (*Taxidea taxus*)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	**Possible.** Although a badger is unlikely to breed on the site, badgers are known to occur in the foothills to the west of the site; therefore, it is possible badgers may occasionally occur on the site during regular movements and foraging activities, and potentially even dig a day-use den.

Explanation of Occurrence Designations and Status Codes
Present: Species observed on the sites at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the site, but it could occur there from time to time.
Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the site and precluded from occurring there because habitat requirements not met.

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Protected
CSC	California Species of Special Concern		
CNPS	California Native Plant Society		
CRPR	California Rare Plant Rank		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

BIOLOGICAL IMPACTS AND MITIGATIONS

The following analysis of biological impacts is based upon the proposed project, as described previously. CEQA significance criteria, as well as an explanation of the legal framework, including the local, state, and federal laws for biological resources, is included in Appendix A.

Impacts to Jurisdictional Waters

Potential Impact. Potentially jurisdictional waters of the U.S. and state are present on the site in the form of the seasonal wetlands and stream, although the seasonal wetlands may be disclaimed as jurisdictional by the USACE due to the lack of hydrological connection to other waters of the U.S. Impacts to these features may be regulated by the USACE, RWQCB and CDFW, or some combination of these three resource agencies and may be considered a significant impact under CEQA.

Should development of the site avoid the wetlands and channel, then the project would result in a less than significant impact and no mitigation would be required.

However, should development of the site result in fill being placed within any of these features, including any fencing along the boundary between the two proposed parcels, then this may be considered a significant impact of the project, and mitigations provided below would reduce any significant impact to a less-than-significant level.

Mitigation. Avoidance, minimization, and/or compensation measures should be implemented to reduce impacts to jurisdictional waters to a less-than-significant level.

Avoidance and minimization. The preferred method of mitigation would be avoidance of all waters of the U.S. and State to the maximum extent practicable by designing the project so that it avoids the placement of fill within potential jurisdictional waters.

Compensation. If development of the site is not designed to completely avoid the wetland and stream features, then a formal wetland delineation should be conducted and verified by the U.S. Army Corps to determine the jurisdictional status of these features. Compensation measures for a loss of wetland or stream habitat would include the replacement of the lost habitat value of these impacts through the creation, restoration, and/or enhancement of jurisdictional waters at a minimum 1:1 replacement-to-loss ratio. The final mitigation amounts will be based on actual impacts to be determined during the design phase. Mitigation can be accomplished at an appropriate onsite or nearby offsite location. Alternatively, mitigation can be accomplished via the purchase of an appropriate number of credits from an agency-approved mitigation bank.

Should the project proponent choose to complete its own onsite or offsite mitigation, then they would need to develop and implement a wetland mitigation and monitoring plan (MMP). At a minimum, the MMP should include:

- The location of all restoration/creation activities;
- Evidence of a suitable water budget to support any created habitats;
- Planting specifications;
- Site maintenance and management requirements;
- Monitoring requirements;
- Final success criteria;
- Adaptive management procedures; and
- A long-term funding mechanism for site management into perpetuity.

The monitoring period should be a minimum of five years to ensure that the success criteria have been achieved.

Regulatory issues. Should any project on the site result in fill being placed in the wetlands or channel on the site, in addition to the mitigation provided above, the project would also need to comply with all state and federal regulations related to construction work that will impact aquatic habitats occurring on the site. The applicant may be required to obtain a Section 404 Clean Water Act Nationwide permit from the USACE, a Section 401 Water Quality Certification from the RWQCB and a Section 1600 Streambed Alteration Agreement from the CDFW, or some combination of these three agencies.

Impacts to Special Status Plants

Potential Impact. All special status plants known to occur, or to have once occurred, in the project vicinity are considered absent from or unlikely to occur on the site because the site provides no suitable habitat for the species, or the site provides marginally suitable habitat but the species has either not been observed in the project vicinity in many decades, or there are no known occurrences in the project vicinity (i.e., within three-miles of the site). Therefore, development of the site is expected to have no impact or a less-than-significant impact on special status plants.

Mitigation. None required.

Impacts to Special Status Wildlife

Potential Impact. Most special status animals known to occur, or to once have occurred, in the project vicinity are considered absent from the site due to a lack of suitable habitat, or they are considered unlikely to occur on the site as habitats of the site are marginal for them or they have not been observed in the project vicinity in many decades. If the latter species occurred on the site at all, it would only be as rare migrants or rare foragers. The project is expected to have no impacts on any of the species that are considered absent from or unlikely to occur on the site. The latter species includes the Bay checkerspot butterfly (*Euphydryas editha bayensis*), steelhead (*Oncorhynchus mykiss*), Monterey hitch (*Lavinia exilicauda harengus*), southern coastal roach (*Hesperoleucus venustus subditus*), Santa Cruz black salamander (*Aneides niger*), California giant salamander (*Dicamptodon ensatus*), foothill yellow-legged frog (*Rana boylii*),

California red-legged frog (*Rana draytonii*), Coast horned lizard (*Phrynosoma blainvillii*), western pond turtle (*Emys marmorata*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), least Bell's vireo (*Vireo bellii pusillus*), yellow-breasted chat (*Icteria virens*), grasshopper sparrow (*Ammodramus savannarum*), bank swallow (*Riparia riparia*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

Additionally, while there are several occurrences of California tiger salamander (*Ambystoma californiense*) documented within 0.6 and one mile west of the site on the Cordevalle Country Club property, this species is considered unlikely to occur on the site. This is because there are no documented occurrences of this species to the east of Santa Teresa Blvd., and highly disturbed agricultural lands, rural residential development, and Santa Teresa Blvd. itself would likely preclude this species from migrating to the site from areas to the west.

Ground squirrel burrows providing potential nesting and roosting habitat for the western burrowing owl (*Athene cunicularia*) are present on the site, along with raised dirt mounds, that may be attractive to this species. Although no burrowing owls or their sign was observed on the site during the April survey, and they are likely currently absent, there is some potential that this species could occur on the site in the future prior to development. If this is the case, then the project could result in impacts to this species which would be considered significant under CEQA. Therefore, we have provided measures below to ensure that the project results in no impacts to burrowing owls.

For several special status species, the site provides no breeding habitat, but the species may forage over or move through the site from time to time. Development of the site is not expected to have any impact on these latter species which includes the white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and pallid bat (*Antrozous pallidus*) as the project will not result in any significant impacts on foraging or movement habitat for these species.

As indicated above, while western burrowing owls appear to be absent from the site currently, the site does provide suitable habitat for this species and there is some potential it could forage, nest and roost on the site in the future. Additionally, the site could provide foraging and day-den habitat for the American badgers (*Taxidea taxus*). While the loss of habitat for these species as a result of development of the site would be less-than-significant, any project activities resulting in nest abandonment and harm or mortality to individuals of these species should they occur on the site during project construction activities may be considered a significant impact (see ***Impacts to Ground-Nesting Migratory Birds***, ***Impacts to western Burrowing Owls***, and ***Impacts to American Badgers*** below). Mitigation measures provided below would reduce any potentially significant impacts to a less-than-significant level.

Mitigation. As indicated above, development of the site is not expected to result in impacts to most special status animals that are considered absent from or unlikely to occur on the site, and no mitigation would be required for these species; however, see measures for burrowing

owls in the section ***Impacts to western Burrowing Owls*** and measures for nesting short-eared owls in the section ***Impacts to Nesting Raptors and Other Nesting Migratory Birds***, below.

Impacts to Western Burrowing Owls

Potential Impact. A habitat assessment for burrowing owls should be conducted within 30 days of project implementation that will result in ground disturbance or vegetation removal, to confirm that habitat for burrowing owls remains absent from the site. If the habitat assessment confirms that habitat for this species remains absent from the site, then no further mitigation for burrowing owls would be required.

Should a habitat assessment for burrowing owls confirm that site conditions have changed and that there is potential habitat present for this species (i.e., California ground squirrel burrows or other burrows of sufficient size), then the following measures will be implemented to ensure that the project does not impact this species.

Pre-construction surveys A pre-construction survey will be conducted by a qualified biologist for burrowing owls within 30 days of the on-set of construction. This survey will be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

*Avoidance During the Breeding Season***.** If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance will include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the project proponent develops an avoidance, minimization, and monitoring plan that will be reviewed by the County and CDFW prior to project construction based on the following criteria.

- The County and CDFW approves of the avoidance and minimization plan provided by the project applicant.
- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.

- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.

Avoidance During the Non-Breeding Season. During the non-breeding season (September 1–January 31), the project proponent will establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the County that a qualified biologist excavate usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue. Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Construction Monitoring. Based on the avoidance, minimization, and monitoring plan developed (as required in the above section), during construction, the non-disturbance buffer zones will be established and maintained if applicable. A qualified biologist will monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor will also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

Passive Relocation. Any passive relocation plan would need to be approved by the County and CDFW, and would only occur during the non-breeding season (September 1–January 31) if the other measures described above do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation an escape route will be maintained at all times. This may include

inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside.

Exceptions to Passive Relocation Prohibition. Any exceptions to passive relocation prohibitions would be subject to the approval of the County and CDFW.

The above mitigation measures for burrowing owls will reduce any potential impacts to a less-than-significant level.

As an alternative to the above mitigation, should the project applicant opt-in to the Santa Clara Valley Habitat Plan (SCVHP), then they would follow all measures for burrowing owls that are included under Condition 15 and that would also mitigate any potentially significant impacts to this species to a less-than-significant level.

Implementing the above mitigation for burrowing owls will reduce any project impacts to this species to a less-than-significant level.

Impacts to Ground Nesting Migratory Birds

Potential Impact. Aside from two small shrubs in the northern portion of the site, trees and other woody vegetation is absent from the site, so tree-nesting birds are considered absent from the site. However, the site could provide potential habitat for ground nesting birds such as the non-special status western meadowlark (*Sturnella neglecta*). Should any birds nest on the site during site development activities, including ground disturbance and vegetation removal, such activities could result in nest abandonment and in harm or mortality to unfledged young. This would be considered a potentially significant impact of the project as well as a violation of state and federal laws. Mitigation measures provided below would reduce any potentially significant impacts to a less-than-significant level.

Mitigation. To the extent possible, any project-related ground disturbance or vegetation removal activities should occur outside of the bird breeding season, i.e., during the period from September 1st through January 31st.

Project-related activities that occur during the bird breeding season, i.e., during the period from February 1st through August 31st, could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season, pre-construction nesting bird surveys will be conducted by a qualified biologist to identify possible nesting activity within 15 days prior to such activities. A construction-free buffer of suitable dimensions as determined by a qualified biologist must be established around any active raptor or migratory bird nest for the duration of the project, or until it has been determined that the young have fledged and are foraging independently from their parents.

Impacts to American Badgers

Potential Impact. American badgers are known to occur in the foothills to the west of the site; most of the habitat between the site and the foothills consists of range land and agricultural fields, therefore, it is possible badgers may use the site primarily for movement and foraging and may forage or pass through the site or have the potential to dig a day-use den from time to time. No badgers or badger burrows were observed on the project site during the April 2022 survey; however, should badgers occur onsite at the time of construction, the project could result in mortality of individuals of this species, which would constitute a significant impact under CEQA.

Mitigation. Implementation of the following measures prior to construction activities will reduce impacts to American badgers from direct mortality to a less-than-significant level.

Pre-construction Surveys

During the course of the preconstruction surveys for other species, a qualified biologist shall also determine the presence or absence of badgers prior to the start of construction. If badgers are found to be absent, no other mitigations for the protection of badgers shall be warranted.

Avoidance and Monitoring

If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once the biologist has determined that badger has vacated the burrow, the burrow can be collapsed or excavated, and ground disturbance can proceed. Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present onsite during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor will be required to be present until it is determined that young are of an independent age and construction activities would not harm individual badgers.

Tailgate Training

All workers on the project shall attend a tailgate training that includes a description of the species, a summary of its biology, and minimization measures and instructions on what to do if an American badger is observed.

Impacts to Movement Corridors or Nursery Sites

Potential Impact. The site occurs approximately 10 miles to the south of identified regional east-west movement corridors through the Coyote Valley area of south San Jose. Due to dense rural residential development that occurs to the west of the site, as well as the fact that the site is surrounded on three sides by cyclone fencing, it is unlikely that the site itself functions as a movement corridor, although wildlife may occur on the site from time to time during normal daily foraging movements. The development of the site with two single-family homes would not be expected to result in any significant impacts to any species that currently moves within and through the site as much better movement and foraging habitat is present to the north and

south of the site. Aside from the potential for nesting birds, including burrowing owls, as described above, the project is not expected to result in any significant impacts to any nursery sites, as these are absent from the project site.

Mitigation. None required.

Loss of Protected Trees

Potential Impact. The project will not result in impacts to any protected trees as they are absent from the site.

Mitigation. None required.

Stream Setbacks

Potential Impact. Pursuant to requirements of the Central Coast Regional Water Quality Control Board, The County of Santa Clara has amended its Clean Water ordinance code (Division B11.5) to include stream and riparian vegetation setback requirements for construction activities in the San Martin area, and requires a stream setback of a minimum of 30 feet from the top of bank or the dripline of riparian vegetation in the San Martin area. It is assumed that development on the site will adhere to the County's stream setbacks.

Mitigation. None required.

Consistency with the Santa Clara Valley Habitat Plan (SCVHP)

Potential Impact. According to the SCVHP Geobrowser (accessed on March 30, 2022), the project site occurs within Area 3 (Rural Development Not Covered) and Fee Zone B (Agricultural and Valley Floor Lands) of the SCVHP. No SCVHP wildlife or plant survey areas occur on the site, and the site supports no SCVHP Category 1 streams.

As the project site occurs in Area 3 of the SCVHP Plan Area, i.e., "Rural Development Not Covered", the project may not be required to proceed through the SCVHP. However, should the project proceed through the SCVHP, based on the existing conditions of the site and land covers identified during LOA's site visit, SCVHP conditions which may be applicable to the proposed project include Condition 1 (Avoid Direct Impacts on Legally Protected Plant and Wildlife Species) and Condition 3 (Maintain Hydrological Conditions and Protect Water Quality).

By implementing mitigation measures included in this BE for nesting birds, American badgers, and burrowing owls, and by complying with a grading permit, including BMPs to protect water quality, the project will be in compliance with these SCVHP conditions should it seek coverage under the SCVHP, along with the payment of SCVHP development fees.

Mitigation. None required.

Impacts to Water Quality in Downstream Waters

Potential Impact. Proposed construction activities may result in soils left barren in the development footprint. Additionally, extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to sheet, rill, or gully erosion. Furthermore, runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. These pollutants may eventually be carried to sensitive riparian and wetland habitats used by a diversity of native wildlife species.

The applicant is expected to comply with the provisions of a grading permit, including standard erosion control measures that employ best management practices (BMPs). Projects involving the grading of large tracts of land must also be in compliance with provisions of a General Construction permit (a type of NPDES permit) available from the California Regional Water Quality Control Board. Compliance with the above permit(s) should result in no impact to water quality in seasonal creeks, reservoirs, and downstream waters from the proposed project and should not result in the deposition of pollutants and sediments in sensitive riparian and wetland habitats.

Mitigation. None required.

CONCLUSIONS

In summary, the proposed project would not result in impacts to any special status plant species as they are considered absent or unlikely to occur on the site.

Additionally, the project is not expected to result in significant impacts to most special status animals (with the potential exception of burrowing owls and badgers should they occur on the site in the future and for which measures are provided to reduce any potential impacts to a less-than-significant level). There are non-special status migratory birds that may nest on the ground on the site, and which would be protected by state and federal law and mitigation measures are provided for these species to lessen impacts to a less-than-significant level.

The project is not expected to result in significant impacts to any wildlife corridors or nursery sites (except for ground-nesting birds and western burrowing owls, as previously mentioned); to protected trees; or to water quality in downstream waters.

Wetlands and stream habitats that may be regulated by the USACE, RWQCB, and CDFW, or some combination of these three agencies, are present on the site. As site development plans have not yet been prepared for the proposed parcels, it is unknown whether impacts to any of these features would occur. If any development results in fill being placed into these features, this may be considered a significant impact and also may require permits from the regulating agencies. Mitigations are provided to reduce any such impacts to a less-than-significant level.

By implementing mitigation measures provided in this report, as well as following measures included in the project's grading permit to protect water quality, the project is expected to comply with applicable conditions of the SCVHP should the project opt-into the SCVHP.

This concludes our biological evaluation of the project site. Should you wish to discuss our report or any of our conclusions, please feel free to reach out to me at ppeterson@loainc.com or Rick Hopkins at rhopkins@loainc.com.

Sincerely,

Pamela E. Peterson
Senior Project Manager
Plant and Wetland Ecologist

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APPENDIX A:

SIGNIFICANCE CRITERIA AND RELEVANT GOALS, POLICIES, AND LAWS

Significance Criteria

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant. According to *2019 CEQA Status and Guidelines* (2019), "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they will:

- 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;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Relevant Goals, Policies, and Laws

Santa Clara County Tree Protection Ordinance. Santa Clara County has a tree protection ordinance (Section C16-1 through C16-17 of the Municipal Code). The ordinance defines protected trees as follows:

A protected tree shall consist of any of the following:

(a) Any tree having a main trunk or stem measuring 37.7 inches or greater in circumference (12 inches or more in diameter) at a height of 4½ feet above ground level, or in the case of multi-trunk trees a total of 75.4 inches in circumference (24 inches or more of the diameter) of all trunks in the following areas of the County:

(1) Parcels zoned "Hillsides" (three acres or less);

(2) Parcels within a "-d" (Design Review) combining zoning district;

(3) Parcels within the Los Gatos Hillside Specific Plan Area.

(b) Any tree within the "-h1" Historic Preservation zoning district for New Almaden having a main trunk or stem measuring six inches or more in diameter (18.8 inches or greater in circumference) at a height of 4.5 feet above ground level, or in the case of multi-trunk trees, a total of 12 inches in diameter (37.7 inches in circumference) of all trunks at 4.5 feet above ground. For parcels having a base zoning district of "HS, Hillside" within the "-h1" combining zoning district, this provision supersedes C16-3(a)(1).

(c) Any heritage tree, as that term is defined in Section C16-2.

(d) Any tree required to be planted as a replacement for an unlawfully removed tree, pursuant to Section C16-17(e) of this division.

(e) Any tree that was required to be planted or retained by the conditions of approval for any use permit, building site approval, grading permit, architectural and site approval (ASA), design review, special permit or subdivision.

(f) On any property owned or leased by the County, any tree which measures over 37.7 inches in circumference (12 inches or more in diameter) measured 4.5 feet above the ground, or which exceeds 20 feet in height.

(g) Any tree, regardless of size, within road rights-of-way and easements of the County, whether within or without the unincorporated territory of the County.

A “Heritage Tree” is defined by the ordinance as:

Any tree which, because of its history, girth, height, species, or other unique quality, has been recommended by the Historical Heritage Commission (HHC) and found by the Board of Supervisors to have a special significance to the community shall be designated a heritage tree. Such trees shall be listed individually on the heritage resource inventory, adopted by resolution of the Board of Supervisors. Such resolution may be amended as necessary to add or delete trees from the inventory.

A tree removal permit would be required from the County for the removal of protected trees and "Heritage Trees".

Habitat Conservation Plans. The site occurs within the permit area of the Santa Clara Valley HCP/NCCP (SCVHP) Study Area, occurring in "Area 3: Private Development Not Covered" and in Fee Zone B (Agricultural and Valley Floor Lands).

The northeastern corner of the site is designated as an SCVHP wildlife survey area for least Bell's vireo and tri-colored blackbird due to the vicinity of New Creek just offsite.

Threatened and Endangered Species. State and federal "endangered species" legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

Migratory Birds. The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

Moreover, the California Migratory Bird Protection Act, enacted in September 2019, clarifies native bird protection and increases protections where California law previously deferred to federal law.

Birds of Prey. Birds of prey are protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., scc. 668-668c) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Bats. Section 2000 and 4150 of the California Fish and Game Code states that it is unlawful to take or possess a number of species, including bats, without a license or permit, as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as "an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering." For these reasons, bat colonies in particular are considered to be sensitive and therefore, disturbances that cause harm to bat colonies are unlawful.

Wetlands and Other Jurisdictional Waters

Jurisdictional waters include waters of the United States subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE) and waters of the State of California subject to the regulatory authority of the California Department of Fish and Wildlife (CDFW) and the California Regional Water Quality Control Board (RWQCB).

Clean Water Act, Section 404. The USACE regulates the filling or grading of Waters of the U.S. under the authority of Section 404 of the Clean Water Act. Drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations and clarified in federal courts.

The definition of waters of the U.S. have changed several times in recent years. In January 2020, the Environmental Protection Agency (EPA) and USACE jointly issued the Navigable Waters

Protection Rule. The new rule was published in the Federal Register on April 21, 2020, and took effect on June 22, 2020.

On August 30, 2021, the U.S. District Court for the District of Arizona issued an order vacating and remanding the Navigable Waters Protection Rule. In light of this order, the EPA and USACE have halted implementation of the Navigable Waters Protection Rule and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice.

The pre-2015 regulatory regime defines waters of the U.S. as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE under Section 404 of the Clean Water Act. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued without a CWA Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Porter-Cologne Water Quality Act/Clean Water Act, Section 401. There are nine Regional Water Quality Control Boards statewide; collectively, they oversee regional and local water quality in California. The RWQCB administers Section 401 of the Clean Water Act and the Porter-Cologne

Water Quality Control Act. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Pursuant to Section 401 of the Clean Water Act, the RWQCB regulates waters of the State that are also waters of the U.S. Discharges into such waters require a Section 401 Water Quality Certification from the RWQCB as a condition to obtaining certain federal permits, such as a Clean Water Act Section 404 permit (Section 3.6.1). Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or a waiver of WDRs, from the RWQCB.

The Porter-Cologne Water Quality Control Act, Water Code Section 13260, requires that "any person discharging waste, or proposing to discharge waste, within any region that could affect the 'waters of the State' to file a report of discharge" with the RWQCB. Waters of the State as defined in the Porter-Cologne Act (Water Code Section 13050[e]) are "any surface water or groundwater, including saline waters, within the boundaries of the state." This gives the RWQCB authority to regulate a broader set of waters than the Clean Water Act alone; specifically, in addition to regulating waters of the U.S. through the Section 401 Water Quality Certification process, the RWQCB also claims jurisdiction and exercises discretionary authority over "isolated waters," or waters that are not themselves waters of the U.S. and are not hydrologically connected to waters of the U.S.

The RWQCB also administers the Construction Stormwater Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Stormwater Program. A prerequisite for this permit is the development of a Stormwater Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, stormwater, or other pollutants into a Water of the U.S. may require a NPDES permit.

California Department of Fish and Game Code, Section 1602. The CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If the CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

APPENDIX B:

PHOTOS OF THE PROJECT SITE

Photo 1. Looking generally south from the northeast corner of the site.

Photo 2. Looking generally southwest from the northeast corner of the site.

Photo 3. Dirt piles and seasonal wetland in the southeast corner of the site.

Photo 4. Channel on the site looking generally north from the site's south boundary.

Attachment D

Archeological Resource Management Report prepared by Archaeological Resource Service (dated July 13, 2022)

ARCHAEOLOGICAL RESOURCE MANAGEMENT REPORT FOR THE RESIDENTIAL DEVELOPMENT ON HARDING AVENUE (APN 779-12-006), SAN MARTIN, SANTA CLARA COUNTY, CALIFORNIA

A CULTURAL RESOURCE INVENTORY

PREPARED BY

Brehn Erskine, B.A., Archaeological Resource Service

SUBMITTED BY

William Roop, M.A. RPA, Archaeological Resource Service

SUBMITTED FOR

Marc Lewis

Care of MH Engineering Co.

July 13, 2022

A.R.S. Project 22-025b

Prepared under the authority of the

Santa Clara County Planning Department

This project is located on the Gilroy 7.5' USGS quadrangle Map(s) and consists of 10 acres

I certify that I am a Registered Professional Archaeologist (RPA certification number 15428) and I am listed by the California Office of Historic Preservation for statewide consulting services.

William G. Roop, M.A., RPA
Consulting Archaeologist
Archaeological Resource Service

Archaeological Resource Service
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MANAGEMENT SUMMARY

As requested and authorized, Archaeological Resource Service has conducted an archaeological evaluation of the parcel described below. The following tasks were accomplished as part of this project:

1. A check of the information on file with our office and the Regional Office of the California Historical Resources Information System, to determine the presence or absence of previously recorded historic or prehistoric cultural resources.
2. A check of appropriate historic references to determine the potential for historic era archaeological deposits.
3. Contact with the Native American Heritage Commission to determine the presence or absence of listed Sacred Lands within the project area,
4. Contact with all appropriate Native American organizations or individuals designated by the Native American Heritage Commission as interested parties for the project area,
5. A surface reconnaissance of all accessible parts of the project area to locate any visible signs of potentially significant historic or prehistoric cultural deposits, and,
6. Preparation of a report describing the work accomplished, the results of the research, and making appropriate recommendations for further action, if warranted.

PROJECT DESCRIPTION

The proposed project would split the parcel into two new parcels, each with a proposed driveway connecting from Harding Avenue to the parcel's proposed residence. The proposed residences would each have a septic tank and leech fields.

The cultural resources investigation has been undertaken to determine the potential for discovery of historic or prehistoric archaeological deposits within the project area, and to develop programs to address discovered resources.

The parcel currently functions as a horse pasture with minimal infrastructure on site. There is a horse shed on the west end of the parcel, as well as water troughs dotted around the parcel. Horse manure could be found in abundance on the entire parcel, but a particularly large mound is located on the west side near the horse shed.

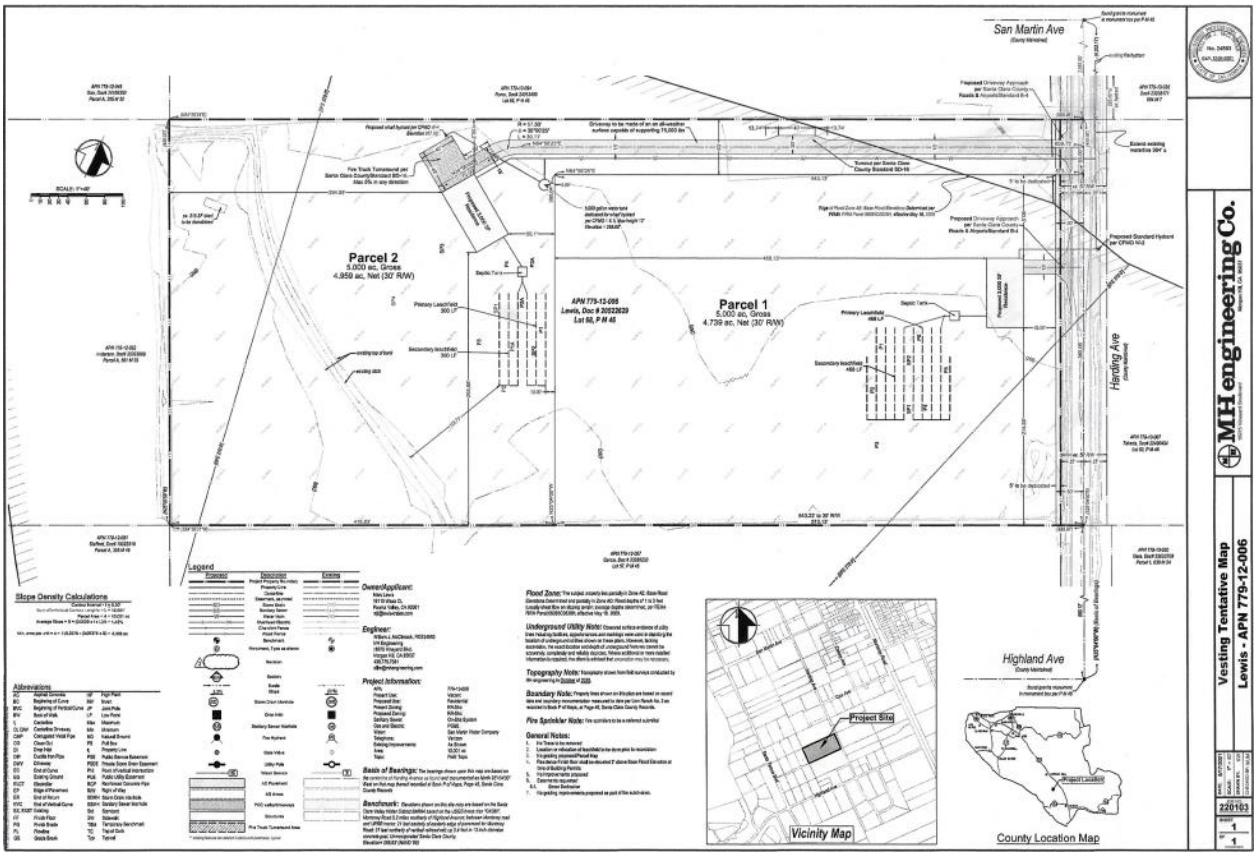

Figure 1 – Project Plan

Project Plan provided to ARS, detailing locations of proposed construction and the nature of the constructions

PROJECT LOCATION

The project area is located at Harding Avenue, San Martin, Santa Clara County, CA (APN 779-12-006). The parcel consists of 10 acres of open land being used as a pasture for two horses land bounded by rural residences with agricultural land.

The project area lies in the Mexican era land grant of San Francisco de Las Llagas within unsectioned land of Township 10 South, Range 3 East, Mt. Diablo Base and Meridian. The Universal Transverse Mercator Grid coordinates to the approximate center of the project area, as determined by measurement from the USGS 7.5' Gilroy Quadrangle Map (1955; photorevised 1982) are:

4104075 Northing Meters North,

622985 Meters East,

Zone 10

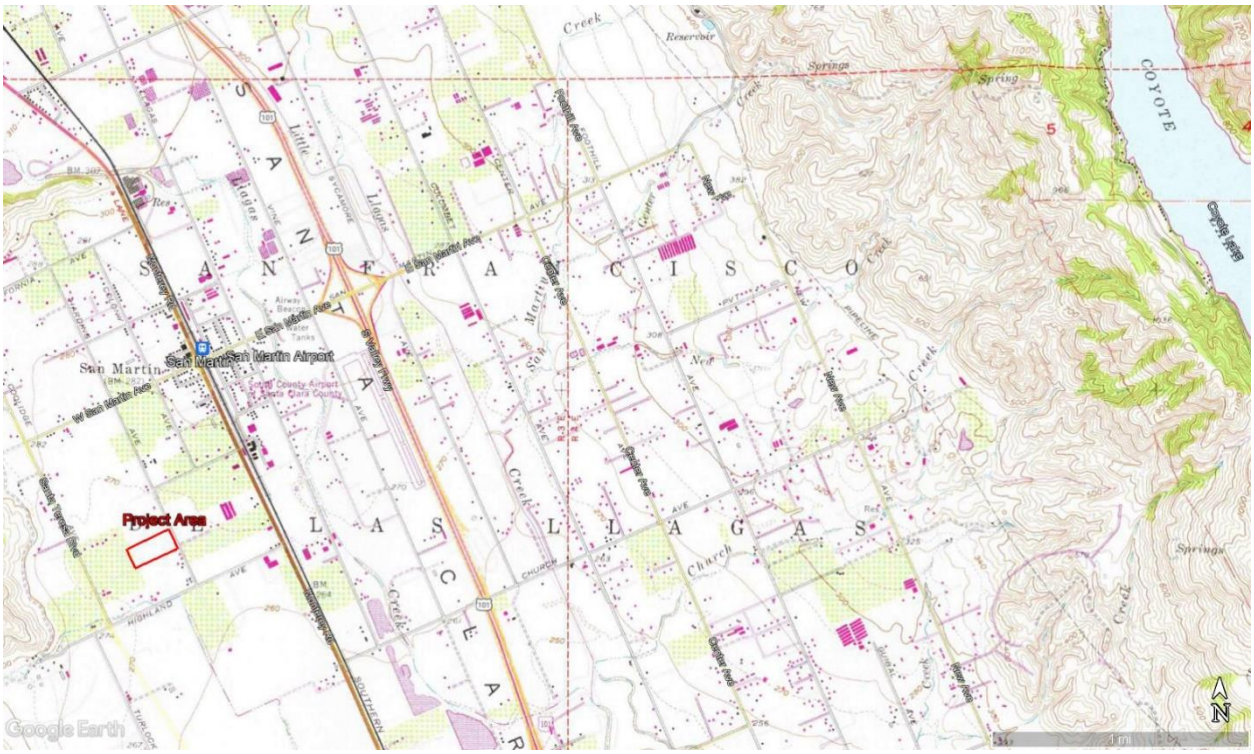

Figure 2 – Project Location

The project area is shown on the USGS 7.5' Gilroy Quadrangle Map (1955; photorevised 1982)

FIGURE 3 – PROJECT AREA FROM GOOGLE EARTH (THE PROJECT AREA IS THE RECTANGULAR AREA IN THE CENTER OF THE PHOTO, THERE IS PLENTY OF EXPOSED SOIL AND MINIMAL VEGETATIVE COVERING DUE TO HORSE GRAZING)

REGULATORY SETTING

There are no previously recorded prehistoric or historic resources located within the project area. Archaeological resources, once identified, are evaluated using criteria established in the California Environmental Quality Act (CEQA) (14 CCR 15064.5 and PRC 21084.1). Significant historical resources need to be addressed before environmental mitigation guidelines are developed and approved. A "significant historical resource" (including both a prehistoric and historic resource) is one that is found eligible for listing in the California Register of Historical Resources. As per Title 14, California Code of Regulations Section 15064.5, historical resources are those that are:

- Listed in, or eligible for listing in, the California Register of Historic Resources (Public Resources Code 5024.1, Title 14 CCR, Section 4850 et. seq.);
- Listed in, or eligible for listing in, the National Register of Historic Places (CRHR);
- Included in a local register of historical resources, as defined in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resource Code; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Additionally, historical resources and historic districts designated or listed as city or county landmarks or historic properties or districts pursuant to any city or county ordinance can also be listed in the California Register, if the criteria for listing under the ordinance have been determined by the Office of Historic Preservation to be consistent with California Register criteria adopted by the commission (pursuant to Section 5024.1(e) of the PRC).

A resource may be listed as an historical resource in the California Register if it has integrity and meets any of the following National Register of Historic Places criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of our history; or
2) Is associated with the lives of persons important in our past; or
3) Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possesses high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
4) Has yielded, or may be likely to yield, information important in prehistory or history.

CEQA (PRC 21083.2) also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource as above, and "unique archaeological resources." A "unique archaeological resource" has been defined in CEQA as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstratable public interest in that information,
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type, or
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Buildings, sites, structures, objects, and districts representative of California and United States history, architecture, archaeology, engineering, and culture convey significance when they also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A resource has integrity if it retains the characteristics that were present during the resource's period of significance. Enough of these characteristics must remain to convey the reasons for its significance.

Tribal cultural resources and Tribal cultural landscapes can be any of a variety of cultural sites as defined by the individual tribe. These resources, once identified, are treated as significant resources under CEQA.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, or included in a local register of historical resources (pursuant to Section 5020.1(k) of the PRC), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the PRC) does not preclude a lead agency from determining that the resource may be an historical resources as defined in PRC sections 5020.1(j) or 5024.1.

SACRED LANDS INVENTORY / NATIVE AMERICAN CONSULTATION

The California Native American Heritage Commission (NAHC) works to identify, catalogue, and protect places of special religious or social significance, graves, and cemeteries of Native Americans per the authority given the Commission in Public Resources Code 5097.9. A check with the NAHC was done to determine if there are sites listed in the Sacred Lands file located within or near to the current project area.

The agency has not responded to our query. Archaeological Resource Service recommends that the permitting agency consult with any tribes that have requested consultation on planning projects. The following tribes were identified in November 2021 as representative of Santa Clara County:

Amah Mutsun Tribal Band Valentin Lopez, Chairperson P.O. Box 5272, Galt, CA, 95632 Phone: (916) 743 - 5833 vlopez@amahmutsun.org Costanoan, Northern Valley Yokut	**North Valley Yokuts Tribe** Timothy Perez P.O. Box 717, Linden, CA 95236 (209) 662-2788 huskanam@gmail.com Ohlone/Costanoan, Northern Valley Yokuts, Bay Miwok
Amah Mutsun Tribal Band of Mission San Juan Bautista Irenne Zwierlein, Chairperson 789 Canada Road, Woodside, CA, 94062 Phone: (650) 851 – 7489, Fax: (650) 332-1526 amahmutsuntribal@gmail.com Costanoan	Rumsen Am:a Tur:ataj Ohlone Dee Dee Manzanares Ybarra, Chairperson 14671 Farmington Street, Herperia, CA 92345 (760) 403-1756 rumsenama@gmail.com Ohlone/Costanoan
Indian Canyon Mutsun Band of Costanoan Kanyon Sayers-Roods 1615 Pearson Court, San Jose, CA 95122 408-673-0626 Ohlone/Costanoan	**Tamien Nation** Johnathan Wasaka Costilla, THPO P.O. Box 866, Clearlake Oaks, CA 95423 (925) 336-5359 Ohlone/Costanoan thpo@tamien.org
Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28, Hollister, CA, 95024 Phone: (831) 637 - 4238 ams@indiancanyon.org Costanoan	**The Confederated Villages of Lisjan** Corrina Gould, Chairperson 10926 Edes Avenue, Oakland, CA 94603 (510) 575-8408 cvltribe@gmail.com Ohlone/Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area Monica Arellano, Vice Chairwoman 20885 Redwood Road, Suite 232 Castro Valley, CA, 94546 Phone: (408) 205-9714 marellano@muwekma.org Costanoan	***The Ohlone Indian Tribe*** Andrew Galvan, P.O. Box 3388, Fremont, CA, 94539 Phone: (510) 882 - 0527 Fax: (510) 687-9393 chochenyo@AOL.com
North Valley Yokuts Tribe Katherine Erolinda Perez, Chairperson P.O. Box 717, Linden, CA, 95236 Phone: (209) 887 - 3415 canutes@verizon.net Costanoan, Northern Valley Yokut	**Wuksache Indian Tribe/Eshom Valley Band** Kenneth Woodrow, Chairperson 1179 Rock Haven Ct., Salinas, CA 93906 (831) 443-9702 Foothill Yokuts, Mono, Wuksache kwood8934@aol.com

METHODOLOGY

On June 23rd, 2022, myself (Brehn Erskine) and Andrew Von Pinnon surveyed the entire parcel by walking the East to West length of it in 10 meter separations. This provided a complete view of the entire parcel and allowed for easy identification of exposed soil. The pasture had numerous grasses on it, but most had died back for summer or been eaten by the present horses. Neither the horses nor local vegetation proved obstructive to the surface examination, as the soil was mostly visible over the parcel and the grass could be easily removed by a trowel to observe covered soil. The mound of horse manure did block a small portion of the parcel's soil from observation, however given the accessibility to most of the parcel's surface soil we felt that there was sufficient evidence for our cultural resource evaluation without looking under the horse manure pile.

FIGURE 4 – LOOKING WEST, HORSE MANURE AND SHED IN VIEW

We utilized numerous open burrows from ground squirrel habitation and scraped soil from the horses to get a clear view of the surface soil and portions of the subsurface soil.

Research done prior to the surface reconnaissance indicates that there are sites within half a mile of the parcel, along the Llagas Creek. Both surveyors were familiar with nearby resources and potential artifacts of the area before completing the cultural resource evaluation of the project area. While the parcel is much farther from Llagas Creek, half a mile, than the known sites it was still appropriate to use recorded data from nearby sites to improve our understanding of the types of cultural resources that could be encountered. Possible prehistoric artifacts including lithic scatters, domestic features, skeletal remains, and midden, as well as historic artifacts including ceramics and other agricultural debris.

RESULTS OF LITERATURE CHECK

Prior to performing the fieldwork, the author conducted a literature search to assess the archaeological sensitivity of the project area. The literature search was conducted using information on file at Archaeological Resource Service and the California Historical Resources Inventory Systems office located in Rohnert Park, CA. The record search included checking ethnographic documents, historic maps, survey reports, site records, and base maps pertaining to the San Martin area of Santa Clara County, and in particular, within a one-half mile radius of the current project area. The OHP's Historic Properties Directory, as well as the National Register of Historic Places, California Register of Historical Resources and California Historical Landmarks were also reviewed. The Directory of Properties in the Historic Property Date File for Santa Clara County lists 36 properties as being located in San Martin or vicinity, most of which are located along Murphy Lane, Fitzgerald Road, and Coolidge Avenue. None are located within or adjacent to the current project area.

The overall literature search determined that the current project area has not been the subject of a previous cultural resource study and there are no previously recorded archaeological sites located within the project area.

In our literature search we found that there were both positive and negative surveys within a half-mile radius. On Harding Avenue there were two similar studies that were both negative (Cartier 1998; Flynn 2010). Within the half-mile vicinity there were thirty previous studies and 180 resources identified in those studies.

The following is a table of the previous studies conducted within a half-mile of the subject property:

S-NUMBER YEAR TITLE AUTHOR RESOURCES

S-Number	Year	Title	Author(s)	Resources
S-004312	1975	Archaeological Impact Evaluation, Proposed Construction of Seventeen Miles of Right-of-Way along the Proposed Santa Teresa Expressway by the County of Santa Clara Transportation Agency	Flynn, Katherine	CA-SCL-161, 162
S-006461	1984	Cultural Resources Survey, Santa Teresa Boulevard Project, Located in the Vicinity of California Avenue and Day Road, Santa Clara County, California	Garaventa, Donna Anastasio, Rebecca Gowan, Amy Bard, J.C. Corbett, Michael	P-43-002826 through P-43-002851
S-006461a	1983	Historic Properties Survey of Proposed Santa Theresa Boulevard Extension	Corbett, Michael	None
S-006461b	1983	Santa Teresa Project, Turlock Avenue	Ogilvie, Arthur	None
S-006461c	1983	Cultural Resources Survey, Santa Teresa Boulevard Project,	Garaventa, Donna Anastasio, Rebecca	None

		Located in the Vicinity of California Avenue and Day Road, Santa Clara County, California	Gowan, Amy Bard, James Corbett, Michael	
S-007081	1984	Archaeological Reconnaissance on "The Ranch" Project Area, Hayes Valley, Santa Clara County, California	Clark, Matthew	43-000090, 43-000091, 43-000312, 43-000563
S-010802	1989	Archival and Field Inspection of the 12 Proposed Caltrain Extensions between San Jose and Gilroy, Santa Clara County, California	Holman, Miley	43-001217
S-010830	1989	Cultural Resource Evaluation of Parcel 7 of the Hayes Valley Ranch near the Town of San Martin, County of Santa Clara	Cartier, Robert	43-001073
S-012025	1990	Cultural Resources Evaluation for Lions Gate Project in Hayes Valley, South of Morgan Hill, Santa Clara County, California	Garaventa, Donna Fong, Michael Bard, James Banet, Angela Jarvis, Sondra Rossa, Steven	43-000090, 43-000091, 43-000312, 43-000563
S-018531	1995	Cultural Resources Evaluation for a Proposed Residential Project in Hayes Valley, South of Morgan Hill, Santa Clara County, California	Garaventa, Donna Fong, Michael Bard, James Banet, Angela Jarvis, Sondra Rossa, Steven	43-000090, 43-000091, 43-000312, 43-000563
S-021044	1998	Cultural Resource Evaluation of 13055 Harding Avenue in the County of Santa Clara, California	Cartier, Robert	None
S-022819	2000	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WS05: San Jose to San Luis Obispo	Nelson, Wendy Carpenter, Maureen Costello, Julia	27-001191, 27-001219, 27-001243, 27-001889, 27-002242, 27-002322, 35-000024, 35-000036, 35-000111, 43-000106, 43-000109,

				43-000141, 43-000455, 43-000573, 43-000575, 43-001071
S-024193	2001	Cultural Resource Evaluation of the Nextel Monopole Project in the City of San Martin	Cartier, Robert	None
S-024245	2001	Cultural Resources Evaluation of the 645 West San Martin Avenue Project in the County of Santa Clara	Cartier, Robert	None
S-029657	2002	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California	Nelson, Wendy Norton, Tammara Chiea, Larry Pribish, Reinhard	38-000015, 38-004498, 38-004756, 38-004820, 38-004962, 38-005084, 38-005456, 38-005457, 38-005458, 38-005459, 38-005460, 38-005461, 38-005462, 41-000009, 41-000105, 41-000165, 41-000169, 41-000230, 41-000231, 41-000281, 41-000310, 41-000311, 41-000312, 41-000318, 41-000410, 41-000498, 41-000534, 41-000632, 41-000640, 41-000808, 41-001135, 41-001136, 41-001137, 41-001138, 41-001406,

				41-002116, 41-002353, 41-002433, 41-002434, 41-002435, 41-002437, 41-002438, 41-002439, 41-002440, 41-002441, 41-002442, 41-002443, 41-002444, 41-002447, 41-002462, 41-002463, 41-002464, 41-002465, 43-000028, 43-000042, 43-000050, 43-000449, 43-000566, 43-000619, 43-000669, 43-000881, 43-000928, 43-001071, 43-001739, 43-002653, 43-002867, 43-002868, 43-002869, 43-002871, 43-002873, 43-002877, 43-002878, 43-003025, 43-003026, 43-003027, 43-003028, 43-003029, 43-003030, 43-003031, 43-003032, 43-003033, 43-003034, 43-003035, 43-003036,

				43-003037, 43-003038, 43-003039, 43-003040, 43-003041, 43-003042, 43-003043, 43-003044
S-029657a	2002	Finding of No Adverse Effect, Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	Herbert, Rand	None
S-029657b	2002	Historic Property Survey for the Proposed Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.	None
S-029657c	2002	FTA021021A; Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties	Mellon, Knox	None
S-029657d	2003	Final Finding of Effect Amendment, Caltrain Electrification Project, San Francisco, San Mateo, and Santa Clara Counties, California	Bunse, Meta	None
S-029657e	2001	Draft Finding of No Adverse Effect, Caltrain Electrification Program, San Francisco, San Mateo, and Santa Clara Counties, California	Herbert, Rand	None
S-029657f	2008	Cultural Resources Addendum for the Caltrain Electrification Program Alternative: San Francisco, San Mateo, and Santa Clara Counties, California	Waechter, Sharon Meyer, Jack Leach-Palm, Laura	None
S-029657g	2008	Addendum Finding of Effect, Caltrain Electrification Program, San Francisco to San Jose (MP 0.0 to 52.0); San Francisco, San Mateo, and Santa Clara Counties, California	Bunse, Meta	None

S-029657h	2002	Inventory and Evaluation of Historic Resources, Caltrain Electrification Program, San Francisco to Gilroy (MP 0.0 to 77.4) (Draft)	JRP Historical Consulting, LLC	None
S-031791	2006	Preliminary Archaeological Reconnaissance for Assessor's Parcel 779-19-002 in San Martin, Santa Clara County, California	Doane, Mary Haversat, Trudy	None
S-033061	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	Sikes, Nancy Arrington, Cindy Bass, Bryon Corey, Chris Hunt, Kevin O'Neil, Steve Pruett, Catherine Sawyer, Tony Tuma, Michael Wagner, Leslie Wesson, Alex	01-000027, 01-000040, 01-000087, 01-000088, 01-000089, 01-000090, 07-000138, 27-000802, 27-001191, 27-001207, 28-000467, 43-000106, 43-000141, 43-000449, 43-000573, 43-000575, 43-000754, 43-000928, 43-001071, 48-000208, 48-000211, 48-000214, 48-000441, 48-000549, 49-001583, 57-000194, 57-000198, 57-000297, 57-000301, 57-000307
S-033061a	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	SWCA Environmental Consultants	None
S-033061b	2007	Final Report of Monitoring and Findings for the Qwest Network Construction Project	Sikes, Nancy	None

S-034556	2007	Cultural Resource Evaluation for the Project Area at 180 Cox Avenue in the County of Santa Clara	Cartier, Robert	None
S-037443	2010	A Cultural Resources Evalution of the Diocese of San Jose Property Located at the Southwest Corner of Harding and West San Martin Avenues, San Martin, Santa Clara County (APN 779-12-001)	Flynn, Katherine	None
S-040836	2013	Cultural Resource Evaluation of the Property on Santa Teresa Boulevard at APN 779-18- 017 in the County of Santa Clara	Cartier, Robert	None

PREHISTORIC/ETHNOGRAPHIC SETTING

Prehistoric Native American habitation sites from the San Francisco Bay south to the Big Sur region and eastward toward the Central Valley are marked by the presence of midden soil (decomposed shell debris and organic material) mixed with animal bone and artifacts such as beads and pendants, ground stone, flakes and formed lithic and bone tools. The manufacturing of chipped stone tools often left behind scatters of “flakes” from the chipped lithic material. Habitation sites may also contain human remains. In the Santa Clara Valley, many habitation sites are buried under several feet of alluvium and are often not represented on the surface other than a few flakes and/or pieces of fire-cracked rock. Other types of prehistoric activity areas include bedrock milling features (mortar depressions) or boulders containing petroglyphs (rock art). Artifacts may also be found along trails, and in an isolated context.

This area of Santa Clara Valley was ethnographically inhabited by the *Unijaima* (or *Pitac*) tribelet of the Costanoans, a branch of the Penutian language stock, who are thought to have entered the region about 4000 years ago (King and Hickman, 1973b; Milliken et. al, 1993). The political organization of the *Unijaima* was the tribelet, consisting of united groups of families that held clearly defined territories. They sustained themselves by hunting large and small animals, fish and birds, and gathering a variety of plant material including acorns, berries, seeds, roots and greens.

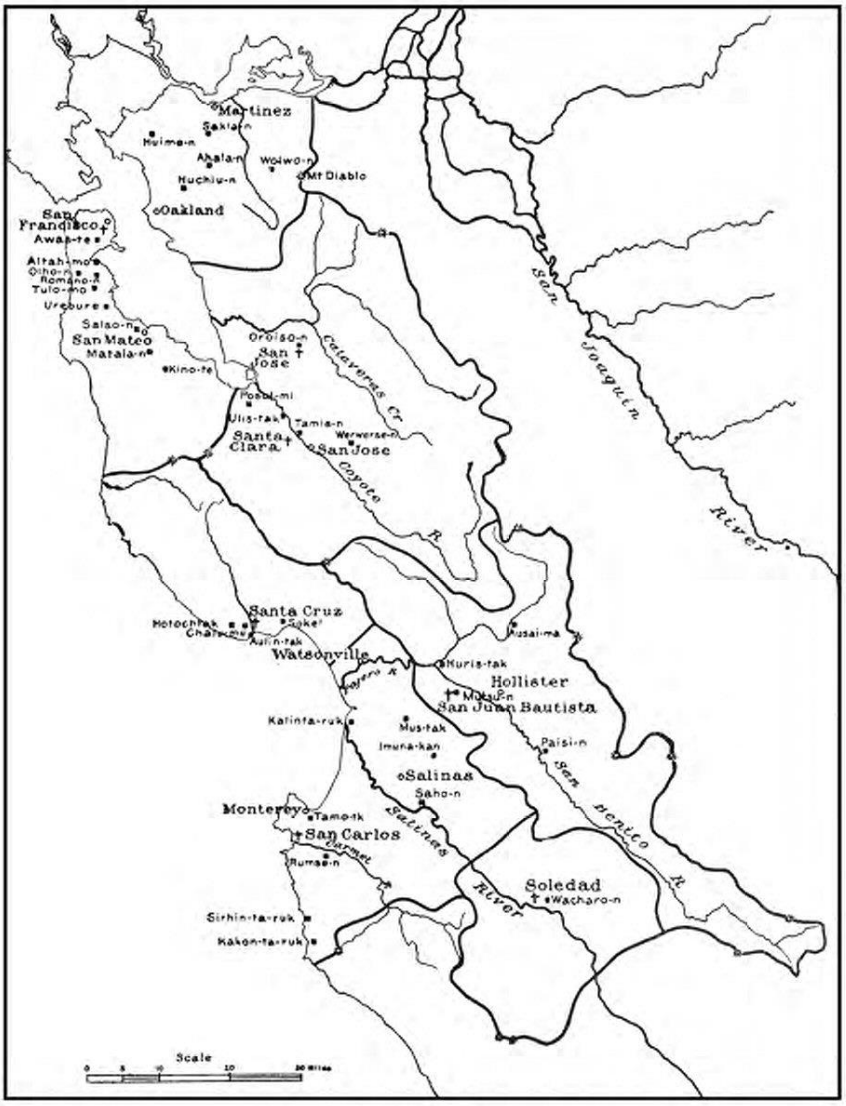

FIGURE 5 -- OHLONE TERRITORY

The several tribelets recognized as Ohlonean occupied the area between Big Sur, Mt. Diablo and San Francisco.

Between A.D. 1796 and 1804 the native population came under the influence of the Spanish missions at Santa Cruz and San Juan Bautista. In all, seven Franciscan missions were established in the territory of the Costanoans and they were rapidly assimilated into the Mission culture or eradicated by disease. The population of *Unijaima* was affected by disease prior to their missionization at San Juan Bautista. As a result, there is very little information about the *Unijaima* and other Native groups prior to missionization. What is known about the prehistoric population comes from the archaeological record, early accounts by participants of Spanish-led expeditions that passed through the Santa Clara Valley between the Santa Cruz Mountains and the Diablo Range, and interviews with Native informants that for the most part were ex-mission Indians. The ex-mission Indians retained some knowledge of language, folklore and basketry, but very little information could be offered regarding political life, burial and mourning practices or subsistence patterns.

Father Francisco Palou's account of the Rivera Expedition of 1774 recorded that there was a "large" village of not less than 300 people near the present site of Gilroy in the Llagas Creek vicinity (King and Hickman, 1973b) and a village of 30 houses near Gilroy was reported in the records of Fages & Crepe's expedition in 1772.

HISTORIC SETTING

The current project area is located within the Mexican land grant of *Rancho San Francisco de las Llagas*, which translates to "St. Francis of the Wounds" (Arbuckle 1968: 30). The rancho stretched from one-mile south of Morgan Hill to approximately one-mile north of Gilroy and consisted of 22,979.66 acres.

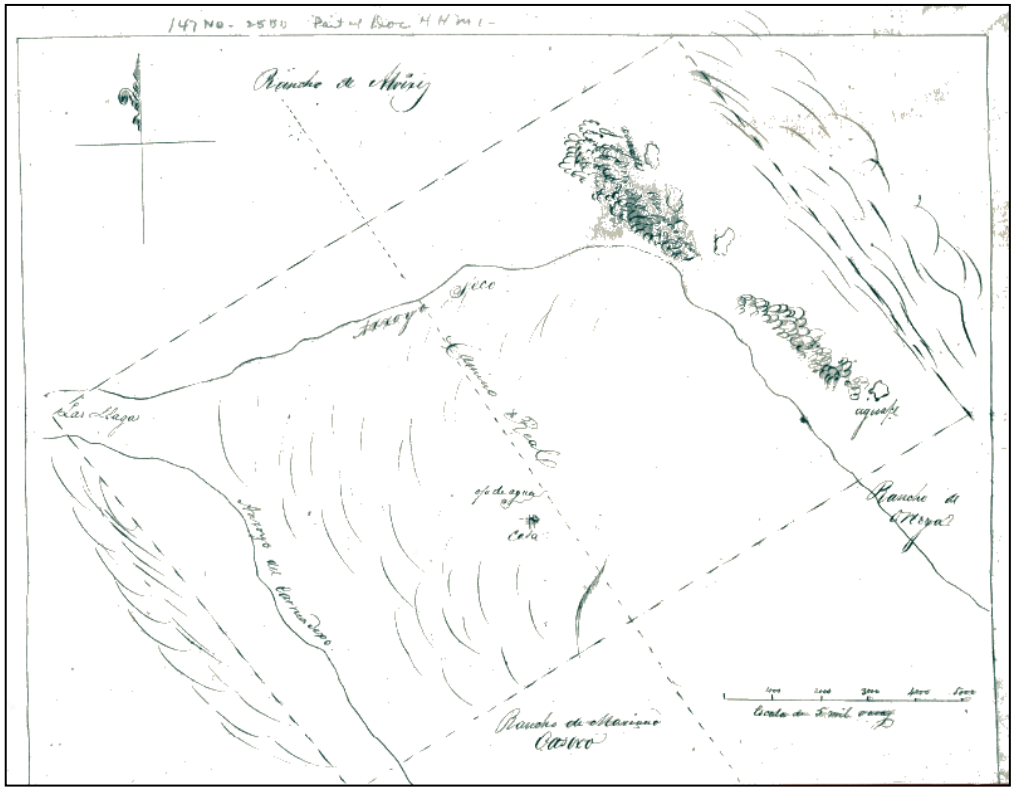

FIGURE 6 -- THE DISENO OR SKETCH MAP SUBMITTED TO CLAIM THE LAND GRANT.
With this map and a promise to build a house and farm the land, the claim was granted.

According to Wyatt and Arbuckle's Historic Names, Persons and Places in Santa Clara County, *San Francisco de las Llagas* was initially given to Carlos Castro by Governor Figueroa in 1834.

Several years later the land was patented to Martin Murphy and then his sons, Daniel, Bernard and James in 1856 (Wyatt and Arbuckle 1948). The small aristocracy of individuals who owned the majority of the land in California, included Flint, Bixby and Company, the Martin Murphy family, and Miller and Lux (King and Hickman 1973b: 55). According to the 1973 study by King and Hickman,

> *Old Gilroy was established, and the extensive Murphy family took over Ranchos Ojo de Agua de la Coche and San Francisco de las Llagas, establishing a good-sized population center in the foothills west of what is now San Martin* (King and Hickman 1973b).

Martin Murphy was a California pioneer known for organizing the first party to bring wagons through the Sierra Nevada in 1844. The path they paved through the mountains was also used for the first transcontinental railroad as well as the U.S. 80 Interstate (Arbuckle 1986). They first settled in the Sacramento Valley before coming to the Santa Clara Valley. In 1846 Murphy petitioned the Mexican government for citizenship and began to purchase land from California citizens, who were for the most part Mexican citizens. The Bear Flag Revolt of 1849, the first in a series of events that ended with California becoming part of the US, was initiated on Murphy's Ranch on the Cosumnes River (Sullivan 1974). Martin Murphy lived on the Cosumnes ranch, where he grew the first wheat ever grown in the Sacramento Valley. The Murphy family settled in the Santa Clara Valley by 1850 and aggressively bought up numerous ranchos (Sullivan 1974).

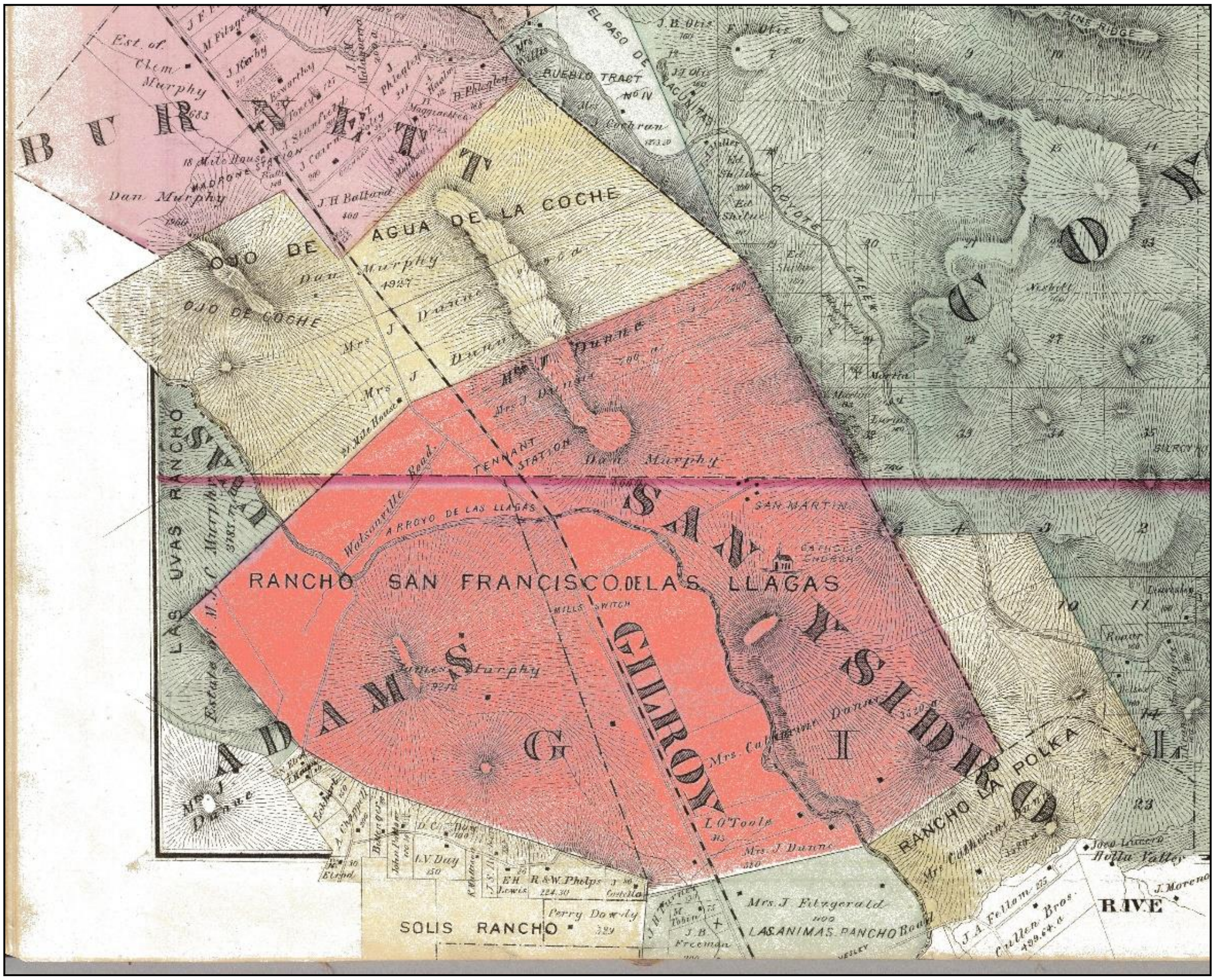

FIGURE 7 -- THE RANCHO SAN FRANCISCO DE LAS LLAGAS

The land grant is shown on an atlas map from the 1884 Official Map of Santa Clara County. The color has been enhanced for emphasis. This is the boundary as accepted by the American courts.

In the treaty of Guadalupe-Hidalgo in 1848, Mexico ceded California to the United States. Provisions were made that private ownership agreements granted by the Mexican government would be respected by the US. An official survey was conducted by the United States that designated all vacant, unappropriated and unreserved land as public lands. Lands that had been previously granted under Spanish or Mexican rule were considered private lands. In 1851 the Board of Land Commissioners was established to ascertain the rightful claimants of land grants and to determine the extent of each of the ranchos involved. Through this local land office, the numerous Murphy ranchos came under scrutiny and all were ultimately verified and listed as private lands with clearance of title. Dan Murphy, son of Martin Murphy owned the current project area by 1886, according to the Thompson and West 1886 county map.

The late American Period (1870-1940) brought many changes to the Santa Clara Valley, including the establishment of the railroad and the growth of agriculture. The railroad transformed small villages, such as Gilroy and Morgan Hill into large population centers. Morgan Hill and San Martin were carved out of Murphy family lands in the early 1890's and San Martin was established as a small railroad community in 1875. King and Hickman stated that,

> *During the period 1870-1880, a major shift in land use occurred which created a new social and economic system, which has dominated the history of the southern Santa Clara Valley to the present time. This was the shift from wheat and cattle to horticulture, which gradually transformed the floor of the valley into a land of orchards and row crops* (King and Hickman 1973b).

The USGS 7.5' Gilroy Quadrangle map (photorevised 1968 and 1980) fails to show any buildings or structures within the parcel between 1955 and 1980. Rather, the project site has always been characterized by agricultural fields.

18th CENTURY EXPLORATION VIA THE SPANISH EXPEDITIONS

In our preliminary research, we found that the 2 Spanish expeditions crossed through or near the project area. Those being the Azna & Font expedition (1776) and Fages & Crespi expedition (1772) (King and Hickman 1973a). The diaries written by the forementioned individuals provide environmental conditions during various seasons before significant white intrusion, as well as mentioning observed Native American villages and occupational sites they encountered.

Within our project area no such villages or occupations are mentioned, however as described by the expeditions, 3 miles south-east of our parcel along the Llagas Creek there is the *Unijaima* tribelet of roughly 300 individuals. Then also a small community of 50 or less Native Americans east of our parcel according to interpretations of the number and date of baptism.

PREVIOUS STUDIES

The literature check revealed that the current project has not been the subject of a cultural resource evaluation but was included in larger studies of the San Felipe water distribution project and the Llagas Creek Watershed project (Cartier et. al 1981; Conger and King 1967; King 1973; King and Hickman 1973). The literature search also revealed that several areas of land near to the project area have also been evaluated and although the majority of these studies were "negative" (Archaeological Resource Management 1992, 2000, 2001; Bedolla 1999; Billat 2004; Cartier 1981, 1999; Evans and Cercone 2006; Garaventa et. al 1983; Hatoff and Barati 2002; Hoover 2002; Morley 2001; Price 1998; Roop 1997, 1979), meaning that no cultural resources were identified, some resulted in the identification of cultural resources. These "positive" studies are discussed below to provide an indication as to the types of cultural resources that are found in the area, as well as the settings in which they are found.

One of the earliest cultural resource studies in the area was conducted for the Llagas Creek watershed project in 1967 (Conger and King 1967). The only cultural resource that appeared to be affected by that project was located on the west side of Chesbro Reservoir, several miles to the west of the current project area. However, they did report that on the flatlands around Morgan Hill, San Martin and Gilroy periodic occurrences of isolated fire-cracked rock were observed, but seemed to be concentrated where stream cobbles were naturally deposited (Conger and King 1967).

During several large-scale cultural resource surveys conducted as a part of the San Felipe Water Distribution System project beginning in 1973 and continuing over the next ten or fifteen years, thousands of acres of the southern Santa Clara Valley (as well as San Benito and Monterey Counties) and hundreds of miles of designated pipeline alignments were examined by various archaeologists. The project area included the lowland drainages of the Pajaro River, including the lower portions of Uvas and Llagas Creeks, the San Benito River and its tributaries to the south and the Pajaro River itself. The first and largest study having to do with the San Felipe project was done in 1973 by Thomas F. King, Patricia Parker Hickman and others as part of what was known as the Southern San Felipe project (King and Hickman 1973a). At that time a total of 52 prehistoric sites were recorded in the South Santa Clara and Hollister sub areas, 17 of which were

classified as large occupations sites (King 1973). Native American activity areas, and isolated artifacts as well as historic-period structures, buildings and facilities were also identified. No cultural resources were observed or recorded within a mile and a half radius of the current project area, but three sites were recorded on the eastern side of the valley, located over two miles to the east and southeast of the current project area. These three sites include Gil-4, Gil-5 and Gil-6 that were formally assigned the Santa Clara trinomial designations of CA-SCl-101, -102, and -103. King determined during his study that the San Felipe project would directly impact at least 21 archaeological sites. As a result, a revised pipeline route, reservoir areas, dam areas and tunnel portals were examined (Breschini & Haversat 1978).

Forty-seven miles of pipeline between Morgan Hill and Gilroy were examined to determine if archaeological resources were present in the path of the revised pipeline route. Eleven cultural resources were recorded during the project, including 6 prehistoric sites (one previously recorded as CA-SCl-159) and 5 historic sites. A part of this pipeline came within one mile to the northeast of the current project area. The closest recorded prehistoric site, located two miles the east-southeast, was AC-1 and was a small occupation site probably related to Gil-6 because of its close proximity. AC-1, later designated the state trinomial CA-SCl-320, is characterized by an area of dark, greasy soil (midden), several fragments of ground stone and chert flakes situated on a low mound in the middle of a large field (Breschini & Haversat 1978; Van Horn 1980). In 1980 a Phase II study was conducted by David Van Horn and four of eleven identified sites identified by Breschini & Haversat in 1978 were investigated further to determine their significance (Van Horn 1980). In addition, two miles of the proposed pipeline were again rerouted and subsequently surveyed as part of the Phase II study. At CA-SCl-320 additional chert flakes, mortars, pestles, one chert biface fragment, red ochre and charcoal were observed during the excavation of four test units. The artifacts present indicated that the site dates after 3000 B.C. and was possibly a seasonal acorn processing station (Van Horn 1980). Van Horn determined that the site offered limited research potential that was not sufficient for nomination to the National Register. However, Van Horn mentioned the possibility of burials that if encountered during construction would impact Native American religious values; therefore, he recommended that the pipeline again be rerouted to avoid the site.

In 1973 King and Hickman undertook an archaeological survey of 17 miles of the Llagas Creek drainage as part of a proposed flood control program (King and Hickman 1973b). Their survey included the banks of Llagas and Little Llagas Creeks in the vicinity of the subject project area. Little Llagas Creek flows through the current project area. Three prehistoric sites were identified between Masten and Buena Vista Avenues, located to the south of the current project area. These include CA-SCl-400, -401, and –402 formally recorded by Robert Cartier in 1980. At CA-SCl-402 fire-cracked rock, groundstone and flakes were observed and the site was found eligible for the National Register based on its research potential. Cartier resurveyed the project area in 1981 (Cartier et. al 1981). Besides the three prehistoric sites identified by King and Hickman in 1973, one additional site, CA-SCl-452 was identified. The site is a much larger site than the other three and is characterized by the presence of midden soil, FCR, groundstone, flakes and lithic tools such as scrappers. It is located one and a quarter mile southeast and is the closest prehistoric site to the project area.

Then in 1999 a literature search was conducted for a portion of the Llagas Creek Watershed project, extending from Dunne to Buena Vista Avenues in Morgan Hill and San Martin. The record search identified the four sites listed above as well as CA-SCl-468H, located over 2 miles to the northwest of the current project area. The site was the location of the former 21-Mile House (1852-1917), a famous historic tavern and stage stop, as well as the Vasquez Tree, a large oak under which the 21-Mile House has been built (Newland 1999).

In 1991 a cultural resource evaluation was conducted for the Sutter Boulevard Extension Project in Morgan Hill (Banet with Rossa 1991). This project extended about four miles between Cochran Road to the north and East Middle Avenue to the south. No archaeological sites were located within the project area. As part of the project, 29 structures were also evaluated. Of these, 26 of them did not appear to be architecturally or historically significant; however, three did appear significant and further documentation of these structures was recommended prior to demolition or removal (Banet and Rossa 1991). All three structures are located on Barrett Avenue, over a mile and a half north of the current project area.

In 1994 Archaeological Resource Management (ARM) conducted a study for the Summer Dams Project, a project that included forty-three locations along ten creeks within the Santa Clara Valley. About ten locations along the Madrone Channel were inspected, one of which is located 1000 feet to the north of the current project area. Although several cultural resources were identified as part of that project, none were found along Madrone Channel or in the vicinity of the current project area (ARM 1994).

Another large-scale cultural resource study was conducted for the installation of fiber optic cable from San Jose to San Luis Obispo (Nelson 2000). The cable was buried within existing utility easements including the Union Pacific railroad right-of-way. The railroad is about a mile to the west of the current project area. Several archaeological sites were identified during the study, two of which were located in San Martin including a historic brick wall located a mile to the south and the historic Arroyo Seco Winery located a mile and a half to the south (Nelson 2000).

In 2002 an archaeological inventory was conducted for the Caltrain Electrification program covering 80 linear miles along the existing Caltrain Railroad corridor from 4th and Townsend in San Francisco south to the Gilroy Station in Gilroy and passing within a half mile to the west of the current project area. The inventory resulted in the identification of ten archaeological sites within the area of potential effect (APE) and an additional nine sites within the potential APE (Nelson 2002). However, none of the sites are located within one and a half miles of the current project area.

Besides CA-SCl-452, the next closest prehistoric site is CA-SCl-297, located just over a mile and a half to the southwest of the current project area. The site is the location of an isolated Native American burial found during minor excavation for a fence. The individual was buried upright in a sitting position. No artifacts were associated with the remains or observed anywhere nearby (Wardell 1984). No further studies have been conducted at the site.

RESULTS OF SURFACE EXAMINATION

The cultural resource evaluation has resulted in a negative finding. A positive result indicates that at least one potentially significant artifact or archaeological feature has been observed.

Examining of the existing horse pasture, resulted in a negative finding.

There were numerous areas of soil that appeared to be ashy in color, however this appears to be naturally occurring rather than an indication of human occupation. The majority of soil appeared to be a brown or grey-brown color with a sandy loam consistency.

FIGURE 8 – LOOKING SOUTH ACROSS CURRENT HORSE PASTURE (PHOTOGRAPHER NEAR NORTH BOUNDARY OF PARCEL)

During the examination, we encountered a large colony of ground squirrels (20 or more individuals). The burrows created an excellent source of open soil to examine, especially across the West side of the parcel. With this increased visibility of the surface soil and areas of subsurface soil we still did not observe any cultural resources or evidence of cultural resources.

FIGURE 9 – GROUND SQUIRREL BURROWS AND EXPOSED SOIL (THERE ARE NUMEROUS LOCATIONS LIKE THIS ACROSS THE PARCEL, PARTICULARLY ON THE WEST SIDE)

No artifacts, discolored soils, oxidized rock, or other signs of Native American settlement or use were observed at any location in the examined area.

INTERPRETATION OF RESULTS

No significant or potentially significant artifacts, archaeological deposits, or features have been identified within the project area. Based on a review of available literature on the prehistoric and historic resources of the area, notably Llagas creek, as well as a field survey it appears that the proposed project will not impact known cultural resources. No examined areas of the parcel indicated the presence of potentially significant cultural resources.

In nearby known sites, such as SCl-400, -401, and -402, as described by Robert Cartier are found along the banks of Llagas Creek even extending into it (Cartier et. Al 1981). While the parcel in question is approximately half a mile away from Llagas Creek.

We know that there were prehistoric populations within the local vicinity, however there is no sign that they were actively occupying the land within the project area. Artifacts that are typically associated with prehistoric sites include human-modified stone, shell, bone or other cultural materials such as charcoal, ash, and burnt rocks that indicate food procurement or processing activities. Prehistoric domestic features include firepits, hearths, or house/floor depressions whereas human skeletal remains in a prepared pit or depression in a culturally modified soil deposit typically represent mortuary features. Historic artifacts can encompass a wide range of

physical deposits, such as glass, charcoal, nails, ceramics, gun-shells, as they can potentially include all byproducts of human land use greater than 50 years of age. None of these potential physical indications of a site were observed.

The general area was likely used as a hunting territory and may have contained usable plant materials before the area was developed for agriculture in the 19th Century. There is a minute potential for the discovery of isolated tools or artifacts that were lost by previous inhabitants of the region, however isolated artifacts are not considered culturally significant finds. The potential for discovery of artifact concentrations is very low and unlikely to occur.

RECOMMENDATIONS

The potential for the discovery of any of the cultural resources mentioned above is minute. The following recommendations are offered in the extremely unlikely event that a potentially significant discovery is made.

Considering the results, ARS does not recommend further archaeological investigation at this time. If prehistoric or historic archaeological features, such as a concentration of flaked stone artifacts, culturally modified soil, dietary shell, or the remnants of a historic trash deposit over 50 years old, are encountered at any time during project construction, all work should be halted in the vicinity of the discovery. A qualified archaeologist should be contacted immediately to make an evaluation and determine if the discovered material represents a definite cultural resource. Once it has been determined that a potentially significant feature have been revealed, a temporary suspension of earth disturbing activities should be enforced until an appropriate mitigation program can be developed and implemented to satisfy Santa Clara planning.

It is recommended that an archaeological monitor should observe all further work located within or near an archaeological site area. The presence of an archaeological monitor is to ensure that proper recordation and evaluation of the discovered resource can occur without causing any further damage to the site.

The archaeological monitor, if necessary, will properly record any potentially significant cultural material that has been observed using the appropriate DPR 523 form and where necessary commence recovery of the material before resumption of construction activities (that is, excluding the discovery of human skeletal remains that require other special treatment). The recording form prepared on the cultural resource should be submitted to the NWIC so that an official numerical designation can be assigned; a copy of this record should also be sent to the permitting agency for their files.

While unlikely, there is a potential that human skeletal remains might be discovered during underground excavation within the property. In the event that human remains are discovered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner as well as a qualified archaeologist must be notified immediately. California State law prescribes procedures that deal with the discovery of human skeletal remains. If the remains are examined and determined to be Native American and prehistoric, the Native American Heritage Commission should be contacted by the coroner so that a “Most Likely Descendant” (MLD) can be designated. Once a MLD is designated, the MLD will be afforded an opportunity to make an evaluation as appropriate and make decisions regarding the proper treatment option that is available, once construction activities resume on the discovery site.

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APPENDIX 1— SIGNIFICANCE AND CULTURAL RESOURCES

To be significant an archaeological site must qualify for registration as an "historic resource" the following criteria must be met for this listing:

> *An archeological site may be considered an historical resource if it is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California (PRC § 5020.1(j)) or if it meets the criteria for listing on the California Register (14 CCR § 4850). CEQA provides somewhat conflicting direction regarding the evaluation and treatment of archeological sites. The most recent amendments to the CEQA Guidelines try to resolve this ambiguity by directing that lead agencies should first evaluate an archeological site to determine if it meets the criteria for listing in the California Register. If an archeological site is an historical resource (i.e., listed or eligible for listing in the California Register) potential adverse impacts to it must be considered, just as for any other historical resource (PRC § 21084.1 and 21083.2(l)). If an archeological site is not an historical resource, but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section.*

If an archaeological site does not qualify for listing, the directive is clear. The Public Resources Code states:

> *(4) If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.*

APPENDIX 2 – PROFESSIONAL STANDARDS FOR CONSULTANTS

Secretary of the Interior's Standards

The minimum professional qualifications in archeology are a graduate degree in archeology, anthropology, or closely related field plus:

1. At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;

2. At least four months of supervised field and analytic experience in general North American archeology; and

3. Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the prehistoric period. A professional in historic archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the historic period.

APPENDIX 3 – CONFIDENTIAL APPENDICES

This section consists of archaeological site record forms that cannot be distributed to the public.

Attachment E

Geotechnical Engineering Investigation
prepared by consultant Salem Engineering Group, Inc.
(dated January 12, 2022)

GEOTECHNICAL • ENVIRONMENTAL • GEOLOGY • MATERIALS TESTING & INSPECTION • FORENSIC • LABORATORY

SALEM
engineering group, inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED TWO (2) SINGLE FAMILY RESIDENCES
12645 HARDING AVENUE (APN: 779-12-006)
SAN MARTIN, CALIFORNIA

SALEM PROJECT NO. 5-221-1209
JANUARY 17, 2022

PREPARED FOR:

MS. GLORIA BALLARD
MH ENGINEERING CO.
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January 17, 2022 Project No. 5-221-1209

Ms. Gloria Ballard
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SUBJECT: GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED TWO SINGLE FAMILY RESIDENCES
12645 HARDING AVENUE (APN: 779-12-006)
SAN MARTIN, CALIFORNIA 95046

Dear Ms. Ballard:

At your request and authorization, SALEM Engineering Group, Inc. (SALEM) has prepared this geotechnical engineering investigation report for the proposed two (2) single family residences at 12645 Harding Avenue in San Martin, California.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of designing and constructing the project as presently proposed. In our opinion, the proposed project is feasible from a geotechnical viewpoint provided our recommendations are incorporated into the design and construction of the project.

We appreciate the opportunity to assist you with this project. Should you have questions regarding this report or need additional information, please contact the undersigned at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Ahmad Dalqamouni
Geotechnical Project Engineer
Central / Northern California

Dean B. Ledgerwood II, EIT, PG, CEG
Geotechnical Manager
PG 8725 / CEG 2613

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED TWO (2) SINGLE FAMILY RESIDENCES
12645 HARDING AVENUE (APN: 779-12-006)
SAN MARTIN, CALIFORNIA

1. PURPOSE AND SCOPE

This report presents the results of our geotechnical engineering investigation for the proposed two (2) single family residences planned at un-development parcel with APN: 779-12-006, located at 12645 Harding Avenue in San Martin, California, as depicted on Figure 1, Vicinity Map.

SALEM Engineering Group, Inc. (SALEM) has completed this geotechnical engineering investigation with the purpose to observe and sample the subsurface conditions encountered at the site, and provide conclusions and recommendations relative to the geotechnical aspects of constructing the project as presently proposed. The recommendations presented herein are based on analysis of the data obtained during the investigation and our local experience with similar soil and geologic conditions.

If project details vary significantly from those described herein, SALEM should be contacted to determine the necessity for review and possible revision of this report.

2. PROJECT DESCRIPTION

Based on correspondence with the client and tentative plans provided, prepared by MH Engineering Company (dated August 17, 2021), we understand the proposed construction will include two (2) single family residences to be located at 12645 Harding Ave., in San Martin, California 95046, within the Parcel number (APN: 779-12-006). Also, we understand that project will include construction of two residence buildings, one resident is planned on the north eastern portion of the parcel, and the other residence on the northwest portion of the same parcel.

Per Information provided, the residential buildings are anticipated to comprise 3,000 square feet each. It is anticipated the residences will be wood framed, supported on shallow spread foundations, with concrete slabs on grade, and structural wood floors. Structural loads were not provided to us; however, based upon our past experience, we have assumed column and continuous wall footings loads of up to approximately 10 to 20 kips and about 1 to 3 kips per linear foot, respectively. A driveway/road is proposed to connect the new residences area to Harding Avenue areas in the northern portion of the parcel.

The ground surface at the site is covered with native grasses and has a relatively flat. A site grading plan was not provided at the time of preparation of this report. However, considering the site topography and finished floor elevations shown on the referenced Site Plan, we anticipate that grading will include cuts and fills on the order of about 1 to 3 feet to achieve level building pads and positive site drainage. In the event that changes occur in the nature or design of the project, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions

of our report are modified. The site location and approximate locations of proposed improvements are shown on the Site Plan, Figure 2.

It should be noted that from provided vesting tentative map for the subject parcel, that the proposed buildings will include conventional on-site septic disposal systems. This report does not include any investigation or testing for the on-site septic feasibility evaluation.

3. SITE LOCATION AND DESCRIPTION

The two (2) single family residences is planned within an undeveloped parcel located at 12645 Harding Avenue in San Martin, California. Based on tentative site plans provided from MH engineering Co, one resident is planned on the north eastern portion of the parcel, and the other residence on the northwest portion of the same parcel. The site was observed to be bounded by an existing residential developed and vacant parcel properties to the south, west, and north, and Harding Avenue to the east and northeast. The vicinity surrounding the subject site includes rural residential properties and nearby single family residences.

At the time of our exploration, the site was fenced and used as horses grassing and field area, with small shed noticed on the far west portion of the parcel. Overhead power lines were noted along the eastern site boundary.

The project site area is relatively flat. Based on review of Google Earth aerial imagery, site elevation is approximately 269 feet above mean sea level (AMSL).

4. FIELD EXPLORATION

Our field exploration consisted of site surface reconnaissance and subsurface exploration. On December 6, 2021, four (4) test borings were drilled to depths ranging from 26.5 to 50 feet below site grade. The test borings were drilled near the proposed solar array area at the approximate locations shown on Figure No. 2, Site Plan. The test borings were advanced with 6-5/8 inch O.D. (3.25 inch I.D.) hollow stem auger rotated by a truck-mounted CME-55 drill rig. The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer at that time. Visual classification of the materials encountered in the test borings was generally made in accordance with the Unified Soil Classification System (ASTM D2487). The boring location can be found on the Site Plan, attached at the end of this report.

The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer and stratification lines were approximated on the basis of observations made at the time of drilling. Visual classification of the materials encountered in the test borings were generally made in accordance with the Unified Soil Classification System (ASTM D2488).

A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix "A." The logs of the test borings are presented in Appendix "A." The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol. The location of the test borings were determined by measuring from features shown on the Site Plans, provided to us. Hence, accuracy can be implied only to the degree that this method warrants.

Penetration resistance blow counts were obtained in the hollow stem auger borings by dropping a 140-pound automated trip hammer through a 30-inch free fall to drive the sampler to a maximum penetration of 18 inches. The number of blows required to drive the last 12 inches, or less if very dense or hard, is recorded as Penetration Resistance (blows/foot) on the logs of borings.

Soil samples were obtained from the test borings at the depths shown on the boring logs. The MCS samples were recovered and capped at both ends to preserve the samples at their natural moisture content; SPT samples were recovered and placed in a sealed bag to preserve their natural moisture content. At the completion of drilling and sampling, the test borings were backfilled with neat cement grout in accordance with Santa Clara County requirements.

5. LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, density, consolidation potential, expansion index, Atterberg limits, and gradation of the materials encountered.

In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete. Details of the laboratory test program and the results of laboratory test are summarized in Appendix "B." This information, along with the field observations, was used to prepare the final boring logs in Appendix "A."

6. SOIL AND GROUNDWATER CONDITIONS

6.1 Subsurface Conditions

The test borings encountered subsurface conditions typical of those found in the geologic region of the site. In general, the soils encountered consisted of near surface lean clay soils underlain by interbedded layers of lean clay with sand, clayey sand with gravel, poorly graded sand or gravel with clay, and silty sand, to the maximum depth explored of 50 feet below site grade.

Two (2) consolidation tests performed on near surface samples, resulted in about 2.5 and 2.9 percent consolidation under a load of 8 kips per square foot. When wetted under a load of 2.0 kips per square foot, the sample exhibited about ½ percent swell. Two (2) direct shear test resulted in internal angles of friction of 32 and 37 degrees with cohesion values of 311 and 169 pound per square-feet, respectively. Seven (7) Atterberg limit tests performed on a selected soil sample resulted in an average plasticity index of 14 with an average liquid limit value of 38. Two expansion index tests performed on a near surface samples resulted in expansion index values of 73 and 97.

Soil conditions described in the previous paragraphs are generalized. Therefore, the reader should consult exploratory boring logs included in Appendix A for soil type, color, moisture, consistency, and USCS classification of the materials encountered at specific locations and elevations.

6.2 Groundwater

The boring locations were checked for the presence of groundwater during and after the drilling operations. Free groundwater was not encountered in the boring drilled as part of this investigation to the maximum depth explored of 50 feet below site grade.

Based on review of available records from the Department of Water Resources Water Well Data Library website (http://www.water.ca.gov/) State Well Number 370675N1215949W001, located approximately 0.8 feet southeast of the project site, reported a historical high groundwater depth of approximately 13.6 feet below site grade in May 15, 2000.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, localized pumping, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

6.3 Soil Corrosion Screening

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. The 2019 Edition of ACI 318 (ACI 318) has established criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water. Tow (2) soil samples were obtained from the project site and tested for the evaluation of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts and soluble chloride. The water-soluble sulfate concentration in the saturation extract from the two (2) soil samples was detected to be less than 50 mg/kg and 1,087 mg/kg.

ACI 318 Tables 19.3.1.1 and 19.3.2.1 outline exposure categories, classes, and concrete requirements by exposure class. ACI 318 requirements for site concrete based upon soluble sulfate are summarized in Table 6.3 below.

TABLE 6.3
WATER SOLUBLE SULFATE EXPOSURE REQUIREMENTS

Boring/Depth	Water-Soluble Sulfate (SO_4) in Soil, % by Weight	Exposure Severity	Exposure Class
B-1, 0-3	0.050	Negligible	S0
B-3, 0-3	0.1087	Moderate	S1

Based pm the results of the sulfate testing performed, a minimum concrete compressive strength of 4,000 psi, minimum water to cement ratio of 0.5, and Type I or Type II cement should be used for concrete mix design.

The water-soluble chloride concentration detected in saturation extract from the soil samples was 36 mg/kg and 127 mg/kg. In addition, testing performed on a near surface soil resulted in a minimum resistivity value of 1,010 and 1,511 ohm-centimeters. Based on the results, these soils would be considered to have a “Highly Corrosive” potential to buried metal objects (per National Association of Corrosion Engineers, Corrosion Severity Ratings). It is recommended that, at a minimum, applicable manufacturer’s recommendations for corrosion protection of buried metal pipe be closely followed.

7. GEOLOGIC SETTING

The subject site is located in the Coast Ranges Geomorphic Province of California. The Coast Ranges province comprises a series of northwest-trending, low (2,000 to 4,000 feet above sea level) mountains and valleys that trend sub-parallel to the San Andreas Fault. The San Andreas Fault, the most prominent geologic feature of the province, separates two distinct bedrock regions. To the west is the Salinian Block, composed of a granitic core overlain by Mesozoic and Cenozoic sedimentary strata. To the east of the fault (including the subject site) lies the Franciscan Complex, which is a complexly folded mélange of Mesozoic marine sedimentary deposits. In several areas, the Franciscan rocks are overlain by Cenozoic volcanic cones and flows.

Based on review of Geologic Map of the Gilroy Quadrangle, Santa Clara County, California[1] the site is mapped in an area mapped as (Qa) alluvial deposits described as "alluvial gravel, sand, and clay of valley areas."

Based on review of the Santa Clara County Geologic Hazard Zones Map, the subject site is located in an area of known liquefaction potential. A discussion of the potential for liquefaction/seismic settlement to impact the site development is included in section 8.4 of this report.

8. GEOLOGIC HAZARDS

8.1 Faulting and Seismicity

Based on the proximity of several dominant active faults and seismogenic structures, as well as the historic seismic record, the area of the subject site is considered subject to relatively moderate seismicity.

The project area is not within an Alquist-Priolo Special Studies Zone and will not require a special site investigation by an Engineering Geologist. Soils on site are classified as Site Class D in accordance with Chapter 16 of the California Building Code. The proposed structures are determined to be in Seismic Design Category D.

To determine the distance of known active faults within 100 miles of the site, we used the United States Geological Survey (USGS) web-based application *2008 National Seismic Hazard Maps - Fault Parameters*. Site latitude is 37.0739° North; site longitude is -121.6146° West. The ten closest active faults are summarized below in Table 8.1.

TABLE 8.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Maximum Earthquake Magnitude, M_w
Calaveras;CC+CS	4.18	6.5
N. San Andreas;SAP+SAS	8.80	7.5
Calaveras;CS	9.93	5.8
Zayante-Vergeles	11.77	7.0
Monte Vista-Shannon	15.52	6.5

[1] Dibblee, T.W., and Minch, J.A., 2005, Geologic map of the Gilroy quadrangle, Santa Clara County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-169, scale 1:24,000

Fault Name	Distance to Site (miles)	Maximum Earthquake Magnitude, M_w
Quien Sabe	17.16	6.6
San Andreas fault - creeping segment	18.25	N/A
N. San Andreas;SAO+SAN+SAP	22.66	7.9
Ortigalita	22.68	7.1
Calaveras;CN	27.73	6.9

The faults tabulated above and numerous other faults in the region are sources of potential ground motion. However, earthquakes that might occur on other faults throughout California are also potential generators of significant ground motion and could subject the site to intense ground shaking.

8.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

8.3 Ground Shaking

Seismic coefficients and spectral response acceleration values were developed based on the 2019 California Building Code (CBC). The CBC methodology for determining design ground motion values is based on the Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps, which incorporate both probabilistic and deterministic seismic ground motion. Table 9.6.1 include design seismic coefficients and spectral response parameters, based on the 2019 California Building Code (CBC) for the project foundation design.

Based on the 2019 CBC, a Site Class D represents the on-site soil conditions with standard penetration resistance, N-values, between 15 to 50 blows per foot. A table providing the recommended design acceleration parameters for the project site, based on a Site Class D designation, is included in section 9.6.1 of this report.

Based on Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps, the estimated design peak ground acceleration adjusted for site class effects (PGA_M) was determined to be 0.648 g (based on both probabilistic and deterministic seismic ground motion).

8.4 Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile.

In general, soils encountered consisted mainly of interbedded layers of lean clay with sand, clayey sand with gravel, poorly graded sand or gravel with clay, and silty sand, to the maximum depth explored of 50

feet below site grade. Free groundwater was not encountered at the depth of exploration of 50 feet below site grade during this investigation. A historic groundwater depth of 13.6 feet below site grade in May 15, 2000.

Based on review of the CGS Earthquake Zones of Required Investigation for Gilroy quadrangle and Santa Clara County Geologic Hazard Maps, the site is located in an area of mapped liquefaction potential.

A liquefaction/seismic settlement analysis was performed considering the findings of test boring B-1 and B-3, a peak ground acceleration of 0.648g, a maximum earthquake magnitude of 7.1, and historic groundwater depth of 13.0 feet BSG. Clayey sand, poorly graded sand with clay, and silty sand soils layers encountered at various depths, to the maximum depth of 50 feet BSG, were screened for liquefaction potential using criteria developed by Bray and Sancio[2],, "Assessment of the Liquefaction Susceptibility of Fine-Grained Soils". Bray and Sancio recommendations for screening liquefaction susceptibility summarized for soils with plasticity index less than 12, soils with natural water content (Wc) to liquid limits (LL) ratios (Wc/LL) greater than 0.85 should be considered susceptible to liquefaction. Soils with Plasticity indexes between 12 and 18 with Wc/LL ratios greater than 0.8 should more resistant to liquefy, but still considered to be susceptible to liquefaction, and soils with plasticity indexes greater than 18 are not susceptibility to liquefaction.

In test boring B-1, based on the clayey soils encountered greater than 20 feet BSG, clay soils greater than 20 feet were considered non-liquefiable. Granular soils encountered between about 15 and 20 feet BSG were considered potentially liquefiable. Test boring B-3 encountered granular soils between 15 and 20 feet and about 28.5 to the maximum depth explored of 50 feet BSG. Based on plasticity index testing performed, the materials encountered between 15 and 20 feet BSG and 43.5 to 50 feet BSG were considered to be potentially liquefiable. Clayey sand soils between 28.5 and 43.5, water content to liquid limits (Wc/LL) ratios of 0.35 and 0.57. Based on Bray and Sancio, these materials are not considered susceptible to liquefaction.

Liquefaction/seismic settlement analysis was performed using Liquefy Pro software, the findings of test boring B-1 and B-3, a peak horizontal ground acceleration of 0.648g, a maximum earthquake magnitude of 7.1 (based on USGS Unified Hazard Tool Dynamic: Conterminous U.S. 2014 v4.2.0), and a historic groundwater depth of 13 feet BSG. Based on the results of this analysis, potentially liquefiable soils were noted in boring B-1 between depths of 15 and 20 feet BSG and in boring B-3 between depths of 15 and 20 feet and 4.5 and 50 feet BSG. Total seismic settlements of about 0.5 and 3.25 inches were estimated from the findings of test boring B-1 and B-3, .respectively.

Based on the interbedded granular soils encountered throughout the subject site, total and differential seismic settlements of about 3.25 inches and 1.75 inches in 40 feet, respectively, should be anticipated due to a design level seismic event. Therefore, to prevent damage to the structure due to loss of bearing during a seismic event, this report includes recommendations to support both of the proposed structures on a Structural Mat Foundation.

Based on the historic depth to groundwater, clayey nature of the near surface soils, and depth/thickness of liquefiable soils encountered the potential for surface manifestations (i.e. sand boils, loss of bearing, etc.) due to liquefaction is considered low.

[2] Bray J. D, and Sancio R. B., 2006, Assessment of the Liquefaction Susceptibility of Fine-Grained Soils, Journal of Geotechnical and Geoenvironmental Engineering, Volume 132 Issue 9 - September 2006

8.5 Lateral Spreading

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the relatively flat site topography and clayey nature of the near surface soils encountered, we judge the likelihood of lateral spreading to be low.

8.6 Landslides

There are no known landslides at the site, nor is the site in the path of any known or potential landslides. According to Santa Clara County Geologic Hazard Maps, the project site area is located about 2,150 feet west of a mapped landslide hazard area. Based on the distance to the mapped landslide area and relatively flat nature of the site, we do not consider the potential for a landslide to be a hazard to this project.

8.7 Tsunamis and Seiches

The site is not located within a coastal area. Therefore, tsunamis (seismic sea waves) are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 General

9.1.1 Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the site is suitable for the proposed construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the project design and construction. Conclusions and recommendations provided in this report are based on our review of available literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time.

9.1.2 The primary critical geotechnical concerns identified in this report are the potential for soil expansiveness and potential for total and differential seismic settlement due to a design level seismic event. Provided the structures are supported on a structural mat foundation per the recommendations in this report, the site is considered suitable for the planned construction.

9.1.3 In general, the near surface soils encountered included lean clay soils underlain by interbedded layers of lean clay with sand, clayey sand with gravel, lean clay, poorly graded sand or gravel with clay, and silty sand to the maximum depth explored of 50 feet below site grade.

9.1.4 Based on the results of the laboratory testing performed, the soils tested exhibited moderate compressibility testing, moderate swell potential, and medium to high expansion potential.

9.1.5 The soils encountered have poor pavement support characteristics. Provided pavement areas are prepared in accordance with section 9.3.9 of this report, the pavements would be considered suitable for support of temporary fire truck loading (85,000 lb truck).

9.1.6 Total and differential seismic settlements of 3.25 inches and 1.75 inches in 40 feet were estimated due to a design level seismic event. To resist damage from differential seismic settlement, this report recommends the proposed structure be supported on a structural mat foundation.

9.1.7 Provided the site is graded in accordance with the recommendations of this report and foundations constructed as described herein, we estimate that total settlement due to static loads utilizing conventional shallow foundations for the proposed buildings will be within 1-inch and corresponding differential settlement will be less than ½-inch in 40 feet. In addition, total and differential seismic settlements on the order of 3.25 inches and 1.75 inches in 40 feet should be considered in design.

9.1.8 Based on chemistry testing performed, the soils exhibited a 'moderate' potential for sulfate attack of concrete. Therefore, concrete mix design should consider Type II cement, a minimum compressive strength of 4,500 psi, and maximum water-cement ratio of 0.5.

9.1.9 All references to relative compaction and optimum moisture content in this report are based on ASTM D 1557 (latest edition).

9.1.10 We should be retained to review the project plans as they develop further, provide engineering consultation as-needed, and perform geotechnical observation and testing services during construction.

9.1.11 Our firm should be consulted at the time of demolition activities if soil conditions not consistent with those identified as part of this investigation are encountered so that we can provide additional recommendations as needed.

9.2 Surface Drainage

9.2.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

9.2.2 The ground immediately adjacent to the foundation shall be sloped away from the buildings at a slope of not less than 5 percent for a minimum distance of 10 feet. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2 percent away from the buildings and drainage gradients maintained to carry all surface water to collection facilities and off site. These grades should be maintained for the life of the project. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed.

9.2.3 Roof drains should be installed with appropriate downspout extensions out-falling on splash blocks so as to direct water a minimum of 5 feet away from the structures or be connected to the storm drain system for the development.

9.3 Grading

9.3.1 A SALEM representative should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Geotechnical Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section as well as other portions of this report.

9.3.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance.

9.3.3 Site demolition activities shall include removal of all surface obstructions not intended to be incorporated into final site design. In addition, undocumented fill, underground buried structures, existing foundations, and/or utility lines encountered during demolition and construction should be properly removed and the resulting excavations backfilled with Engineered Fill. After demolition activities, it is recommended that disturbed soils be removed and/or replaced with compacted engineered fill soils.

9.3.4 Site preparation should begin with removal of existing surface/subsurface structures, pavements, underground utilities (as required), foundations, disturbed soil, any existing uncertified/undocumented fill, and debris. Underground utilities within the limits of the proposed building pad should be removed and relocated. Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with Engineered Fill in accordance with the recommendations of this report.

9.3.5 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 2 to 4 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. In addition, existing concrete and asphalt materials shall be removed from areas of proposed improvements and stockpiled separately from excavated soil material. The stripped vegetation, asphalt and concrete materials will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.3.6 Structural areas and over-build zone should be considered as areas extending a minimum of 5 feet horizontally beyond the outside dimensions of proposed structures. The over-build zone for shallow foundations may extend horizontally to 5 feet beyond foundations.

9.3.7 To provide uniform support for the proposed building pad, it is recommended that over-excavation extend to at least 24 inches below preconstruction site grade, to 18 inches below foundations, or to the depth required to remove any undocumented fills (if encountered), whichever is greater. The resulting bottom of excavation shall be scarified to a minimum depth of at least 12 inches, worked until uniform and free from large clods, moisture conditioned to at least 2 percent above optimum moisture, and compacted to 90 percent of the maximum density.

The horizontal limits of the over-excavation should extend throughout the building over-build zone, laterally to a minimum of 3 feet beyond the outer edges of the proposed building pad.

Structural mat foundations should be supported on a minimum of 12 inches of class 2 aggregate base compacted to 95 percent relative compaction over engineered fill extending to the depth recommended below foundations.

9.3.8 After stripping of the pad areas, areas of lightly loaded exterior concrete slabs on grade (i.e. not intended for support of equipment or vehicular traffic), should be prepared by over-excavation to a minimum of 12 inches below existing grade, 12 inches below the bottom of concrete slabs on grade, or the depth required to remove undocumented fills, whichever is greater. Upon approval, the bottom of excavation should be scarified a minimum of 8 inches, moisture conditioned to at least 1 percent above optimum moisture and compacted as engineered fill. The zone of subgrade preparation should extend a minimum of 3 feet beyond these improvements.

Lightly loaded exterior concrete slabs on grade should be supported on a minimum of 6 inches of Class 2 aggregate base over 18 inches of imported non expansive engineered fill over moisture conditioned compacted engineered fill prepared as recommended above. As an alternative to importing non expansive engineered fill, if the Owner is willing to accept additional risk for heave and/or minor distress such as cracking, exterior slabs may be supported on 12 inches of class 2 aggregate base material over moisture conditioned engineered fill prepared as recommended above.

9.3.9 Areas of proposed driveway access roads should be prepared by over-excavation to 12 inches below preconstruction site grade or 12 inches below proposed pavement sections. Upon approval, the bottom of excavation should be scarified a minimum of 8 inches, moisture conditioned to at least 1 percent above optimum moisture and compacted as engineered fill. The zone of subgrade preparation should extend a minimum of 3 feet beyond these improvements.

At a minimum asphaltic concrete pavements should include a minimum of 2.5 inches of asphaltic concrete over 7 inches of Caltrans class 2 aggregate base compacted to 95 percent relative compaction. Areas of Portland cement concrete pavements (if selected) should comprise of 6 inches of concrete over 6 inches of class 2 aggregate base compacted to 95 percent relative compaction. The upper 12 inches of subgrade soils below the recommended aggregate base section should be compacted to 95 percent relative compaction.

9.3.10 Areas of lightly loaded foundations such as retaining walls, screen walls, etc., should be prepared by over-excavation to a minimum of 12 inches below foundations, 18 inches below preconstruction site grade, or to the depth required to remove undocumented fills, whichever is greater. The resulting bottom of over-excavation shall be scarified to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned to at least 1 percent above optimum moisture, and compacted to 90 percent of the maximum density. The horizontal limits of the over-excavation should extend, laterally to a minimum of 3 feet beyond the outer edges of the proposed footings.

9.3.11 Areas to receive engineered fill outside the building pad over-build zone, should be prepared by scarification of the upper 12 inches below existing grade or 12 inches below the recommended

base section, whichever is greater. These soils should be moisture conditioned to at least 1 percent above optimum moisture and compacted as engineered fill.

9.3.12 An integral part of satisfactory fill placement is the stability of the placed lift of soil. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and shall be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

9.3.13 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

9.3.14 We do not anticipate groundwater or seepage to adversely affect construction if conducted during the drier months of the year (typically summer and fall). However, groundwater and soil moisture conditions could be significantly different during the wet season (typically winter and spring) as surface soil becomes wet; perched groundwater conditions may develop. Grading during this time period will likely encounter wet materials resulting in possible excavation and fill placement difficulties. Project site winterization consisting of placement of aggregate base and protecting exposed soils during construction should be performed. If the construction schedule requires grading operations during the wet season, we can provide additional recommendations as conditions warrant.

9.3.15 Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material or placement of crushed rocks or aggregate base material; or mixing the soil with an approved lime or cement product.

The most common remedial measure of stabilizing the bottom of the excavation due to wet soil condition is to reduce the moisture of the soil to near the optimum moisture content by having the subgrade soils scarified and aerated or mixed with drier soils prior to compacting. However, the drying process may require an extended period of time and delay the construction operation. To expedite the stabilizing process, crushed rock may be utilized for stabilization provided this method is approved by the owner for the cost purpose.

If the use of crushed rock is considered, it is recommended that the upper soft and wet soils be replaced by 6 to 24 inches of ¾-inch to 1-inch crushed rocks. The thickness of the rock layer depends on the severity of the soil instability. The recommended 6 to 24 inches of crushed rock material will provide a stable platform. It is further recommended that lighter compaction equipment be utilized for compacting the crushed rock. All open graded crushed rock/gravel should be fully encapsulated with a geotextile fabric (such as Mirafi 140N) to minimize migration of soil particles into the voids of the crushed rock. Although it is not required, the use of geogrid (e.g. Tensar BX 1100, BX 1200 or TX 160) below the crushed rock will enhance stability and reduce the required thickness of crushed rock necessary for stabilization.

Our firm should be consulted prior to implementing remedial measures to provide appropriate recommendations.

9.4 Soil and Excavation Characteristics

9.4.1 Based on the soil conditions encountered in our borings, the onsite soils can be excavated with conventional excavation equipment. Based on the clayey nature of the near surface soils, the Contractor should anticipate the need for mechanically breaking down clay clumps to produce a uniform soil suitable for moisture conditioning and compaction as engineered fill.

9.4.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements. Temporary excavations are further discussed in a later Section of this report.

9.4.3 The upper soils within the project site are identified primarily as clay soils. These soils are moisture-sensitive and moderate to highly expansive. These soils, in their present condition, possess moderate risk to construction in terms of possible post-construction movement of the foundations and floor systems if no mitigation measures are employed. Accordingly, measures are considered necessary to reduce anticipated expansion potential.

9.4.4 The near surface soils identified as part of our investigation are, generally, moist to very moist due to the absorption characteristics of the soil. Due to the clayey nature of the near surface soils, earthwork operations may encounter very moist unstable soils which may require removal to a stable bottom. Exposed native soils exposed as part of site grading operations shall not be allowed to dry out and should be kept continuously moist prior to placement of subsequent fill.

9.5 Materials for Fill

9.5.1 On- site clay soils are not suitable for use within 12 inches below bottom of structural concrete slabs (mat foundations) or 24 inches below non-structural exterior slabs on grade (may be reduced to 12 inches if Owner is willing to accept additional risk for heave). On-site soils used as engineered fill below these depths, should not contain deleterious matter, organic material, or rock material larger than 3 inches in maximum dimension.

9.5.2 Import fill soil shall be well-graded, slightly cohesive silty fine sand or sandy silt, with relatively impervious characteristics when compacted. A clean sand or very sandy soil is not acceptable for this purpose. This material should be approved by the Engineer prior to use and should typically possess the soil characteristics summarized below in Table 9.5.2.

TABLE 9.5.2
IMPORT FILL REQUIREMENTS

Percent Passing 3-inch Sieve	100
Percent Passing No.4 Sieve	75-100
Percent Passing No 200 Sieve	15-40
Maximum Plasticity Index	15
Maximum Expansion Index (ASTM D4829)	20

Prior to importing the Contractor should demonstrate to the Owner that the proposed import meets the requirements for import fill specified in this report. In addition, the material should be verified by the Contractor that the soils do not contain any environmental contaminates as regulated by local, state, or federal agencies, as applicable

9.5.3 All Engineered Fill (including scarified ground surfaces and backfill) should be placed in lifts no thicker than 6 inches to allow for adequate bonding and compaction (typically 4-6 inches in loose thickness).

9.5.4 On-Site soils used as engineered fill soils should moisture conditioned to at least 1 percent above optimum moisture content, and compacted to at least 90 percent relative compaction.

9.5.5 Import Engineered Fill, if selected, should be placed, moisture conditioned to slightly above optimum moisture content, and compacted to at least 92 percent relative compaction.

9.5.6 The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since they have complete control of the project site.

9.5.7 Environmental characteristics and corrosion potential of import soil materials should also be considered.

9.5.8 Proposed import materials should be sampled, tested, and approved by SALEM prior to its transportation to the site.

9.5.9 Aggregate base material should meet the requirements of a Caltrans Class 2 Aggregate Base. Aggregate base placed within the building pad should be non-recycled. Due to the potential for sulfate attack on concrete, recycled aggregate base used outside the building should not contain recycled concrete material. The aggregate base material should conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, ¾-inch or 1½-inches maximum size. The aggregate base material should be compacted to a minimum relative compaction of 95 percent based ASTM D1557. The aggregate base material should be spread in layers not exceeding 6 inches and each layer of aggregate material course should be tested and approved by the Soils Engineer prior to the placement of successive layers

9.5.10 Open graded gravel and rock material (i.e. ¾ inch or ½ inch crushed gravel) should not be used as backfill including utility trenches. If required by local agency or for use in subgrade stabilization, to prevent migration of fines, open graded materials should be fully encapsulated in a geotextile fabric such as Mirafi 140N or equivalent. Open graded rock should be placed in loose lifts no greater than about 6 to 8 inches, and vibrated in-place to a firm non-yielding condition.

9.6 Seismic Design Criteria

9.6.1 For seismic design of the structures, and in accordance with the seismic provisions of the 2019 CBC, our recommended parameters are shown below. These parameters were determined using California's Office of Statewide Health Planning and Development (OSHPD) Seismic Design Map Tool Website (https://seismicmaps.org/) in accordance with the 2019 CBC. The Site Class was determined based on the soils encountered during our field exploration.

TABLE 9.6.1
SEISMIC DESIGN PARAMETERS

Seismic Item	Symbol	Value	ASCE 7-16 or 2019 CBC Reference
Site Coordinates (Datum = NAD 83)		37.0739 Lat -121.6146 Lon	
Site Class	--	D	ASCE 7 Table 20.3-1
Soil Profile Name	--	Stiff Soil	ASCE 7 Table 20.3-1
Risk Category	--	II	Table 1604.5
Site Coefficient for PGA	F_{PGA}	1.100	ASCE 7 Table 11.8-1
Peak Ground Acceleration (adjusted for Site Class effects)	PGA_M	0.648g	ASCE 7 Equation 11.8-1
Seismic Design Category	SDC	D	Table 1613.2.5
Mapped Spectral Acceleration (Short period - 0.2 sec)	S_S	1.500 g	Figure 1613.2.1(1-8)
Mapped Spectral Acceleration (1.0 sec. period)	S_1	0.600 g	Figure 1613.2.1(1-8)
Site Class Modified Site Coefficient	F_a	1.000	Table 1613.2.3(1)
Site Class Modified Site Coefficient	F_v	**1.700***	Table 1613.2.3(2)
MCE Spectral Response Acceleration (Short period - 0.2 sec) $S_{MS} = F_a S_S$	S_{MS}	1.500 g	Equation 16-36
MCE Spectral Response Acceleration (1.0 sec. period) $S_{M1} = F_v S_1$	S_{M1}	**1.020 g***	Equation 16-37
Design Spectral Response Acceleration $S_{DS}=⅔S_{MS}$ (short period - 0.2 sec)	S_{DS}	1.000 g	Equation 16-38
Design Spectral Response Acceleration $S_{D1}=⅔S_{M1}$ (1.0 sec. period)	S_{D1}	**0.680 g***	Equation 16-39
Short Term Transition Period (S_{D1}/S_{DS}), Seconds	T_S	0.680	ASCE 7-16, Section 11.4.6
Long Period Transition Period (seconds)	T_L	12	ASCE 7-16, Figure 22-14

Note: ***Determined per ASCE Table 11.4.-2 for use in calculating T_S only**

Site Specific Ground Motion Analysis was not included in the scope of this investigation. Per ASCE 11.4.8, Structures on Site Class D, with S1 greater than or equal to 0.2 may require Site Specific Ground Motion Analysis. However, a site specific ground motion analysis may not be required based on Exceptions listed in ASCE 11.4.8. The Structural Engineer should verify whether Exceptions listed under ASCE 7-16, Section 11.4.8 is valid for the proposed construction. In the event a site specific ground motion analysis is required, SALEM should be contacted for these services.

9.6.2 Conformance to the criteria in the above table for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

9.7 Mat Foundation Recommendations

9.7.1 The site is suitable for use of structural mat foundations supported on engineered fill soils prepared in accordance with Section 9.3 of this report. Foundations supported on engineered fill as recommended in this report may be designed based on total and differential static settlement of 1 inch and ½ inch in 40 feet, respectively. Based on liquefaction/seismic settlement analysis, total and differential seismic settlements of 3.25 inches and 1.75 inches in 40 feet should be anticipated due to a design level seismic event. Due to the high expansive potential of the near surface soils, slabs may be subject to ½ inch of heave over 40 feet.

9.7.2 Mat foundations should be supported on a minimum of 12 inches of non-recycled Class 2 aggregate base compacted to 95 percent relative compaction over the depth of engineered fill soils recommended above.

9.7.3 The Mat Foundation can be designed utilizing allowable uniform bearing pressure of 1,000 pounds per square foot for dead-plus-live loads. Isolated spread foundations supported on the depth of engineered fill recommended in this report may be designed based on an allowable bearing capacity of 1,500 pounds per square foot (Dead plus live loads). These value may be increased by 1/3 for short duration loads such as wind or seismic.

9.7.4 The thickness and reinforcement of the structural slab should be determined by the Structural Engineer. At a minimum the mat foundation should be a minimum of 10 inches thick with double-mat reinforcing bar spaced at 15 inches on center. Mat foundations should include a perimeter turndown edge extending to at least 12 inches below the bottom of the slab or to the bottom of the recommended aggregate base section. Mat foundations should be designed based on a minimum concrete compressive strength of 4,500 pounds per square inch.

9.7.5 Based on a distributed load of 1.0 kip per square foot, and the anticipated static and seismic settlements, structural mat foundations and grade beams may be designed utilizing a modulus of subgrade reaction, K-value of 100 pounds per square inch per inch.

9.7.6 Resistance to lateral footing displacement can be computed using a coefficient of friction of 0.30 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 300 pounds per cubic foot acting against the appropriate vertical slab faces.

9.7.7 It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the structures is recommended.

9.7.8 Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is

recommended that a vapor retarder be installed in accordance with manufacturer's recommendations and/or ASTM guidelines, whichever is more stringent. In addition, ventilation of the structure is recommended to reduce the accumulation of interior moisture.

9.7.9 In areas where it is desired to reduce floor dampness where moisture-sensitive coverings, coatings, underlayments, adhesives, moisture sensitive goods, humidity controlled environments, or climate cooled environments are anticipated, construction should have a suitable waterproof vapor retarder (a minimum of 10 mils thick, is recommended, polyethylene vapor retarder sheeting, Raven Industries "VaporBlock 10, Stego Industries 10 mil "StegoWrap" or W.R. Meadows Sealtight 10 mil "Perminator") incorporated into the floor slab design. The water vapor retarder should be a decay resistant material complying with ASTM E96 or ASTM E1249 not exceeding 0.01 perms, ASTM E154 and ASTM E1745 Class A. The vapor retarder should, maintain the recommended permeance **after** conditioning tests per ASTM E1745. The vapor barrier should be placed between the concrete slab and the compacted granular aggregate subbase material. The water vapor retarder (vapor barrier) should be installed in accordance with ASTM Specification E 1643-18.

9.7.10 The concrete may be placed directly on vapor retarder. The vapor retarder should be inspected prior to concrete placement. Cut or punctured retarder should be repaired using vapor retarder material lapped 6 inches beyond damaged areas and taped. Extend vapor retarder over footings and seal to foundation wall or slab at an elevation consistent with the top of the slab or terminate at impediments such as water stops or dowels. Seal around penetrations such as utilities or columns in order to create a monolithic membrane between the surface of the slab and moisture sources below the slab as well as at the slab perimeter.

9.7.11 Avoid use of stakes driven through the vapor retarder.

9.7.12 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive or loose soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

9.7.13 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.8 Exterior Concrete Slabs on Grade

9.8.1 The following recommendations are intended for lightly loaded exterior slabs on grade not subject to vehicular traffic. Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. We recommend that non-structural slabs-on-grade be at least 4 inches thick and underlain by six (6) inches of class 2 aggregate base over 18 inches of imported non expansive engineered fill over subgrade soils prepared in accordance with the recommendations in section 9.3 of this report. Exterior slabs supported on combination

of aggregate base and non-expansive fill as described above should be anticipated to be subject to ½ inch of heave.

If the Owner is willing to accept additional risk for heave (3/4 inch to 1 inch heave), exterior slabs may be supported entirely on 12 inches of class 2 aggregate base.

9.8.2 The spacing of crack control joints should be designed by the project structural engineer. In order to regulate cracking of the slabs, we recommend that full depth construction joints or control joints be provided at a maximum spacing of 15 feet in each direction for 5-inch thick slabs and 12 feet for 4-inch thick slabs.

9.8.3 Crack control joints should extend a minimum depth of one-fourth the slab thickness and should be constructed using saw-cuts or other methods as soon as practical after concrete placement.

9.8.4 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.9 Miscellaneous Lightly Loaded Foundations

9.9.1 The following recommendations are intended for miscellaneous lightly loaded foundations for structures such as retaining walls, screen walls, etc. The residence building and garage structure should be supported on a structural mat foundation per section 9.7 of this report.

9.9.2 Shallow foundations supported on engineered fill as recommended in this report may be designed based on total and differential static settlement of 1 inch and ½ inch in 40 feet, with total and differential seismic settlements of 3.25 inches and 1.75 inches in 40 feet should be anticipated due to a design level seismic event.

9.9.3 Lightly loaded foundations for screen walls, retaining walls, etc., should have a minimum width of 12 inches and minimum depth of 12 inches below adjacent grade.

9.9.4 Footing concrete should be placed into neat excavation. The footing bottoms shall be maintained free of loose and disturbed soil.

9.9.5 Shallow spread foundations supported engineered fill prepared in accordance with the recommendations provided in this report may be designed based on an allowable bearing pressure of 1,500 pounds per square foot. This value may be increased by 1/3 for short term wind and seismic loading.

9.9.6 Resistance to lateral footing displacement can be computed using a coefficient of friction factor of 0.30 acting between the base of foundations and engineered fill soils.

9.9.7 Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 300 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined provided that a 50% reduction of the frictional resistance factor is used in determining the total lateral resistance.

9.9.8 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

9.9.9 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Prior to placing rebar reinforcement, foundation excavations should be evaluated by a representative of SALEM for appropriate support characteristics and moisture content. Moisture conditioning may be required for the materials exposed at footing bottom, particularly if foundation excavations are left open for an extended period

9.10. Lateral Earth Pressures and Frictional Resistance

9.10.1. Active, at-rest and passive unit lateral earth pressures against footings and walls are summarized in the table below:

Lateral Pressure Conditions	Soil Equivalent Fluid Pressure
Active Pressure, Drained, pcf	45
At-Rest Pressure, Drained, pcf	65
Allowable Passive Pressure, pcf	300
Allowable Coefficient of Friction	0.30
Minimum Wet Unit Weight (lbs/ft^3) [γ_{min}]	105
Maximum Wet Unit Weight (lbs/ft^3) [γ_{max}]	135

9.10.2. Active pressure applies to walls, which are free to rotate. At-rest pressure applies to walls, which are restrained against rotation. The preceding lateral earth pressures assume sufficient drainage behind retaining walls to prevent the build-up of hydrostatic pressure. The top one-foot of adjacent subgrade should be deleted from the passive pressure computation.

9.10.3. The allowable parameters include a safety factor of 1.5 and can be used in design for direct comparison of resisting loads against lateral driving loads.

9.10.4. If combined passive and frictional resistance is used in design, a 50 percent reduction in frictional resistance is recommended.

9.10.5. For lateral stability against seismic loading conditions, we recommend a minimum safety factor of 1.1.

9.10.6. For dynamic seismic lateral loading the following equation shall be used:

Dynamic Seismic Lateral Loading Equation
Dynamic Seismic Lateral Load = $\frac{3}{8}\gamma K_h H^2$
Where: γ = Maximum In-Place Soil Density (Section 9.10.1 above)
K_h = Horizontal Acceleration = $\frac{2}{3}PGA_M$ (Section 9.6.1 above)
H = Wall Height

9.11. Temporary Excavations

9.11.1. We anticipate that the majority of the dense site soils will be classified as Cal-OSHA "Type B" soil when encountered in excavations during site development and construction. If the subgrade becomes unstable due to excessive moisture, the excavations should conform to Cal-OSHA "Type C" soil. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved "competent person" onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

9.11.2. It is the contractor's responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements. All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load.

9.11.3. Temporary excavations and slope faces should be protected from rainfall and erosion. Surface runoff should be directed away from excavations and slopes.

9.11.4. Open, unbraced excavations in undisturbed soils should be made according to the slopes presented in the following table:

RECOMMENDED EXCAVATION SLOPES

Depth of Excavation (ft)	Slope (Horizontal : Vertical)
0-5	1:1
5-10	1½:1
10-15	2:1

9.11.5. If, due to space limitation, excavations near existing structures are performed in a vertical position, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavations and installation. A Specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction.

9.11.6. Braced shorings should be designed for a maximum pressure distribution of 40H, (where H is the depth of the excavation in feet). The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given herein. Equipment traffic should concurrently be limited to an area at least 3 feet from the shoring face or edge of the slope.

9.11.7. The excavation and shoring recommendations provided herein are based on soil characteristics derived from the borings within the area. Variations in soil conditions will likely be encountered during the excavations. SALEM Engineering Group, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation. Slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulation, (e.g. OSHA) standards for excavations, 29 CFR part 1926, or Assessor's regulations.

9.12. Underground Utilities

9.12.1. Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than 3 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches and compacted to at least 92 percent relative compaction at or above optimum moisture content. The upper 12 inches of trench backfill within asphalt or concrete paved areas shall be moisture conditioned to at or above optimum moisture content and compacted to at least 95 percent relative compaction.

9.12.2. Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to approximately 12 inches above the crown of the pipe. Pipe bedding, haunches and initial fill extending to 1 foot above the pipe should consist of a clean well graded sand with 100 percent passing the #4 sieve, a maximum of 15 percent passing the #200 sieve, and a minimum sand equivalent of 20.

9.12.3. It is suggested that underground utilities crossing beneath new or existing structures be plugged at entry and exit locations to the building or structure to prevent water migration. Trench plugs can consist of on-site clay soils, if available, or sand cement slurry. The trench plugs should extend 2 feet beyond each side of individual perimeter foundations.

9.12.4. The contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

10. PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

10.1 Plan and Specification Review

10.1.1 SALEM should review the project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

10.2 Construction Observation and Testing Services

10.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

10.2.2 SALEM should be present at the site during site preparation to observe site clearing, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

10.2.3 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

11. LIMITATIONS AND CHANGED CONDITIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the test borings drilled at the approximate locations shown on the Site Plan, Figure 1. The report does not reflect variations which may occur between borings. The nature and extent of such variations may not become evident until construction is initiated.

If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of such variations. The findings and recommendations presented in this report are valid as of the present and for the proposed construction. If site conditions change due to natural processes or human intervention on the property or adjacent to the site, or changes occur in the nature or design of the project, or if there is a substantial time lapse between the submission of this report and the start of the work at the site, the conclusions and recommendations contained in our report will not be considered valid unless the changes are reviewed by SALEM and the conclusions of our report are modified or verified in writing. The validity of the recommendations contained in this report is also dependent upon an adequate testing and observations program during the construction phase.

Our firm assumes no responsibility for construction compliance with the design concepts or recommendations unless we have been retained to perform the on-site testing and review during construction. SALEM has prepared this report for the exclusive use of the owner and project design consultants.

SALEM does not practice in the field of corrosion engineering. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, that manufacturer’s recommendations for corrosion protection be closely followed. Further, a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of concrete slabs and foundations in direct contact with native soil.

The importation of soil and or aggregate materials to the site should be screened to determine the potential for corrosion to concrete and buried metal piping. The report has been prepared in accordance with generally accepted geotechnical engineering practices in the area. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 271-9700.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

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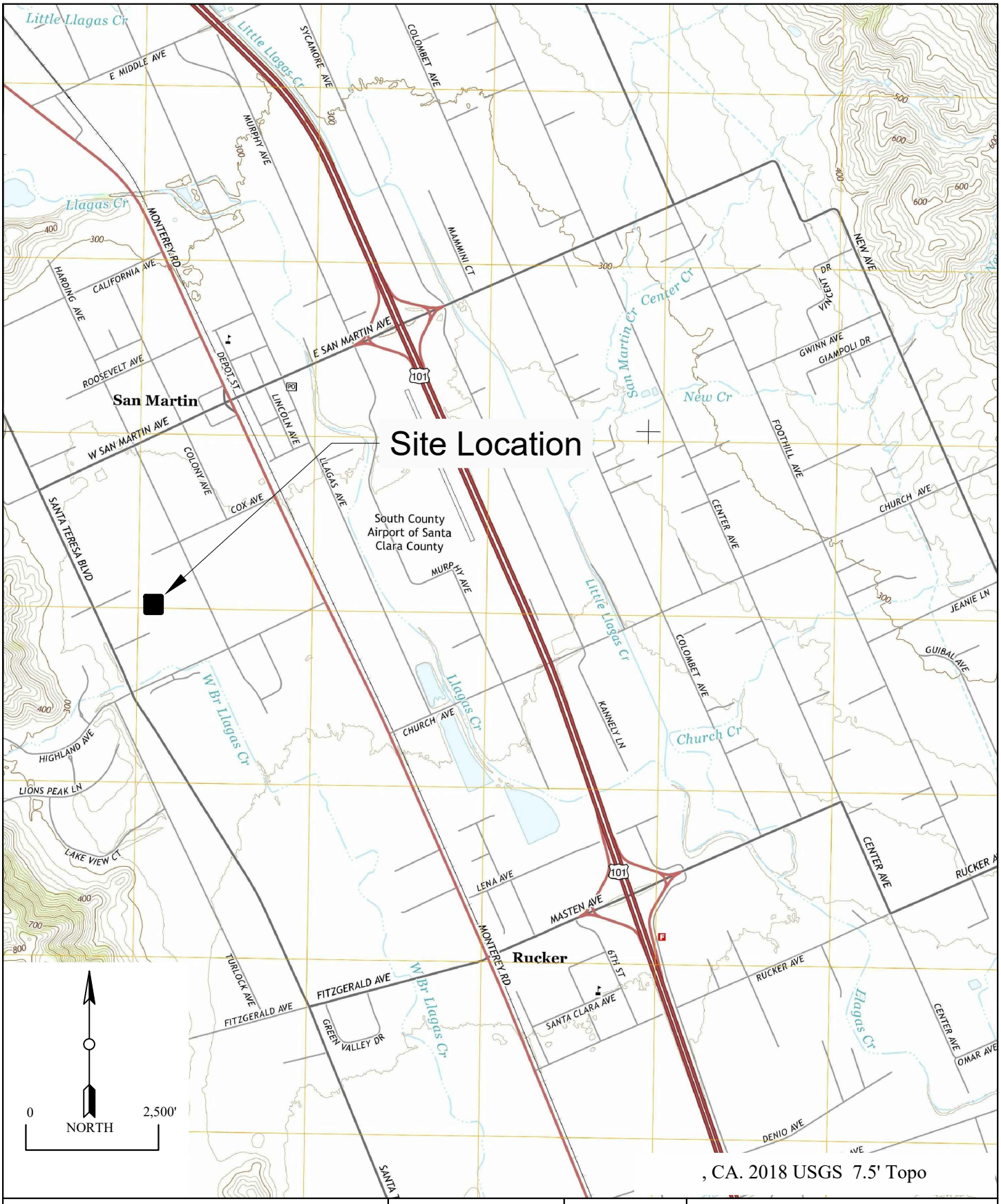


, CA. 2018 USGS 7.5' Topo

VICINITY MAP	SCALE: 1 : 2500'	DATE: Dec. 2021	SALEM engineering group, inc.
PROPOSED TWO (2) SINGLE FAMILY RESIDENCES 12645 HARDING AVENUE SAN MARTIN, CALIFORNIA	DRAWN BY: VT	APPROVED BY: DL	
	PROJECT NO. 5-221-1209	FIGURE NO. 1	

SITE PLAN	SCALE: 1" = 150'	DATE: Dec. 2021	
PROPOSED TWO (2) SINGLE FAMILY RESIDENCES 12645 HARDING AVENUE SAN MARTIN, CALIFORNIA	DRAWN BY: VT	APPROVED BY: DL	
	PROJECT NO. 5-221-1209	FIGURE NO. 2	

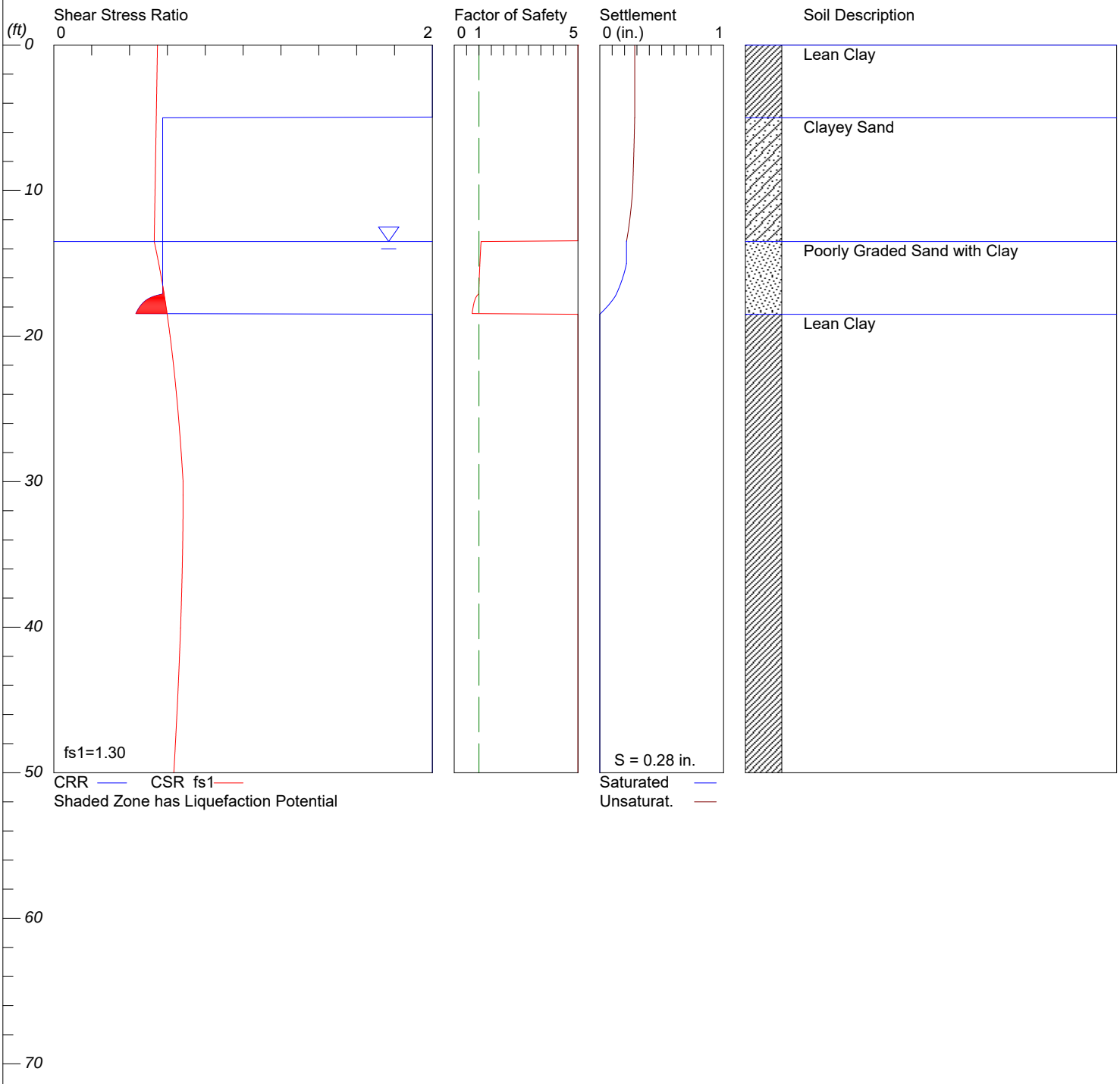
SALEM
engineering group, inc.

LIQUEFACTION ANALYSIS

Proposed Single Family Residence

Hole No.=B-1 Water Depth=13.5 ft

Magnitude=7.1
Acceleration=0.648g



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LIQUEFACTION ANALYSIS SUMMARY

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Title: Proposed Single Family Residence
Subtitle: 5-221-1209
Hole No.=B-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 13.50 ft
Water Table during In-Situ Testing= 25.00 ft
Max. Acceleration= 0.65 g
Earthquake Magnitude= 7.10

Input Data:

Hole No.=B-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 13.50 ft
Water Table during In-Situ Testing= 25.00 ft
Max. Acceleration=0.65 g
Earthquake Magnitude=7.10
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Ishihara / Yoshimine
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: No

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	16.00	135.00	NoLiq
5.00	50.00	135.00	36.00
10.00	21.00	135.00	36.00
15.00	21.00	135.00	10.00
20.00	13.00	135.00	NoLiq
25.00	10.00	135.00	NoLiq
30.00	12.00	135.00	NoLiq
35.00	22.00	135.00	NoLiq
40.00	11.00	135.00	NoLiq
45.00	13.00	135.00	NoLiq
50.00	13.00	135.00	NoLiq

Output Results:

Settlement of Saturated Sands=0.22 in.
Settlement of Unsaturated Sands=0.07 in.
Total Settlement of Saturated and Unsaturated Sands=0.28 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.55	5.00	0.22	0.07	0.28
1.00	2.00	0.55	5.00	0.22	0.07	0.28
2.00	2.00	0.55	5.00	0.22	0.07	0.28
3.00	2.00	0.54	5.00	0.22	0.07	0.28
4.00	2.00	0.54	5.00	0.22	0.07	0.28
5.00	0.58	0.54	5.00	0.22	0.07	0.28
6.00	0.58	0.54	5.00	0.22	0.06	0.28
7.00	0.58	0.54	5.00	0.22	0.06	0.28
8.00	0.58	0.54	5.00	0.22	0.06	0.27
9.00	0.58	0.54	5.00	0.22	0.05	0.27
10.00	0.58	0.53	5.00	0.22	0.05	0.27
11.00	0.58	0.53	5.00	0.22	0.04	0.25
12.00	0.58	0.53	5.00	0.22	0.03	0.24
13.00	0.58	0.53	5.00	0.22	0.01	0.23
14.00	0.58	0.54	1.07	0.22	0.00	0.22
15.00	0.58	0.55	1.04	0.22	0.00	0.22
16.00	0.58	0.57	1.01	0.18	0.00	0.18
17.00	0.58	0.58	0.99*	0.14	0.00	0.14
18.00	0.45	0.59	0.76*	0.06	0.00	0.06
19.00	2.00	0.60	5.00	0.00	0.00	0.00
20.00	2.00	0.61	5.00	0.00	0.00	0.00
21.00	2.00	0.62	5.00	0.00	0.00	0.00
22.00	2.00	0.63	5.00	0.00	0.00	0.00
23.00	2.00	0.64	5.00	0.00	0.00	0.00
24.00	2.00	0.65	5.00	0.00	0.00	0.00
25.00	2.00	0.65	5.00	0.00	0.00	0.00
26.00	2.00	0.66	5.00	0.00	0.00	0.00
27.00	2.00	0.67	5.00	0.00	0.00	0.00
28.00	2.00	0.67	5.00	0.00	0.00	0.00
29.00	2.00	0.68	5.00	0.00	0.00	0.00
30.00	2.00	0.68	5.00	0.00	0.00	0.00
31.00	2.00	0.68	5.00	0.00	0.00	0.00
32.00	2.00	0.68	5.00	0.00	0.00	0.00
33.00	2.00	0.68	5.00	0.00	0.00	0.00
34.00	2.00	0.68	5.00	0.00	0.00	0.00
35.00	2.00	0.68	5.00	0.00	0.00	0.00
36.00	2.00	0.68	5.00	0.00	0.00	0.00
37.00	2.00	0.68	5.00	0.00	0.00	0.00
38.00	2.00	0.67	5.00	0.00	0.00	0.00
39.00	2.00	0.67	5.00	0.00	0.00	0.00
40.00	2.00	0.67	5.00	0.00	0.00	0.00
41.00	2.00	0.67	5.00	0.00	0.00	0.00
42.00	2.00	0.66	5.00	0.00	0.00	0.00
43.00	2.00	0.66	5.00	0.00	0.00	0.00
44.00	2.00	0.66	5.00	0.00	0.00	0.00
45.00	2.00	0.65	5.00	0.00	0.00	0.00
46.00	2.00	0.65	5.00	0.00	0.00	0.00
47.00	2.00	0.65	5.00	0.00	0.00	0.00
48.00	2.00	0.64	5.00	0.00	0.00	0.00
49.00	2.00	0.64	5.00	0.00	0.00	0.00
50.00	2.00	0.63	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5,CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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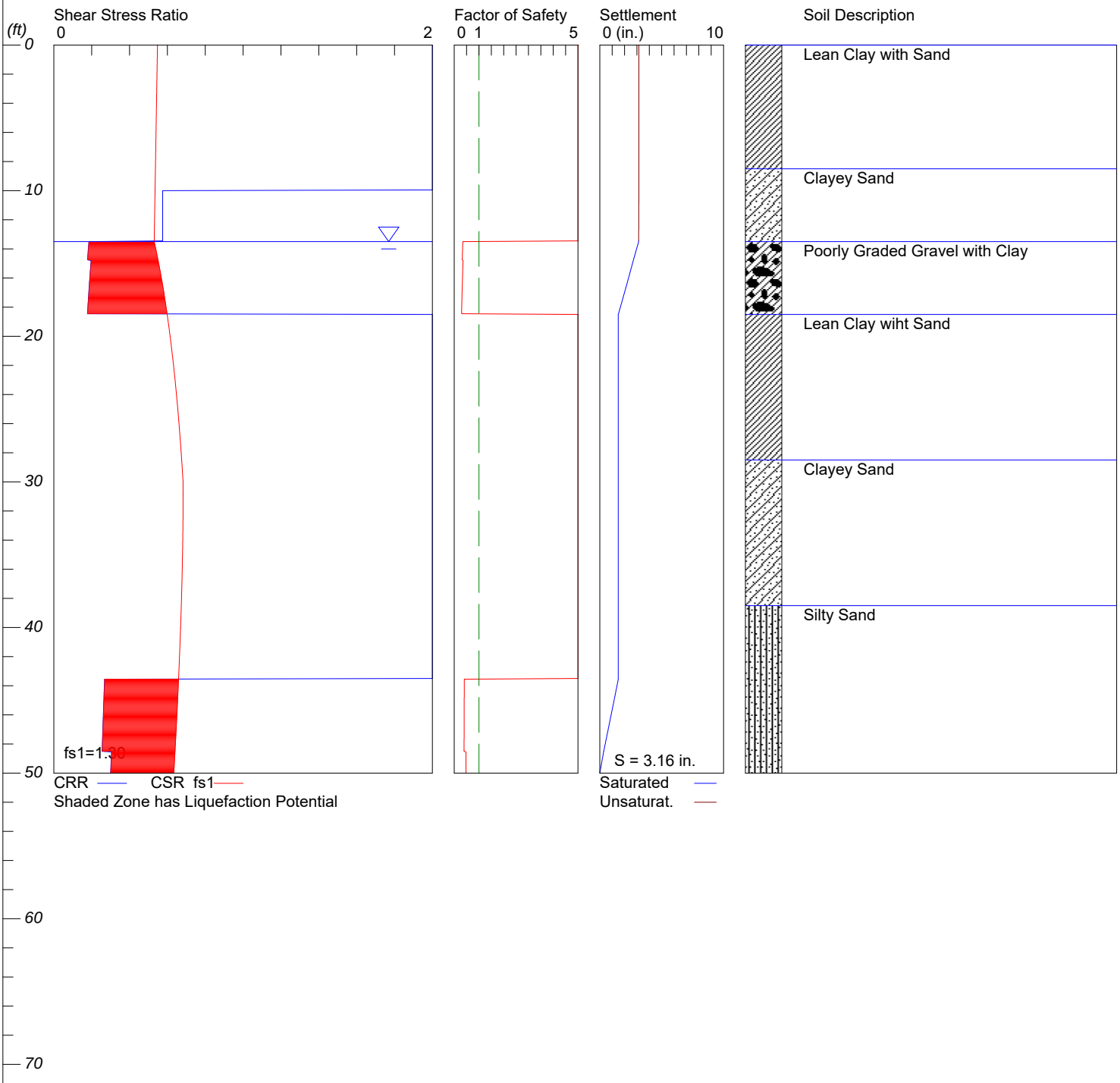
1 atm (atmosphere) = 1 tsf (ton/ft2)	
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS

Propsoed Single Family Residence

Hole No.=B-3 Water Depth=13.5 ft

Magnitude=7.1
Acceleration=0.648g



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LIQUEFACTION ANALYSIS SUMMARY

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Title: Propsoed Single Family Residence
Subtitle: 5-221-1209
Hole No.=B-3
Depth of Hole= 50.00 ft
Water Table during Earthquake= 13.50 ft
Water Table during In-Situ Testing= 25.00 ft
Max. Acceleration= 0.65 g
Earthquake Magnitude= 7.10

Input Data:

Hole No.=B-3
Depth of Hole=50.00 ft
Water Table during Earthquake= 13.50 ft
Water Table during In-Situ Testing= 25.00 ft
Max. Acceleration=0.65 g
Earthquake Magnitude=7.10
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Ishihara / Yoshimine
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: No

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	48.00	135.00	NoLiq
5.00	28.00	135.00	NoLiq
10.00	48.00	135.00	36.00
13.50	10.00	135.00	10.00
18.50	15.00	135.00	NoLiq
23.50	26.00	135.00	NoLiq
28.50	33.00	135.00	NoLiq
33.50	16.00	135.00	NoLiq
38.50	18.00	135.00	NoLiq
43.50	16.00	135.00	27.00
48.50	19.00	135.00	27.00

Output Results:

Settlement of Saturated Sands=3.14 in.
Settlement of Unsaturated Sands=0.02 in.
Total Settlement of Saturated and Unsaturated Sands=3.16 in.

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Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.55	5.00	3.14	0.02	3.16
1.00	2.00	0.55	5.00	3.14	0.02	3.16
2.00	2.00	0.55	5.00	3.14	0.02	3.16
3.00	2.00	0.54	5.00	3.14	0.02	3.16
4.00	2.00	0.54	5.00	3.14	0.02	3.16
5.00	2.00	0.54	5.00	3.14	0.02	3.16
6.00	2.00	0.54	5.00	3.14	0.02	3.16
7.00	2.00	0.54	5.00	3.14	0.02	3.16
8.00	2.00	0.54	5.00	3.14	0.02	3.16
9.00	2.00	0.54	5.00	3.14	0.02	3.16
10.00	0.58	0.53	5.00	3.14	0.02	3.16
11.00	0.58	0.53	5.00	3.14	0.01	3.15
12.00	0.58	0.53	5.00	3.14	0.01	3.15
13.00	0.58	0.53	5.00	3.14	0.00	3.14
14.00	0.18	0.54	0.34*	2.97	0.00	2.97
15.00	0.20	0.55	0.35*	2.64	0.00	2.64
16.00	0.19	0.57	0.33*	2.32	0.00	2.32
17.00	0.18	0.58	0.32*	1.99	0.00	1.99
18.00	0.18	0.59	0.30*	1.66	0.00	1.66
19.00	2.00	0.60	5.00	1.49	0.00	1.49
20.00	2.00	0.61	5.00	1.49	0.00	1.49
21.00	2.00	0.62	5.00	1.49	0.00	1.49
22.00	2.00	0.63	5.00	1.49	0.00	1.49
23.00	2.00	0.64	5.00	1.49	0.00	1.49
24.00	2.00	0.65	5.00	1.49	0.00	1.49
25.00	2.00	0.65	5.00	1.49	0.00	1.49
26.00	2.00	0.66	5.00	1.49	0.00	1.49
27.00	2.00	0.67	5.00	1.49	0.00	1.49
28.00	2.00	0.67	5.00	1.49	0.00	1.49
29.00	2.00	0.68	5.00	1.49	0.00	1.49
30.00	2.00	0.68	5.00	1.49	0.00	1.49
31.00	2.00	0.68	5.00	1.49	0.00	1.49
32.00	2.00	0.68	5.00	1.49	0.00	1.49
33.00	2.00	0.68	5.00	1.49	0.00	1.49
34.00	2.00	0.68	5.00	1.49	0.00	1.49
35.00	2.00	0.68	5.00	1.49	0.00	1.49
36.00	2.00	0.68	5.00	1.49	0.00	1.49
37.00	2.00	0.68	5.00	1.49	0.00	1.49
38.00	2.00	0.67	5.00	1.49	0.00	1.49
39.00	2.00	0.67	5.00	1.49	0.00	1.49
40.00	2.00	0.67	5.00	1.49	0.00	1.49
41.00	2.00	0.67	5.00	1.49	0.00	1.49
42.00	2.00	0.66	5.00	1.49	0.00	1.49
43.00	2.00	0.66	5.00	1.49	0.00	1.49
44.00	0.27	0.66	0.41*	1.39	0.00	1.39
45.00	0.26	0.65	0.40*	1.15	0.00	1.15
46.00	0.26	0.65	0.40*	0.92	0.00	0.92
47.00	0.26	0.65	0.40*	0.68	0.00	0.68
48.00	0.26	0.64	0.40*	0.44	0.00	0.44
49.00	0.30	0.64	0.48*	0.21	0.00	0.21
50.00	0.30	0.63	0.47*	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone

(F.S. is limited to 5,CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

---

1 atm (atmosphere) = 1 tsf (ton/ft2)	
CRRm	Cyclic resistance ratio from soils
CSRsf	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

APPENDIX

A

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation was conducted on December 6, 2021 and included a site visit, subsurface exploration, and soil sampling. The locations of the exploratory borings are shown on the Site Plan, Figure 2. Boring logs for our exploration are presented in figures following the text in this appendix. Borings were located in the field using existing reference points. Therefore, actual boring locations may deviate slightly.

Our borings were drilled using a truck-mounted CME-55 drilling rig and 6-inch diameter hollow stem auger. Sampling was accomplished by driving a 2-inch Standard Penetration Test (SPT) sampler and/or a 3-inch outside diameter Modified California Sampler (MCS) 18 inches into the soil. Penetration and/or Resistance tests were performed at selected depths. The resistance/N-Value obtained from driving was recorded based on the number of blows required to penetrate the last 12 inches. The driving energy was provided by an auto-trip hammer weighing 140 pounds, falling 30 inches. Relatively undisturbed MCS soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the SPT samples and auger cuttings. All samples were returned to our Fresno laboratory for evaluation. At the completion of drilling and sampling, the test borings were backfilled with cuttings, thus, some settlement should be anticipated.

Subsurface conditions encountered in the exploratory borings were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, drill rig penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing.

SALEM
engineering group, inc.

Test Boring: B-1 **Page** 1 **Of:** 2

Project Number: 5-221-1209

Date: 12/06/2021

Client: MH Engineering Co.

Project: Proposed Two (2) Single Family Residences

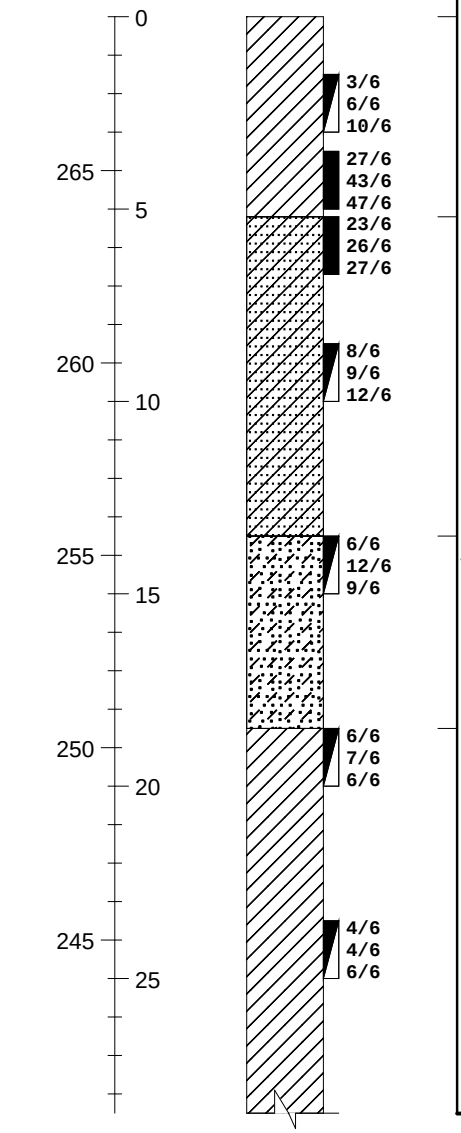
Location: 12645 Harding Avenue, San Martin, CA.

Drilled By: Salem Engineering Group, Inc. **Logged By:** BM

Drill Type: CME 55 **Elevation:** 269ft. AMSL

Auger Type: 6 5/8in. Hollow Stem Auger **Initial Depth to Groundwater:** N/E

Hammer Type: Automatic Trip - 140lbs./30in. **Final Depth to Groundwater:** N/E



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		CL	Lean CLAY with Sand; very stiff, grey to brown.	16	--	--	PI = 26 LL = 48
			Grades as above; hard, brown, moist to damp, moderate plasticity.	90	9.6	121.3	
		SC	Clayey SAND with Gravel; dense, brown, moist.	53	9.7	123.3	PI = 16 LL = 36
			Grades as above; medium dense.	21	8.7	--	
		SP-SC	Poorly Graded SAND with Clay and Gravel; medium dense, brown, moist.	21	9.4	--	
		CL	Lean CLAY; stiff, brown, moist.	13	--	--	PI = 16 LL = 48
			Lean CLAY with sand; stiff, moist, with trace gravel.	10	25.4	--	PI = 20 LL = 48

Notes:

Figure Number A-1

SALEM engineering group, inc.

Project Number: 5-221-1209
Date: 12/06/2021
Test Boring: B-1

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
240 / 30	4/6 5/6 7/6		Grades as above; stiff, brown, moist.	12	--	--	
235 / 35	10/6 10/6 12/6		Grades as above; very stiff.	22	22.1	--	PI = 18 LL = 44
230 / 40	3/6 5/6 6/6		Grades as above; stiff.	11	--	--	PI = 18 LL = 44
225 / 45	4/6 7/6 6/6		Grades as above.	13	30.5	--	PI = 12 LL = 32
220 / 50	3/6 6/6 7/6		Lean CLAY; stiff, brown, moist. little sand.	13	29.8	--	
215 / 55			End of boring at 50ft. BSG				
210 / 60							

Notes:

Figure Number A-1

SALEM
engineering group, inc.

Test Boring: B-2 **Page** 1 **Of:** 1

Project Number: 5-221-1209

Date: 12/06/2021

Client: MH Engineering Co.

Project: Proposed Two (2) Single Family Residences

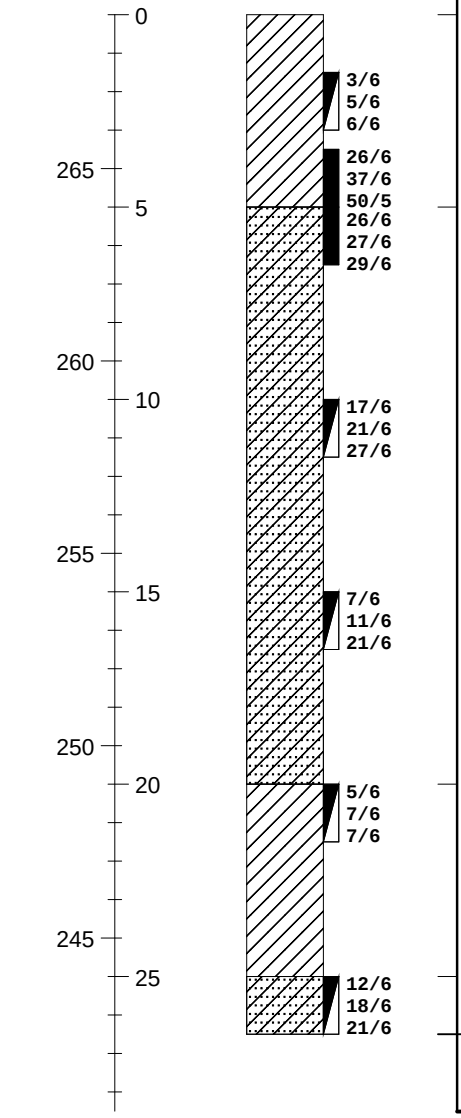
Location: 12645 Harding Avenue, San Martin, CA.

Drilled By: Salem Engineering Group, Inc. **Logged By:** BM

Drill Type: CME 55 **Elevation:** 269ft. AMSL

Auger Type: 6 5/8in. Hollow Stem Auger **Initial Depth to Groundwater:** N/E

Hammer Type: Automatic Trip - 140lbs./30in. **Final Depth to Groundwater:** N/E



ELEVATION/ DEPTH (feet)	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
	CL	Lean CLAY with Sand; stiff, grey to brown, moist.	11	--	--	
		Grades as above; Hard.	>50	--	--	
	SC	Clayey SAND with Gravel; dense, brown, moist.	58	--	--	
		Grades as above; dense, brown, moist.	48	--	--	PI = 16 LL = 37
		Grades as above.	32	--	--	
	CL	Lean CLAY with Sand; stiff, brown, moist, fine grained sand.	14	--	--	PI = 16 LL = 42
	SC	Clayey SAND with Gravel; dense, brown, moist.	39	--	--	
		End of boring at 26.5ft. BSG				

Notes:

Figure Number A-2

SALEM
engineering group, inc.

Test Boring: B-3 **Page** 1 **Of:** 2

Project Number: 5-221-1209

Date: 12/06/2021

Client: MH Engineering Co.

Project: Proposed Two (2) Single Family Residences

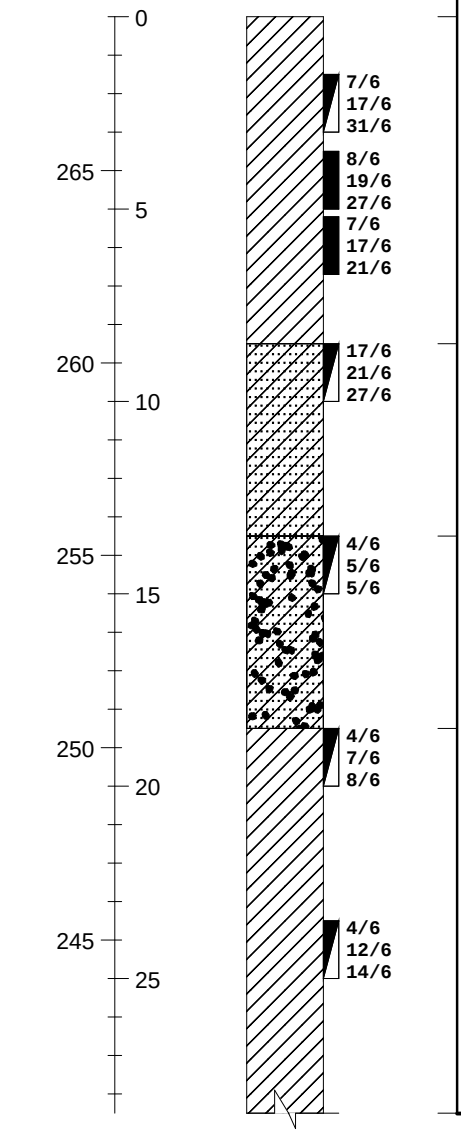
Location: 12645 Harding Avenue, San Martin, CA.

Drilled By: Salem Engineering Group, Inc. **Logged By:** BM

Drill Type: CME 55 **Elevation:** 269ft. AMSL

Auger Type: 6 5/8in. Hollow Stem Auger **Initial Depth to Groundwater:** N/E

Hammer Type: Automatic Trip - 140lbs./30in. **Final Depth to Groundwater:** N/E



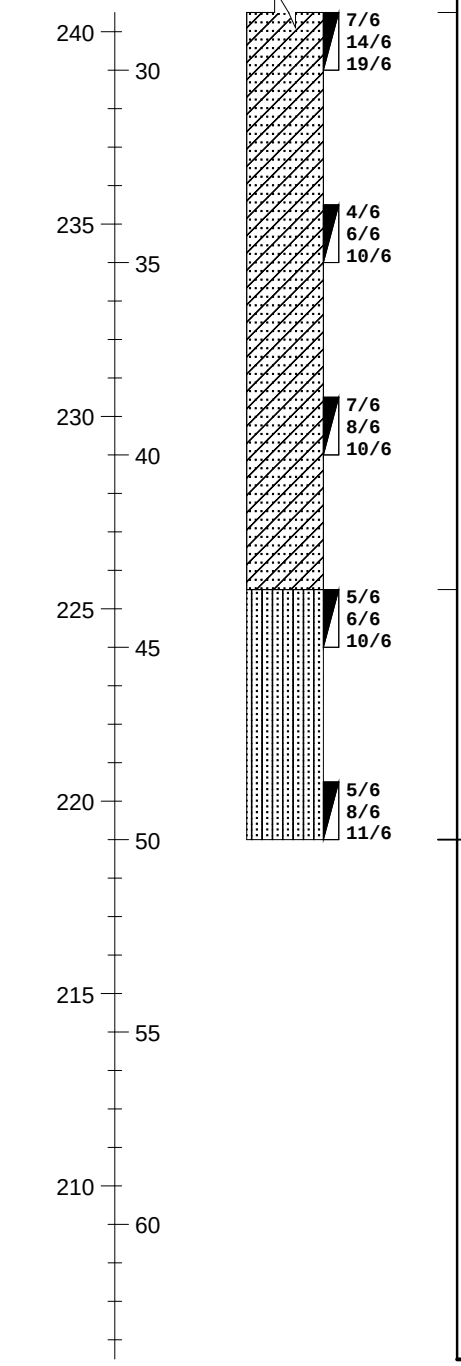
ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		CL	Lean CLAY with Sand; very stiff, grey to brown, moderate to high plasticity.	48	13.0	--	
			Grades as above; Hard.	46	13.4	121.1	
			Grades as above; very stiff.	38	16.2	116.3	
		SC	Clayey SAND with Gravel; dense, brown, moist.	48	11.3	--	
		GP-GC	Poorly Graded Gravel with Clay and Sand; loose, brown, moist	10	4.6	--	
		CL	Lean CLAY with Sand; stiff, brown, moist, brown,	15	--	--	
			Sandy Lean CLAY; very stiff, brown, moist.	26	--	--	PI = 11 LL = 34

Notes:

Figure Number A-3

SALEM engineering group, inc.

Project Number: 5-221-1209
Date: 12/06/2021
Test Boring: B-3



ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
		SC	Clayey SAND with Gravel; dense, brown, moist.	33	12.5	--	
			Grades as above; medium dense, brown, moist,	16	--	--	PI = 11 LL = 35
			Grades as above	18	20.0	--	
		SM	Silty SAND with Gravel; medium dense, brown, moist.	16	--	--	PI = 5 LL = 28
			Grades as above;	19	14.3	--	PI = 6 LL = 29
			End of boring at 50ft. BSG				

Notes:

Figure Number A-3

SALEM engineering group, inc.

Test Boring: B-4 **Page** 1 **Of:** 1

Project Number: 5-221-1209

Date: 12/06/2021

Client: MH Engineering Co.

Project: Proposed Two (2) Single Family Residences

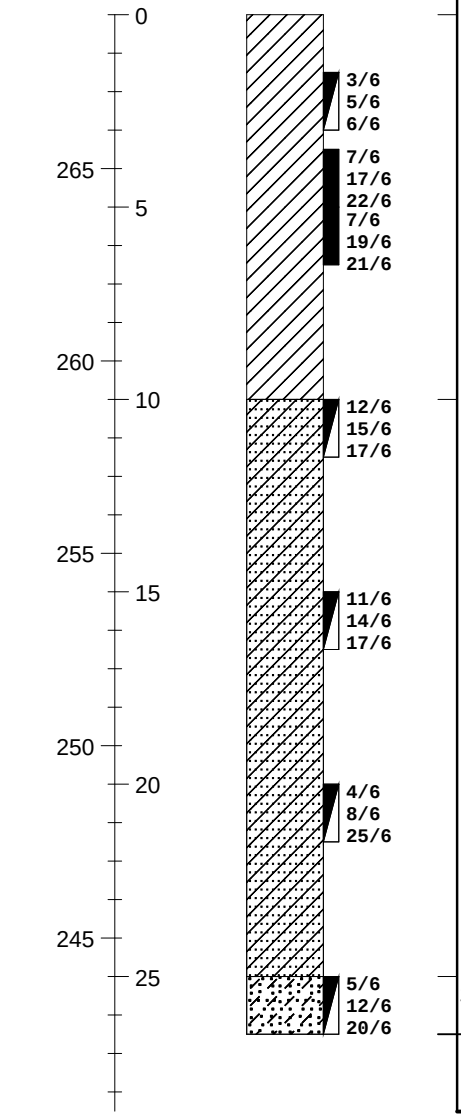
Location: 12645 Harding Avenue, San Martin, CA.

Drilled By: Salem Engineering Group, Inc. **Logged By:** BM

Drill Type: CME 55 **Elevation:** 269ft. AMSL

Auger Type: 6 5/8in. Hollow Stem Auger **Initial Depth to Groundwater:** N/E

Hammer Type: Automatic Trip - 140lbs./30in. **Final Depth to Groundwater:** N/E



ELEVATION/ DEPTH (feet)	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
	CL	Sandy Lean CLAY; stiff, grey to brown, moist.	11	--	--	
		Grades as above; very stiff, brown, moist, with trace gravel.	39	9.9	121.7	PI = 20 LL = 42
		Grades as above;	40	12.4	119.4	
	SC	Clayey SAND with Gravel; dense, brown, moist, low plasticity.	32	11.4	--	PI = 7 LL = 28
		Grades as above; increase in sand and decrease in clay.	31	6.5	--	
		Grades as above;	33	--	--	
	SP-SC	Poorly Graded SAND with Clay and Gravel, dense, brown, moist.	32	12.7	--	
		End of boring at 26.5ft. BSG				

Notes:

Figure Number A-4

KEY TO SYMBOLS

Symbol Description

Strata symbols

Lean Clay

Clayey sand/
Low plasticity clay

Poorly graded sand with clay

Poorly graded gravel with clay

Silty sand

Misc. Symbols

Boring continues

Soil Samplers

Standard penetration test

California sampler

Notes:

Granular Soils
Blows Per Foot (Uncorrected)

	MCS	SPT
Very loose	<5	<4
Loose	5-15	4-10
Medium dense	16-40	11-30
Dense	41-65	31-50
Very dense	>65	>50

Cohesive Soils
Blows Per Foot (Uncorrected)

	MCS	SPT
Very soft	<3	<2
Soft	3-5	2-4
Firm	6-10	5-8
Stiff	11-20	9-15
Very Stiff	21-40	16-30
Hard	>40	>30

MCS = Modified California Sampler
SPT = Standard Penetration Test Sampler

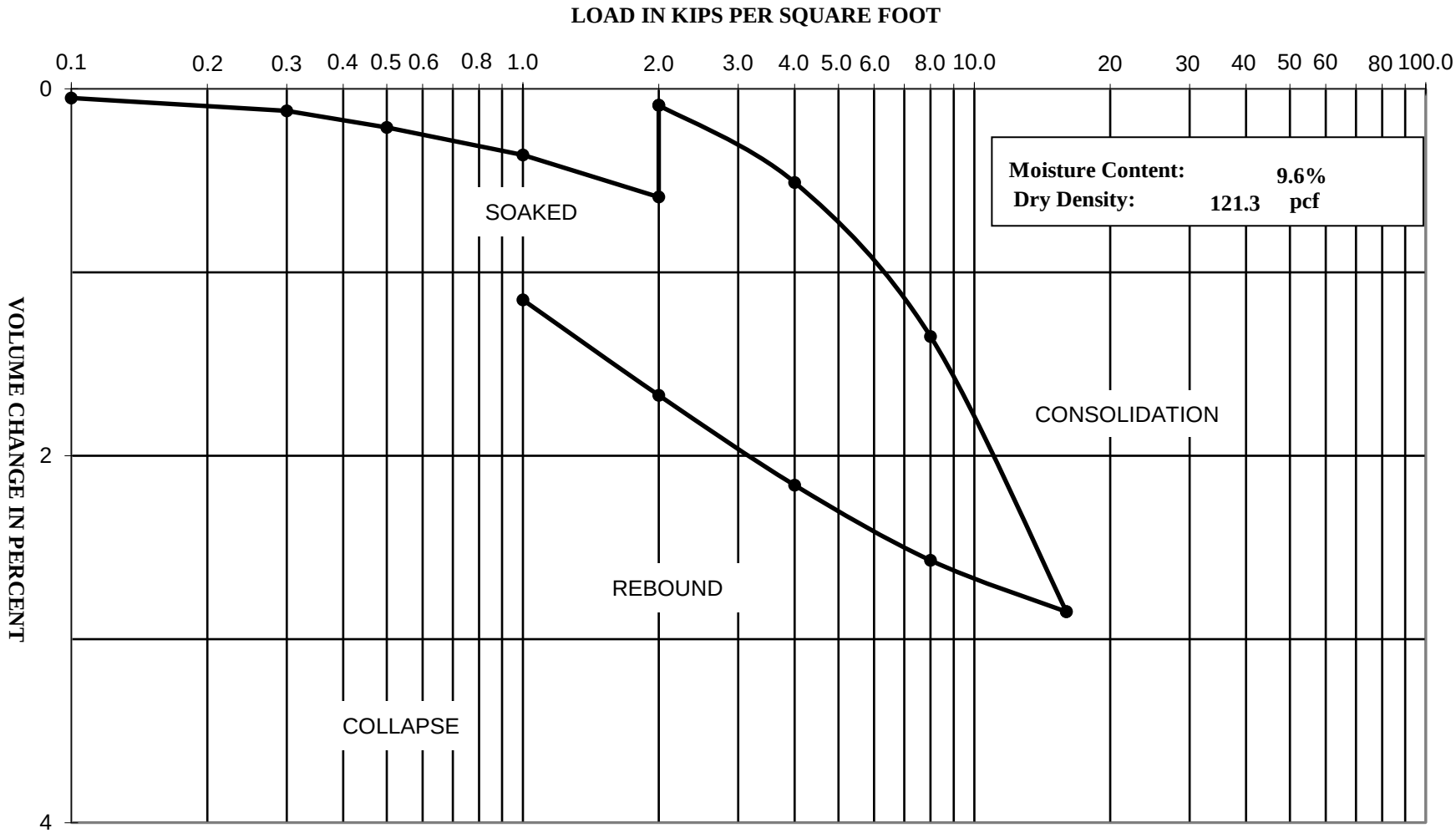
APPENDIX

B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM), Caltrans, or other suggested procedures. Selected samples were tested for in-situ dry density and moisture content, corrosivity, consolidation, expansion index, and grain size distribution. The results of the laboratory tests are summarized in the following figures.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



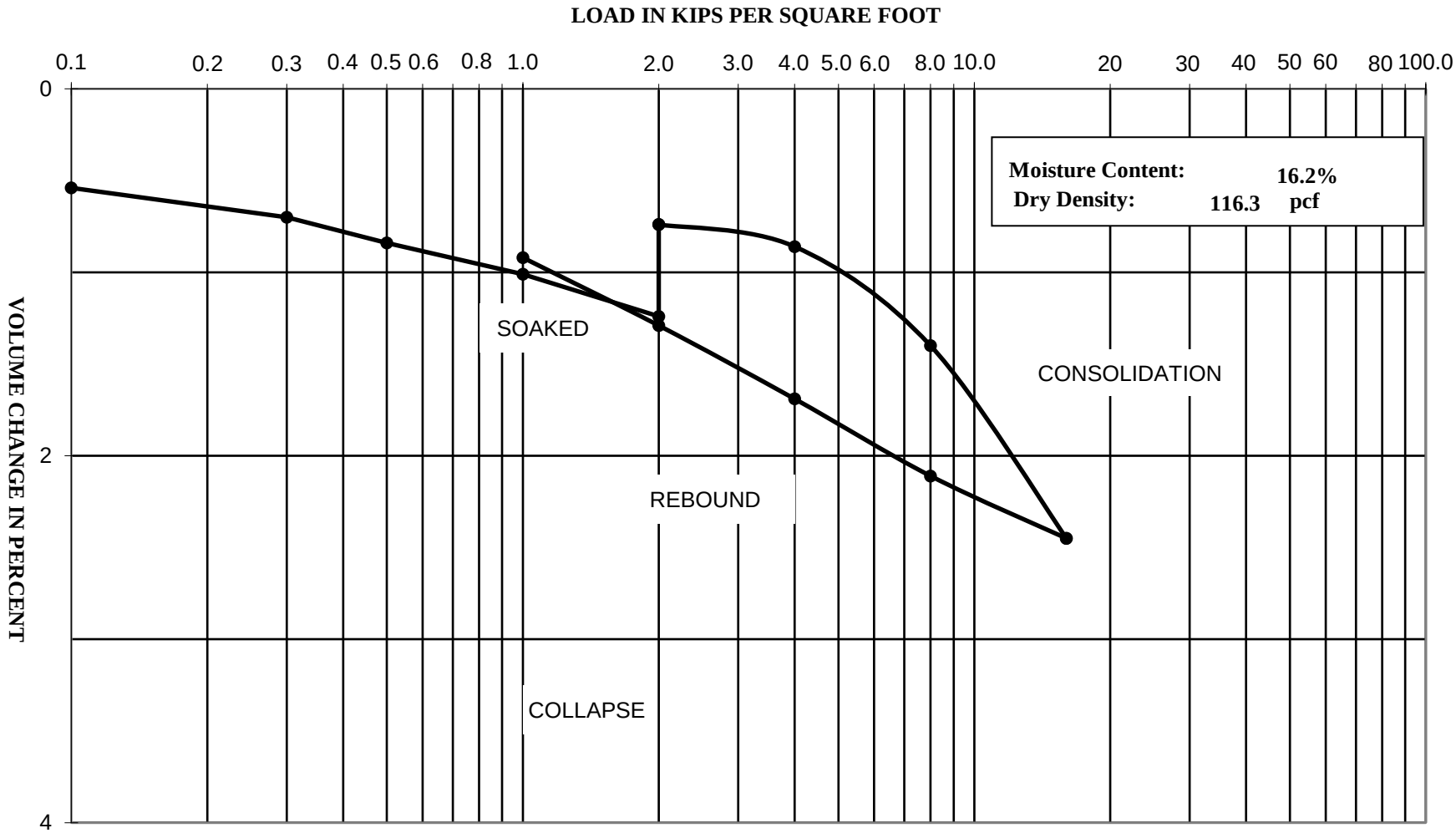
Project Name: Two SFRs - San Martin, CA

Project Number: 5-221-1209

Boring: B-1 @ 3.5'

SALEM engineering group, inc.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



Project Name: Two SFRs - San Martin, CA

Project Number: 5-221-1209

Boring: B-3 @ 5'

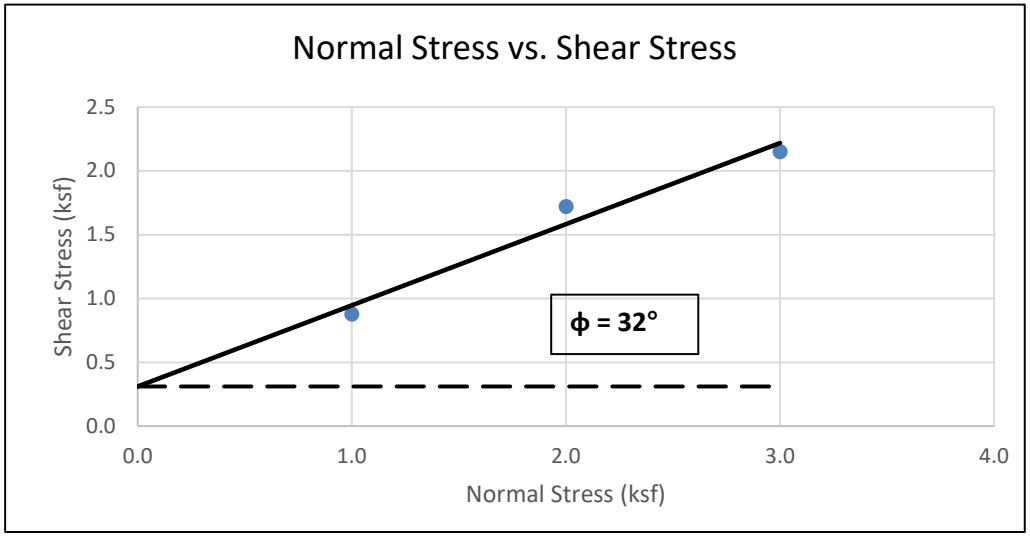
SALEM engineering group, inc.

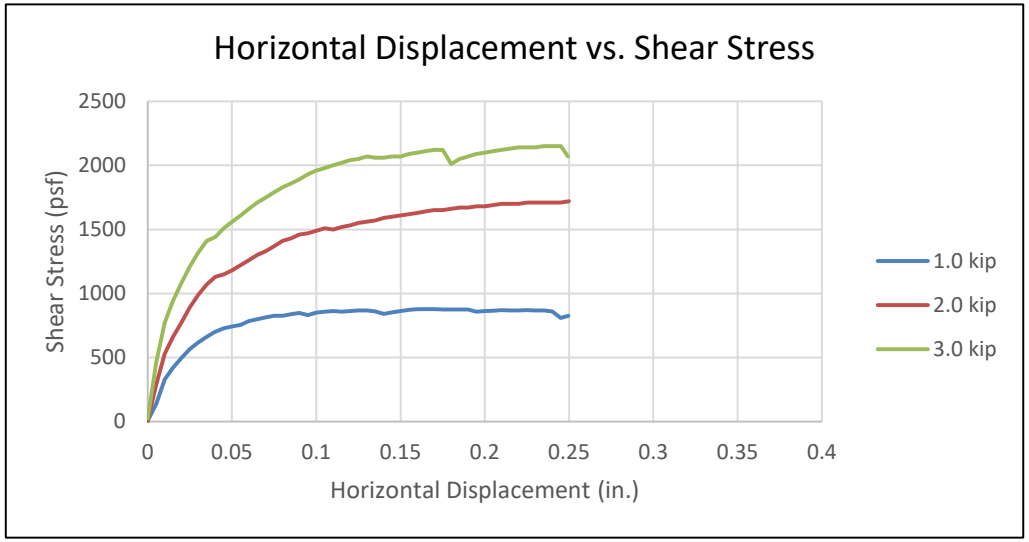
Direct Shear Test (ASTM D3080)

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Client:
Boring: B-3 @ 3.5'
Soil Type: Lean CLAY with Sand (C
Sample Type: Undisturbed Ring
Tested By: NL
Reviewed By:
Date of Test: 12/16/21
Test Equipment: GeoComp ShearTrac II

	Loading		
	1.0 kip	**2.0 kip**	**3.0 kip**
Normal Stress (ksf)	1.00	2.00	3.00
Shear Rate (in/min)	0.0025	0.0025	0.0025
Peak Shear Stress (ksf)	0.88	1.72	2.15

Initial Height of Sample (in)	1.000	1.000	1.000
Post-Consol. Sample Height (in.)	0.914	0.878	0.844
Post-Shear Sample Height (in.)	0.895	0.858	0.824
Diameter of Sample (in)	2.4	2.4	2.4
Initial (pre-shear) Values			
Moisture Content (%)	13.4		
Dry Density (pcf)	118.1	116.1	111.7
Saturation %	83.3	79.0	70.2
Void Ratio	0.44	0.46	0.52
Consolidated Void Ratio	0.32	0.28	0.28
Final (post-shear) Values			
Final Moisture Content (%)	25.7	25.1	25.0
Dry Density (pcf)	126.0	127.7	128.7
Saturation %	163.5	177.9	179.4
Void Ratio	0.43	0.38	0.38





Peak Shear Strength Values	
Slope	0.64
Friction Angle	32
Cohesion (psf)	311

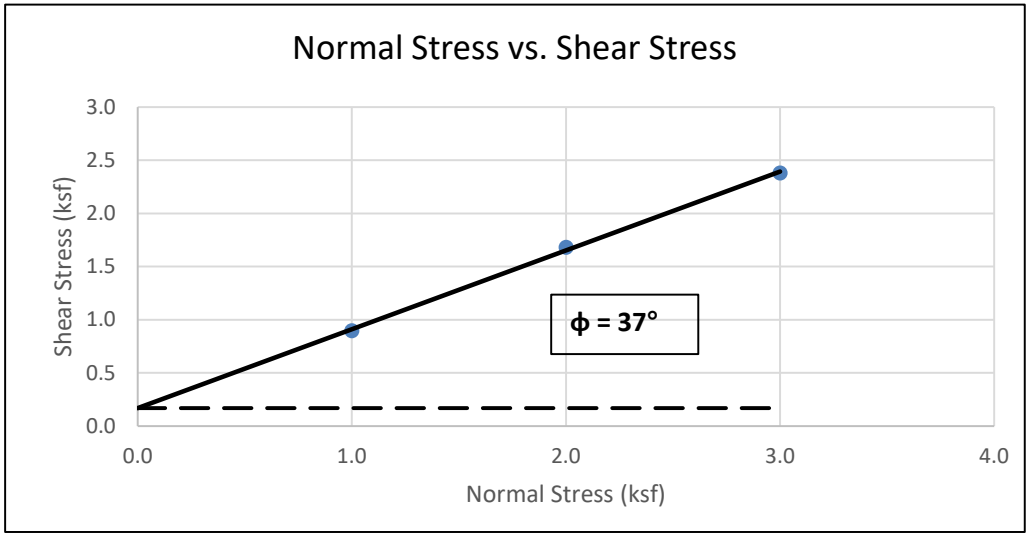
SALEM engineering group, inc.
4729 W. Jacquelyn Ave.
Fresno, CA 93722

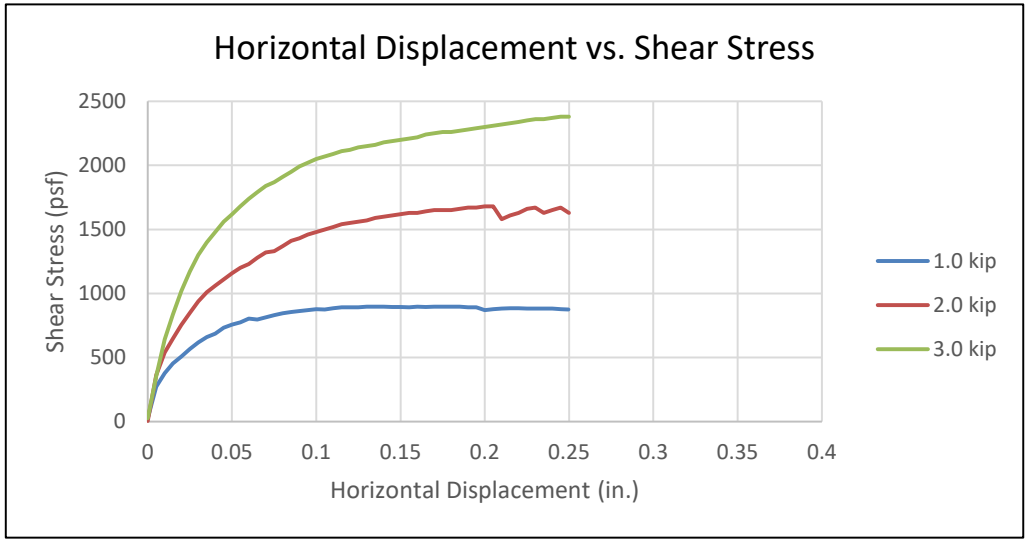
Direct Shear Test (ASTM D3080)

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Client:
Boring: B-4 @ 3.5'
Soil Type: Lean CLAY with Sand (C
Sample Type: Undisturbed Ring
Tested By: NL
Reviewed By:
Date of Test: 12/17/21
Test Equipment: GeoComp ShearTrac II

	Loading		
	1.0 kip	**2.0 kip**	**3.0 kip**
Normal Stress (ksf)	1.00	2.00	3.00
Shear Rate (in/min)	0.0025	0.0025	0.0025
Peak Shear Stress (ksf)	0.90	1.68	2.38

Initial Height of Sample (in)	1.000	1.000	1.000
Post-Consol. Sample Height (in.)	0.889	0.808	0.820
Post-Shear Sample Height (in.)	0.872	0.790	0.803
Diameter of Sample (in)	2.4	2.4	2.4
Initial (pre-shear) Values			
Moisture Content (%)		9.9	
Dry Density (pcf)	122.0	114.2	119.8
Saturation %	68.9	55.5	64.7
Void Ratio	0.39	0.49	0.42
Consolidated Void Ratio	0.24	0.20	0.16
Final (post-shear) Values			
Final Moisture Content (%)	26.0	23.9	21.2
Dry Density (pcf)	126.1	125.3	138.6
Saturation %	180.8	201.3	225.9
Void Ratio	0.39	0.32	0.26





Peak Shear Strength Values	
Slope	0.74
Friction Angle	37
Cohesion (psf)	169

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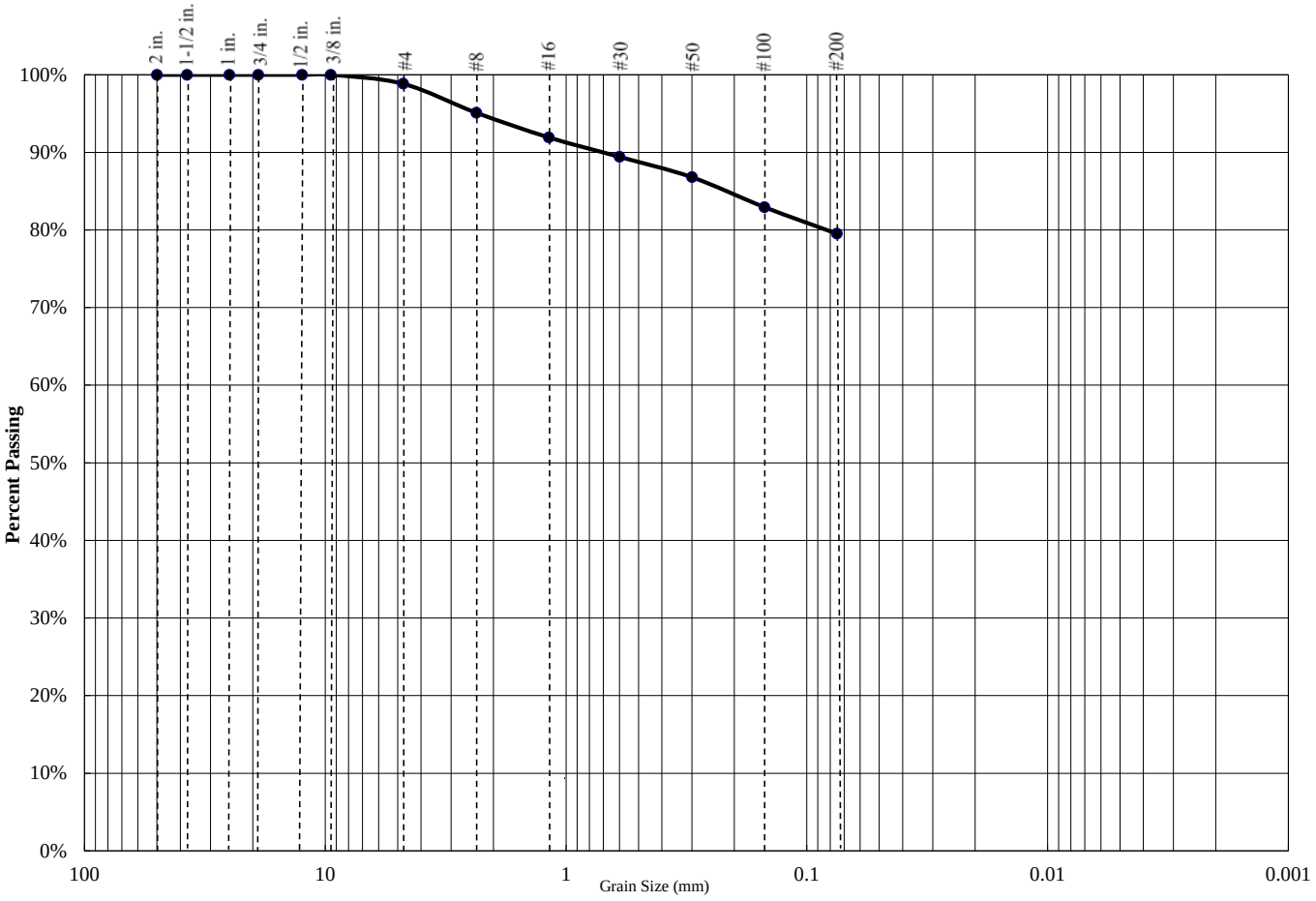
Fresno, CA 93722

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	19%	80%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.8%
#8	95.1%
#16	91.9%
#30	89.4%
#50	86.8%
#100	82.9%
#200	79.5%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with Sand (CL)

Project Name: Two SFRs - San Martin, CA

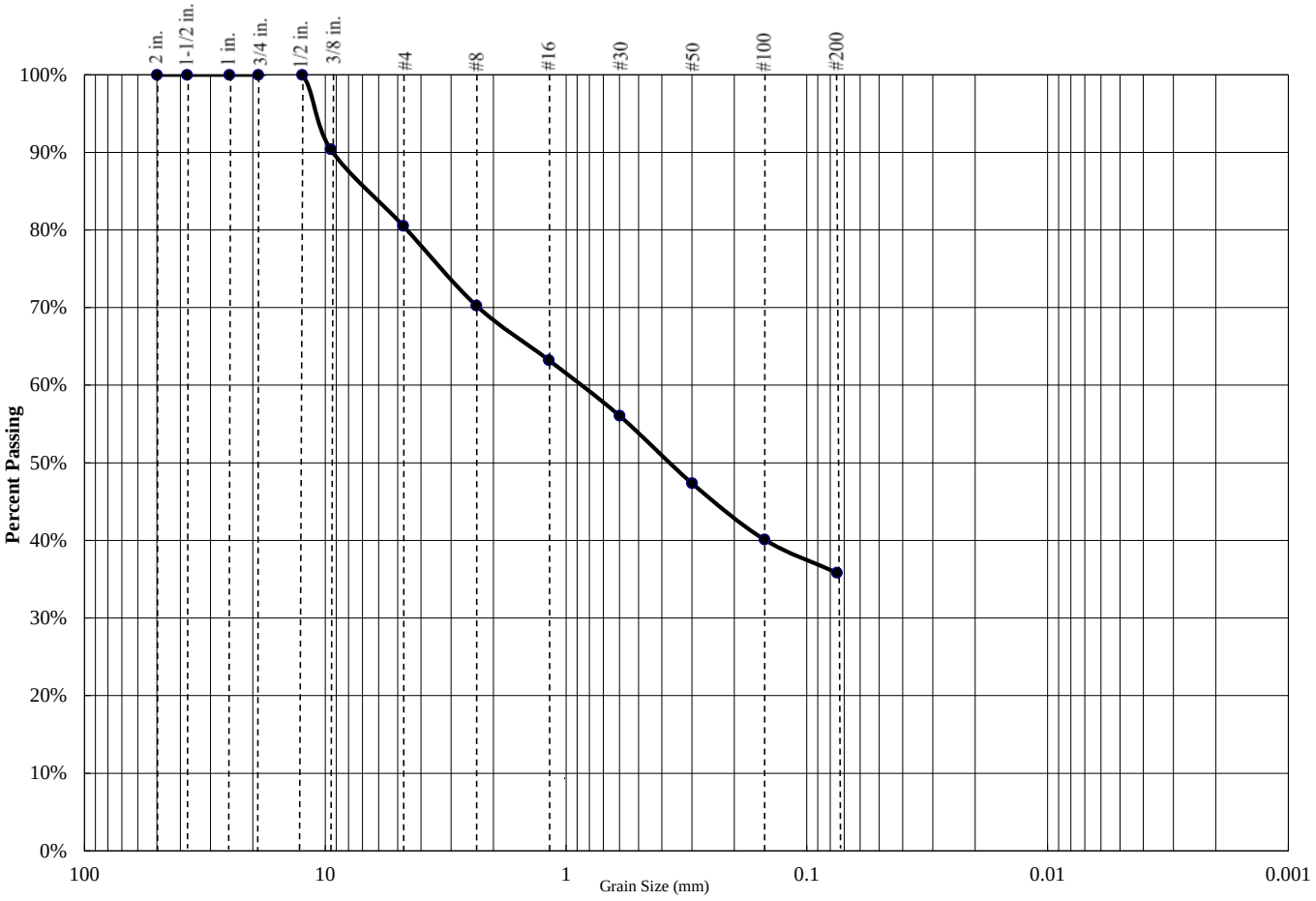
Project Number: 5-221-1209

Boring: B-1 @ 1.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
19%	45%	36%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	90.4%
#4	80.5%
#8	70.3%
#16	63.2%
#30	56.1%
#50	47.4%
#100	40.1%
#200	35.8%

Atterberg Limits		
PL=	**LL=**	**PI=**

Coefficients					
D_{85}=		**D_{60}=**		**D_{50}=**	
D_{30}=		**D_{15}=**		**D_{10}=**	
C_u=	N/A	**C_c=**	N/A		

USCS CLASSIFICATION
Clayey SAND with Gravel (SC)

Project Name: Two SFRs - San Martin, CA

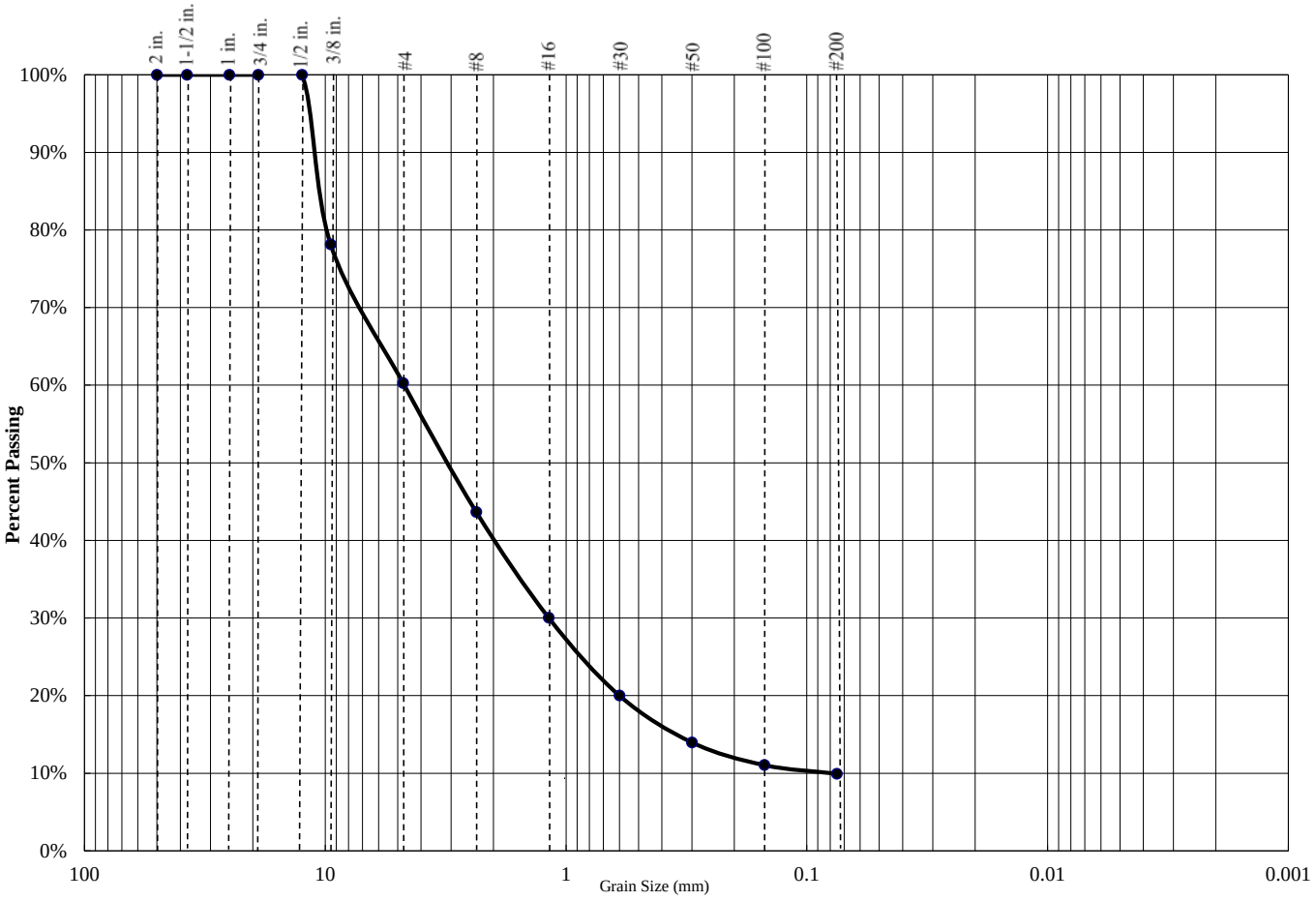
Project Number: 5-221-1209

Boring: B-1 @ 5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
40%	50%	10%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	78.1%
#4	60.3%
#8	43.7%
#16	30.0%
#30	20.0%
#50	14.0%
#100	11.0%
#200	9.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Poorley Graded SAND with CLAY (SP-SC) and Gravel

Project Name: Two SFRs - San Martin, CA

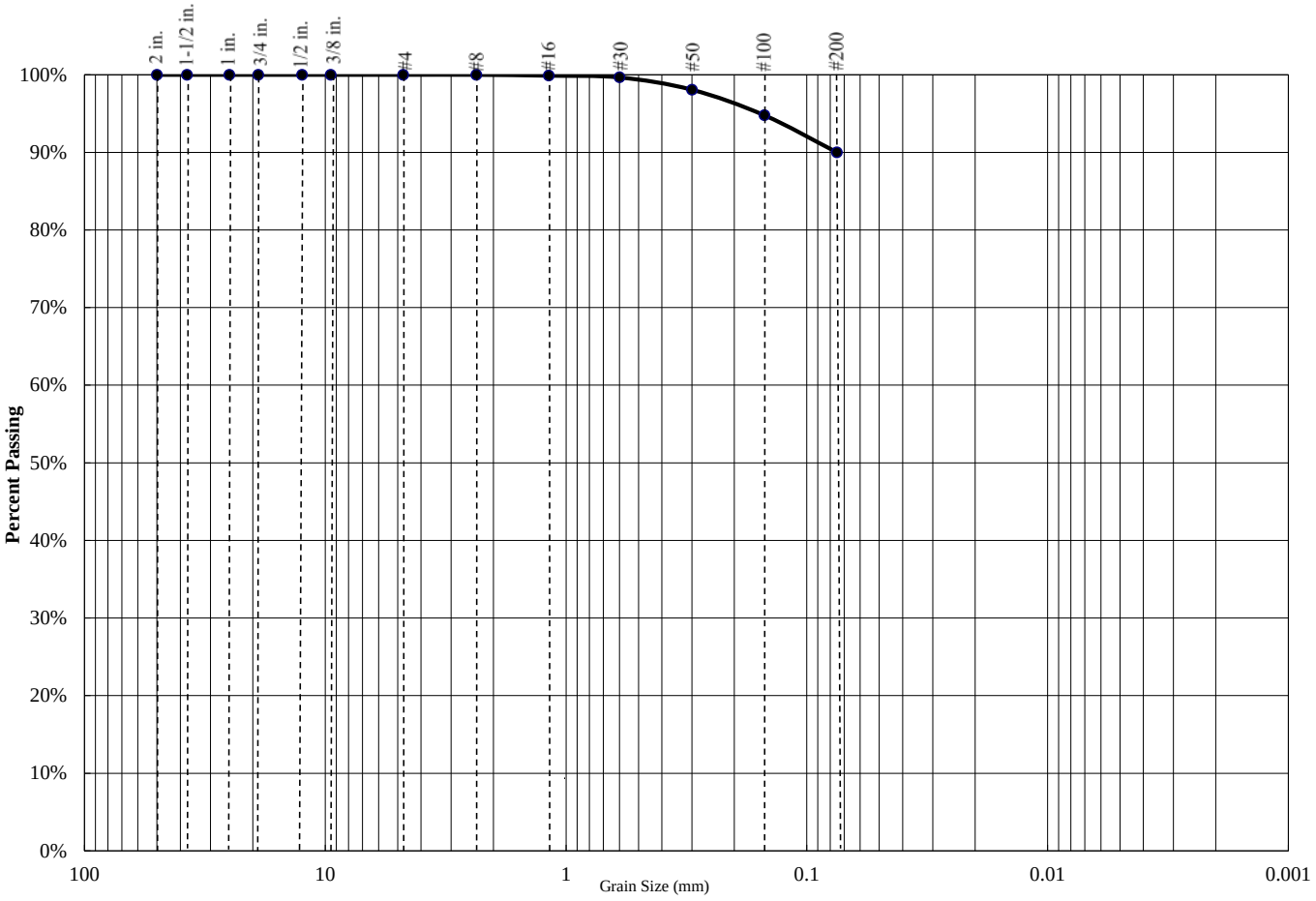
Project Number: 5-221-1209

Boring: B-1 @ 13.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	10%	90%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	100.0%
#16	99.9%
#30	99.7%
#50	98.1%
#100	94.8%
#200	90.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY (CL)

Project Name: Two SFRs - San Martin, CA

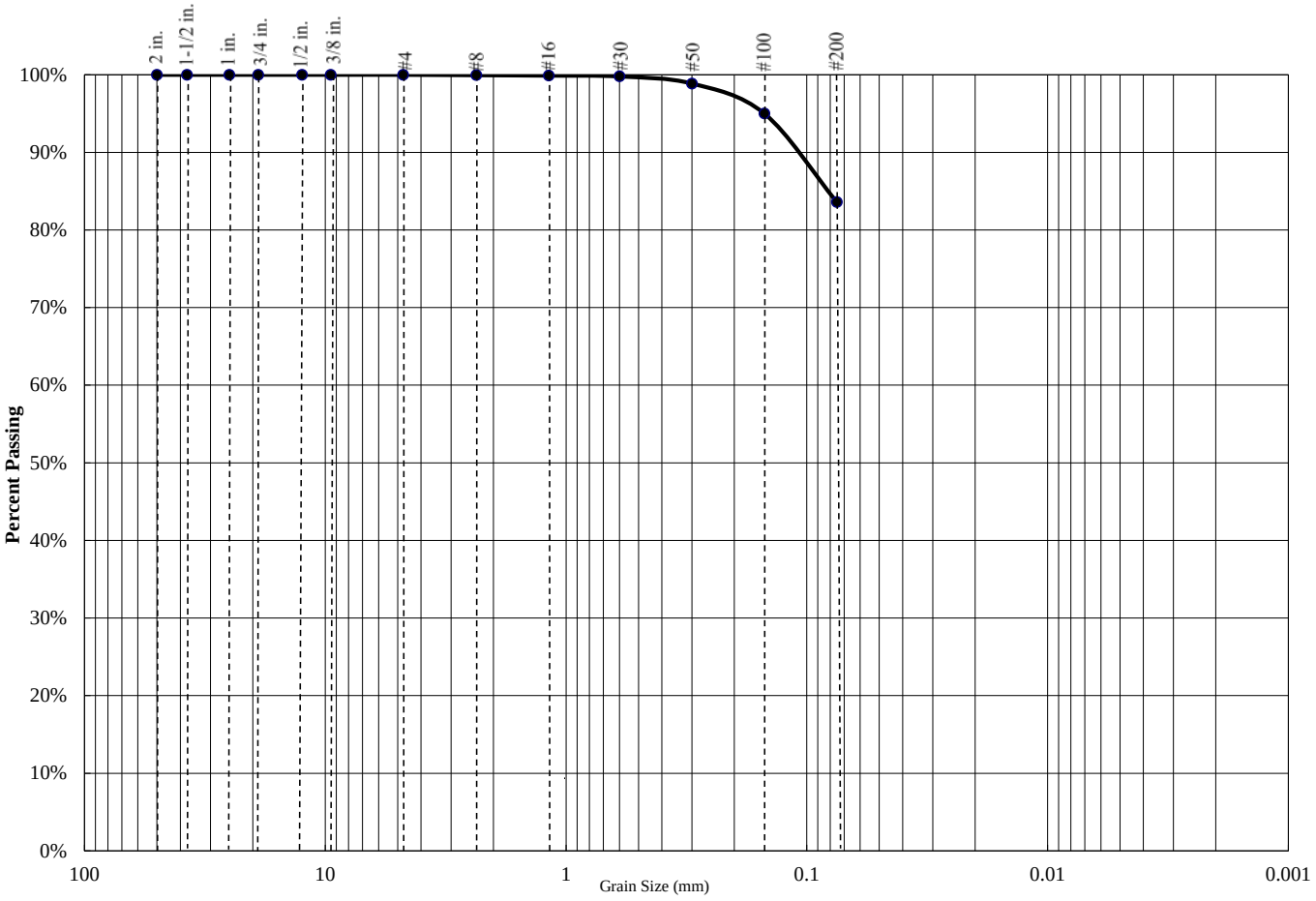
Project Number: 5-221-1209

Boring: B-1 @ 18.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	16%	84%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	99.9%
#16	99.9%
#30	99.8%
#50	98.9%
#100	95.0%
#200	83.6%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with Sand (CL)

Project Name: Two SFRs - San Martin, CA

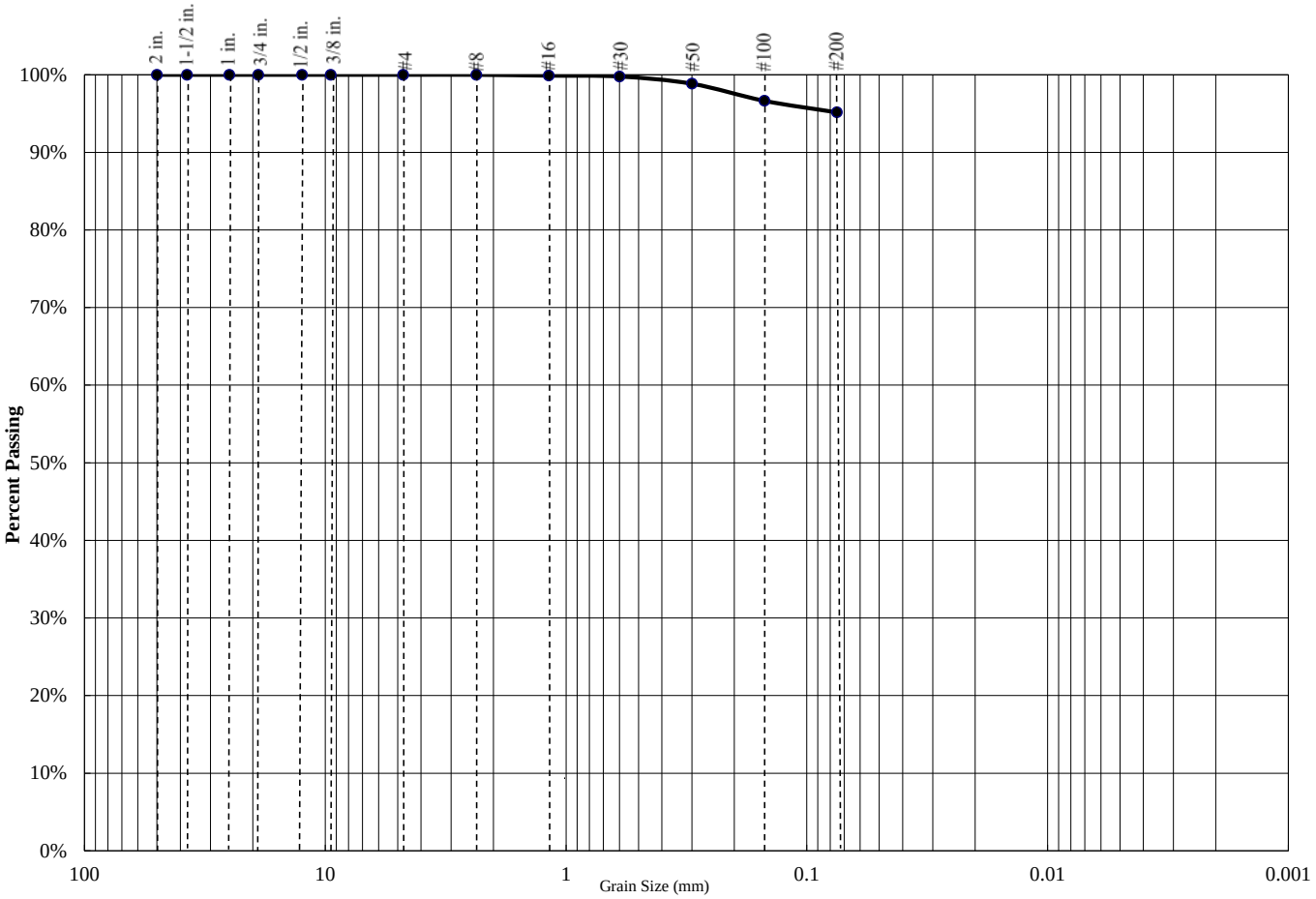
Project Number: 5-221-1209

Boring: B-1 @ 28.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	5%	95%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	100.0%
#16	99.9%
#30	99.8%
#50	98.8%
#100	96.6%
#200	95.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY (CL)

Project Name: Two SFRs - San Martin, CA

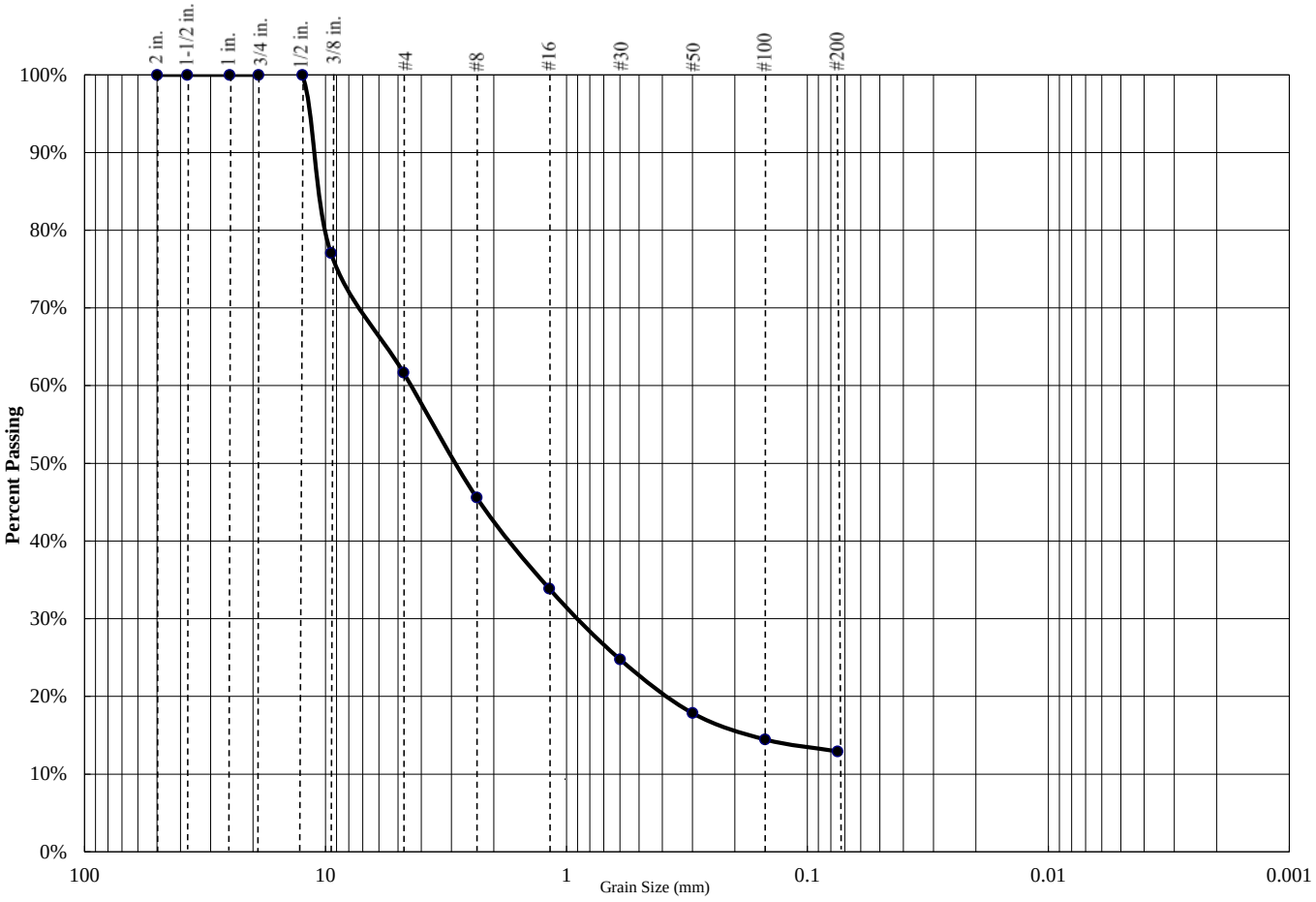
Project Number: 5-221-1209

Boring: B-1 @ 48.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
38%	49%	13%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	77.1%
#4	61.7%
#8	45.6%
#16	33.9%
#30	24.8%
#50	17.9%
#100	14.5%
#200	12.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND with Gravel (SC)

Project Name: Two SFRs - San Martin, CA

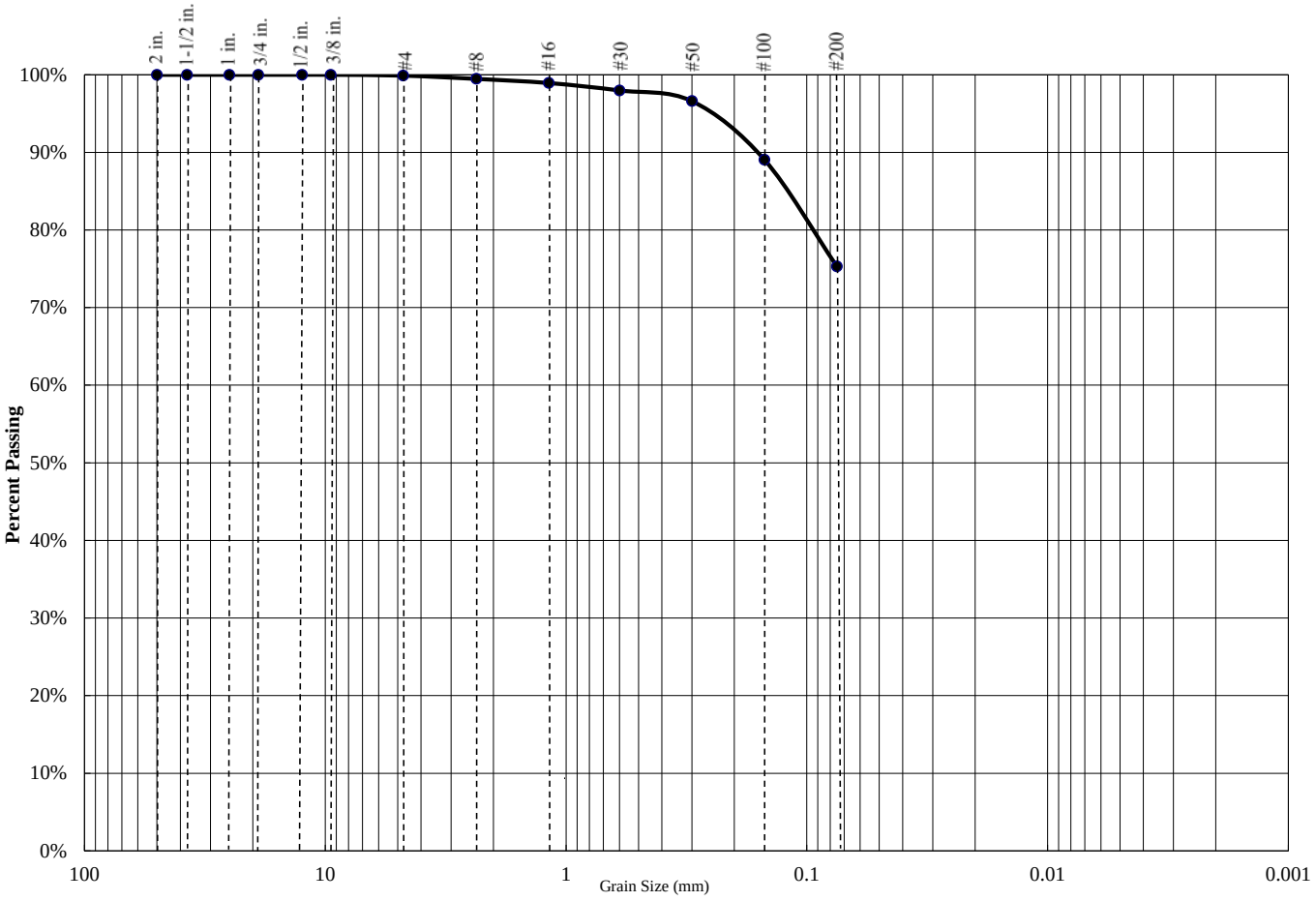
Project Number: 5-221-1209

Boring: B-2 @ 10'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	25%	75%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.9%
#8	99.5%
#16	98.9%
#30	98.0%
#50	96.6%
#100	89.1%
#200	75.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with Sand (CL)

Project Name: Two SFRs - San Martin, CA

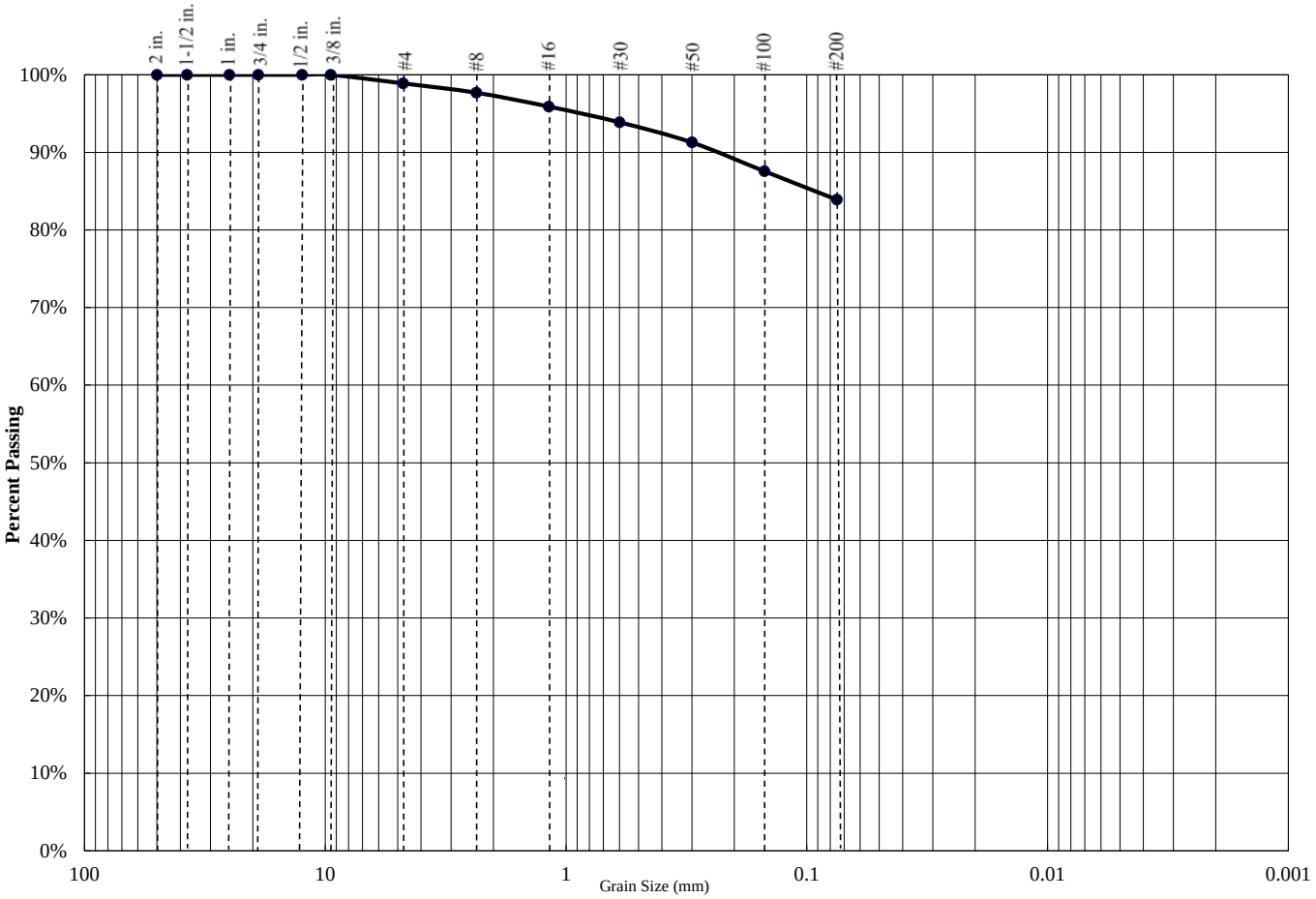
Project Number: 5-221-1209

Boring: B-2 @ 20'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	15%	84%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.9%
#8	97.7%
#16	95.9%
#30	93.9%
#50	91.3%
#100	87.6%
#200	83.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with Sand (CL)

Project Name: Two SFRs - San Martin, CA

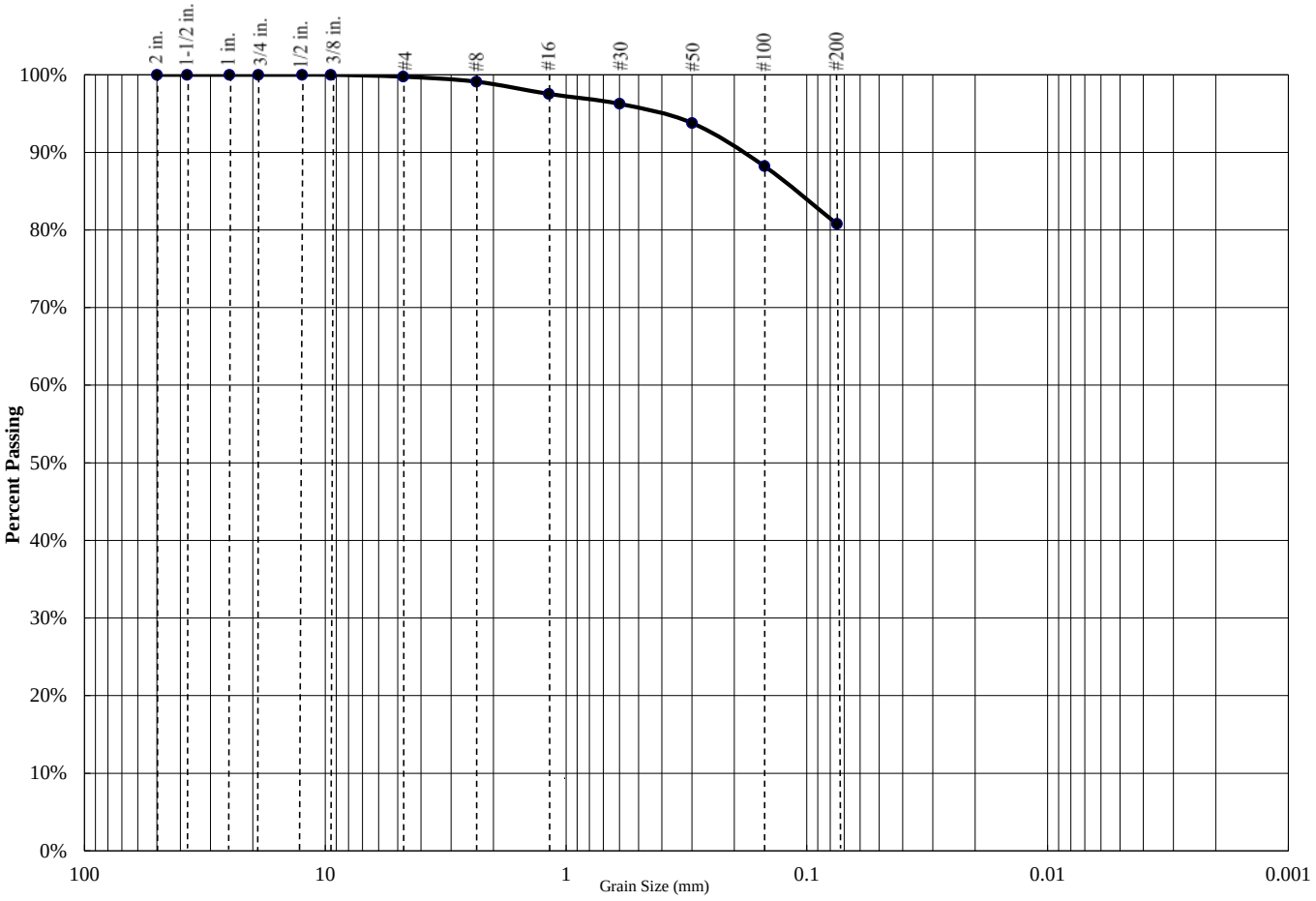
Project Number: 5-221-1209

Boring: B-3 @ 3.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	19%	81%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.8%
#8	99.1%
#16	97.5%
#30	96.3%
#50	93.8%
#100	88.2%
#200	80.8%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with Sand (CL)

Project Name: Two SFRs - San Martin, CA

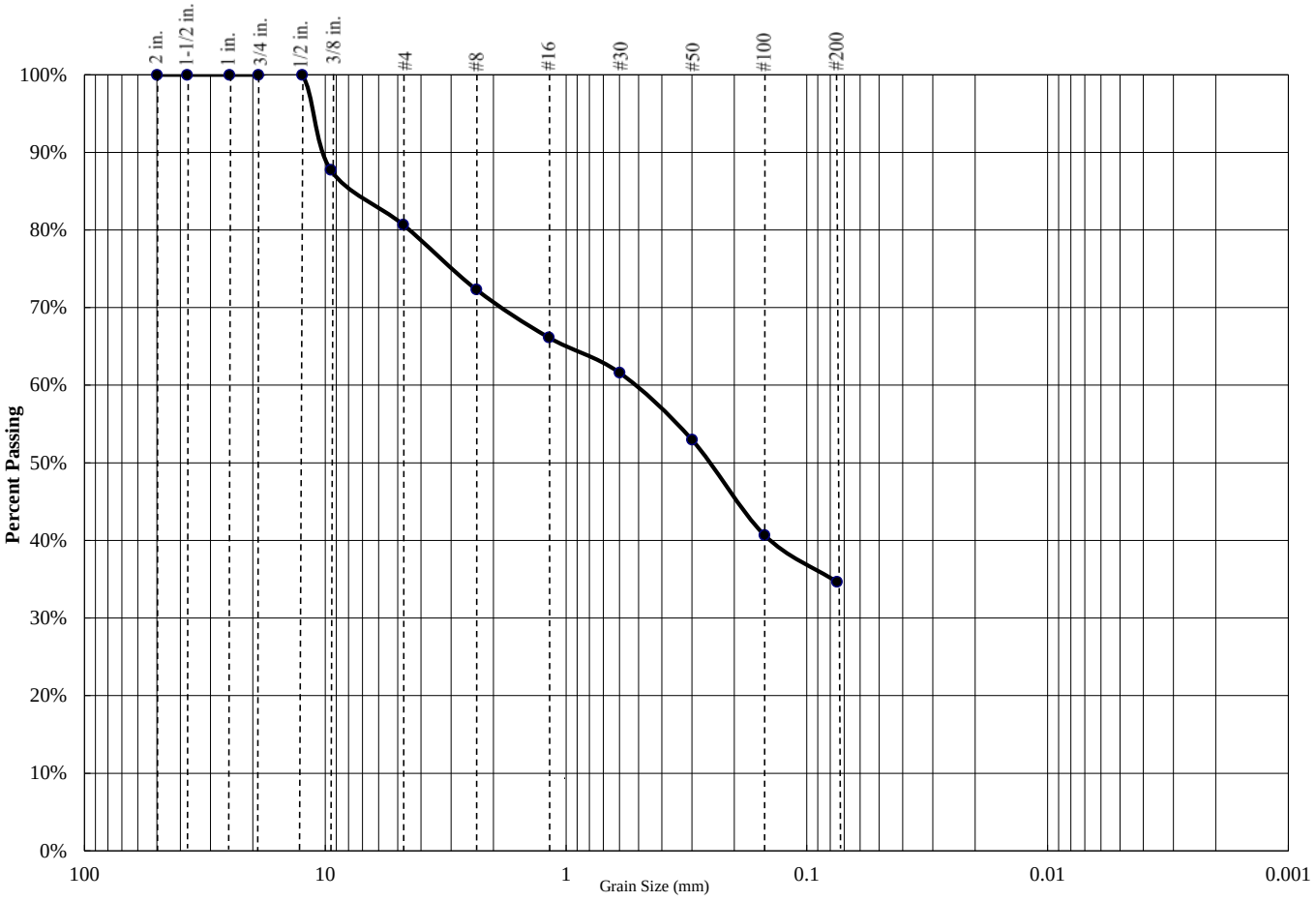
Project Number: 5-221-1209

Boring: B-3 @ 5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
19%	46%	35%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	87.8%
#4	80.7%
#8	72.3%
#16	66.1%
#30	61.6%
#50	53.0%
#100	40.7%
#200	34.7%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND with Gravel (SC)

Project Name: Two SFRs - San Martin, CA

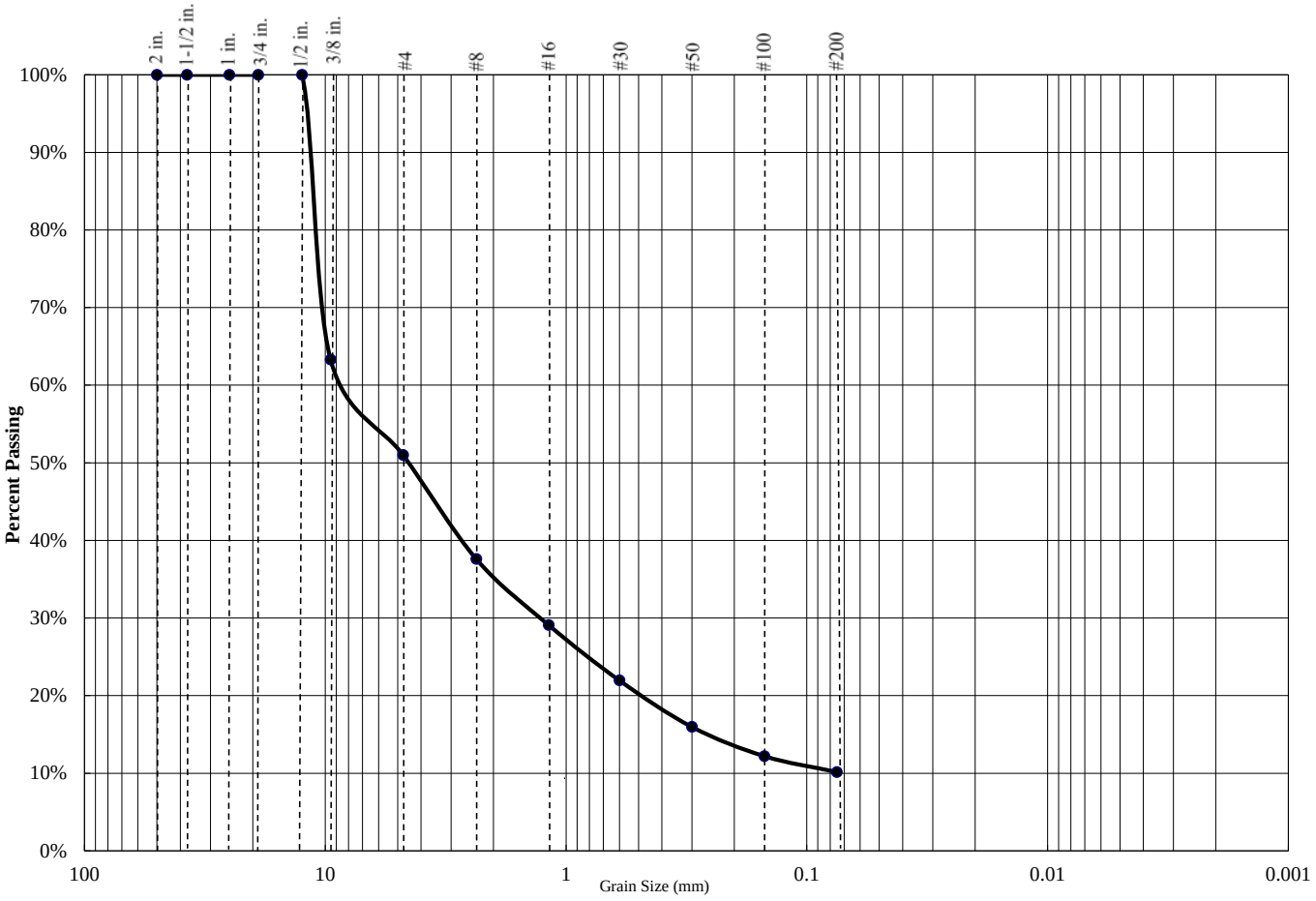
Project Number: 5-221-1209

Boring: B-3 @ 8.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
49%	41%	10%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	63.3%
#4	51.0%
#8	37.6%
#16	29.1%
#30	22.0%
#50	16.0%
#100	12.2%
#200	10.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Poorley Graded GRAVEL with CLAY (GP-GC) and Sand

Project Name: Two SFRs - San Martin, CA

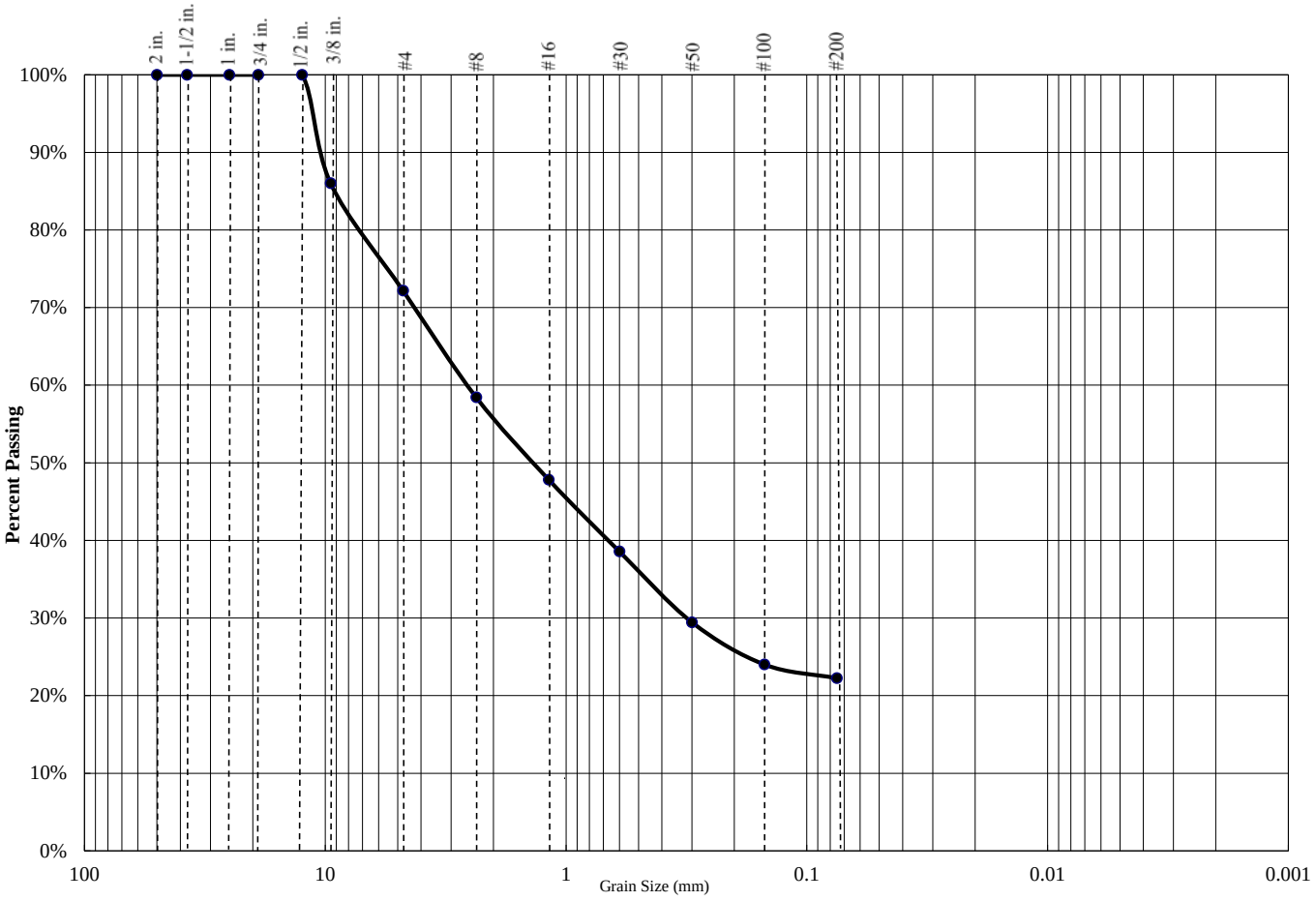
Project Number: 5-221-1209

Boring: B-3 @ 13.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
28%	50%	22%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	86.0%
#4	72.2%
#8	58.4%
#16	47.8%
#30	38.6%
#50	29.5%
#100	24.0%
#200	22.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND (SC) with Gravel

Project Name: Two SFRs - San Martin, CA

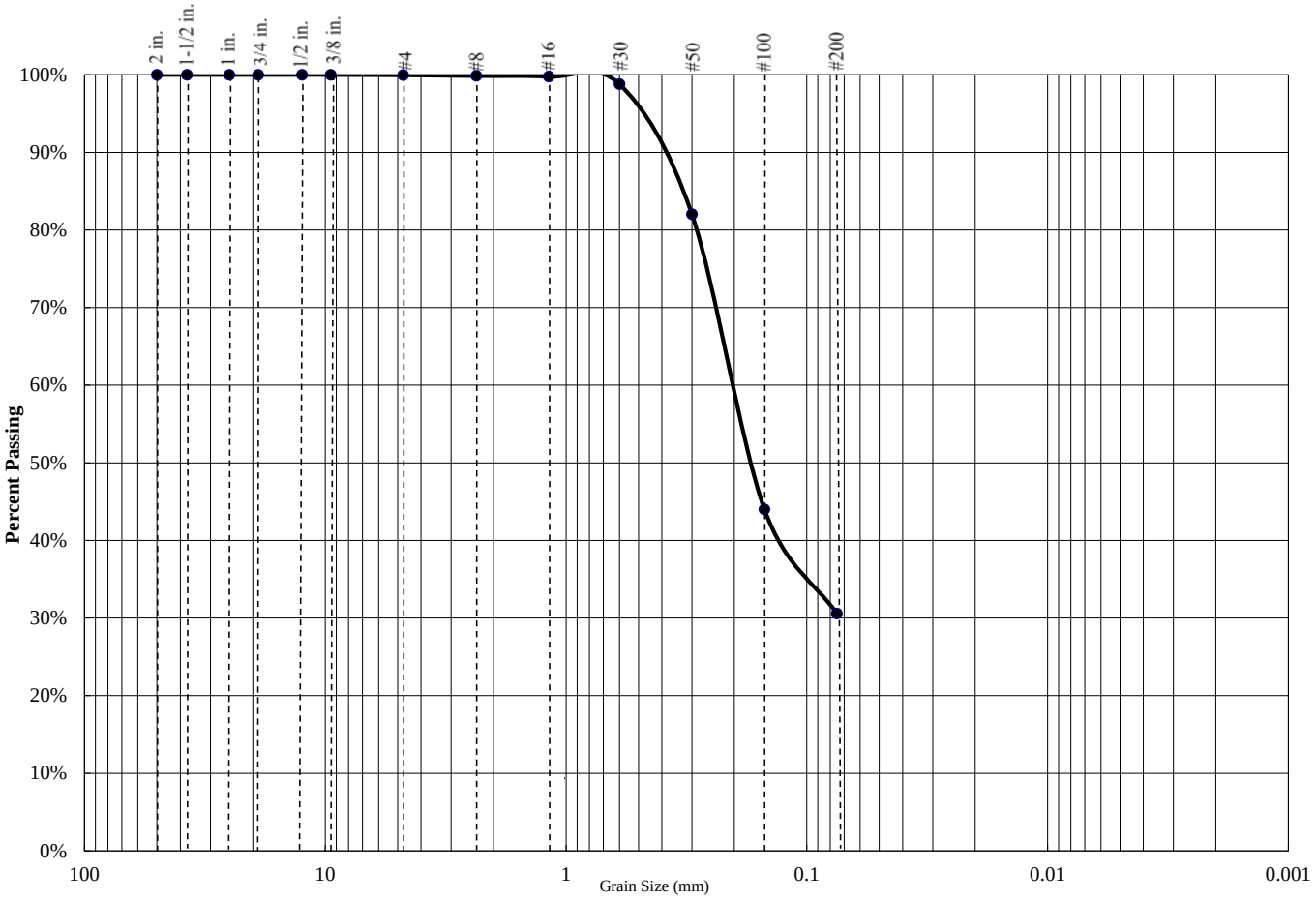
Project Number: 5-221-1209

Boring: B-3 @ 28.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	69%	31%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	99.9%
#16	99.8%
#30	98.8%
#50	82.0%
#100	44.0%
#200	30.6%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND (SC)

Project Name: Two SFRs - San Martin, CA

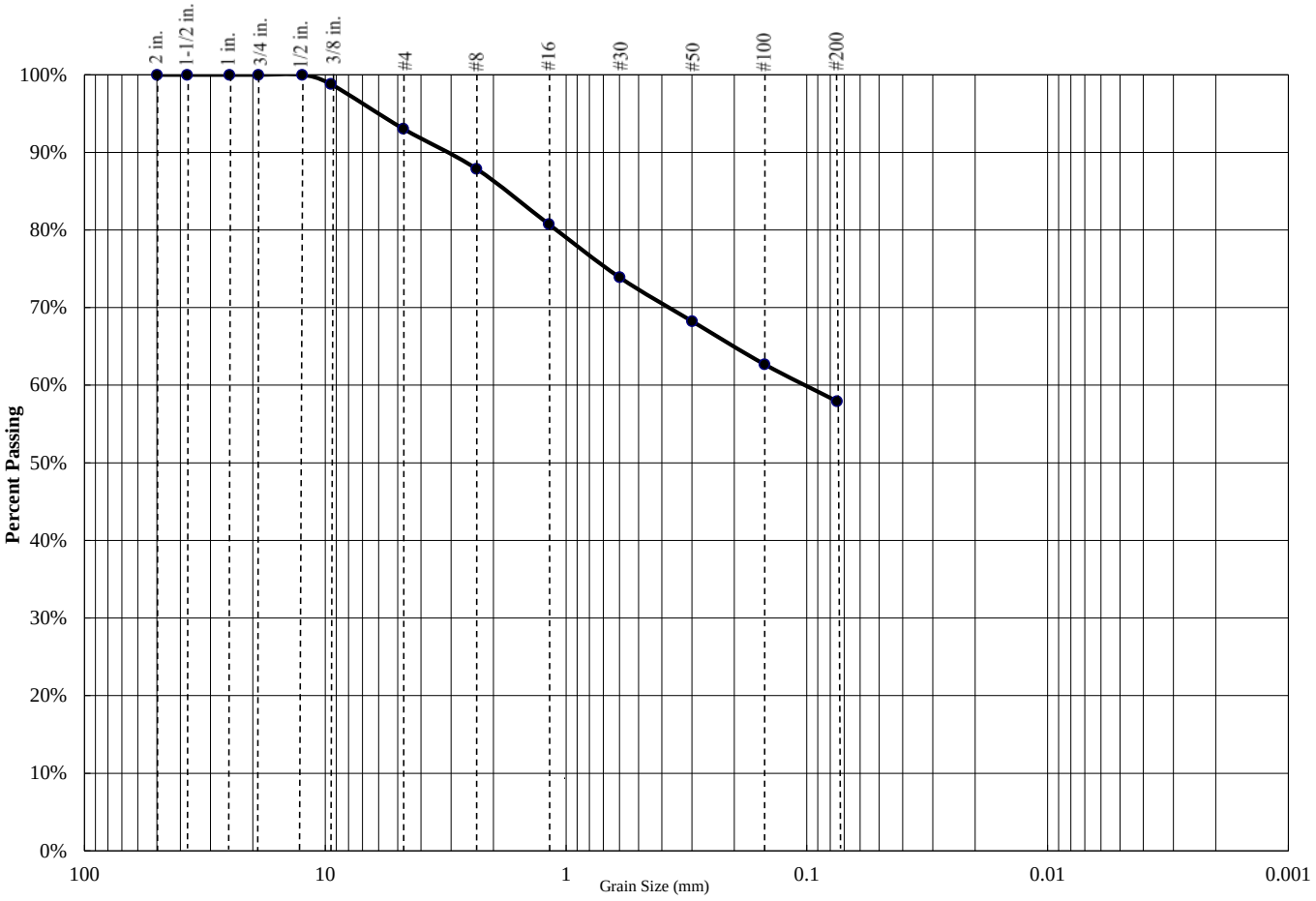
Project Number: 5-221-1209

Boring: B-3 @ 48.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
7%	35%	58%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	98.8%
#4	93.1%
#8	87.9%
#16	80.8%
#30	73.9%
#50	68.3%
#100	62.7%
#200	57.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Sandy CLAY (CL)

Project Name: Two SFRs - San Martin, CA

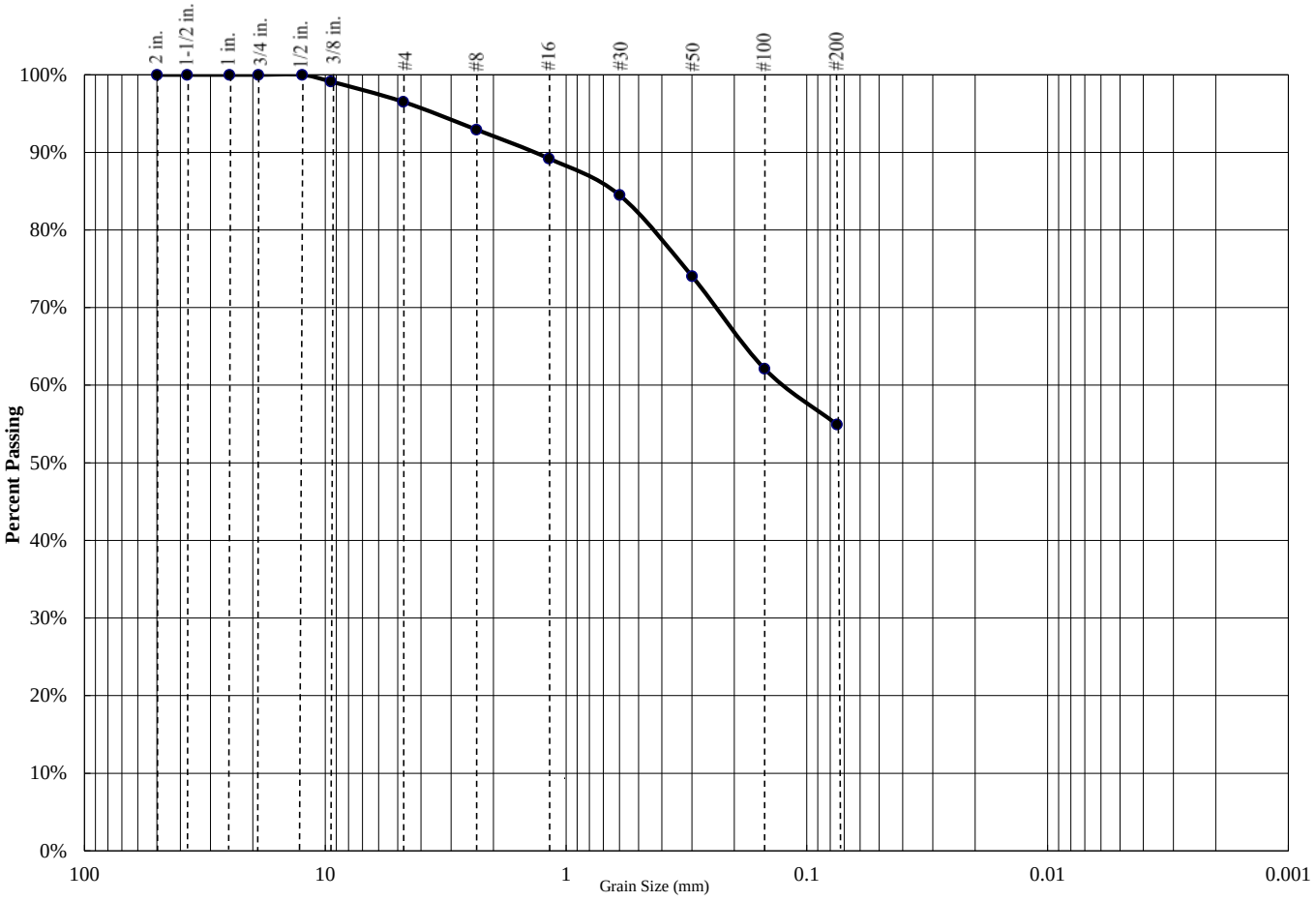
Project Number: 5-221-1209

Boring: B-4 @ 3.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
3%	42%	55%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	99.1%
#4	96.5%
#8	92.9%
#16	89.2%
#30	84.5%
#50	74.1%
#100	62.1%
#200	54.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Sandy CLAY (CL)

Project Name: Two SFRs - San Martin, CA

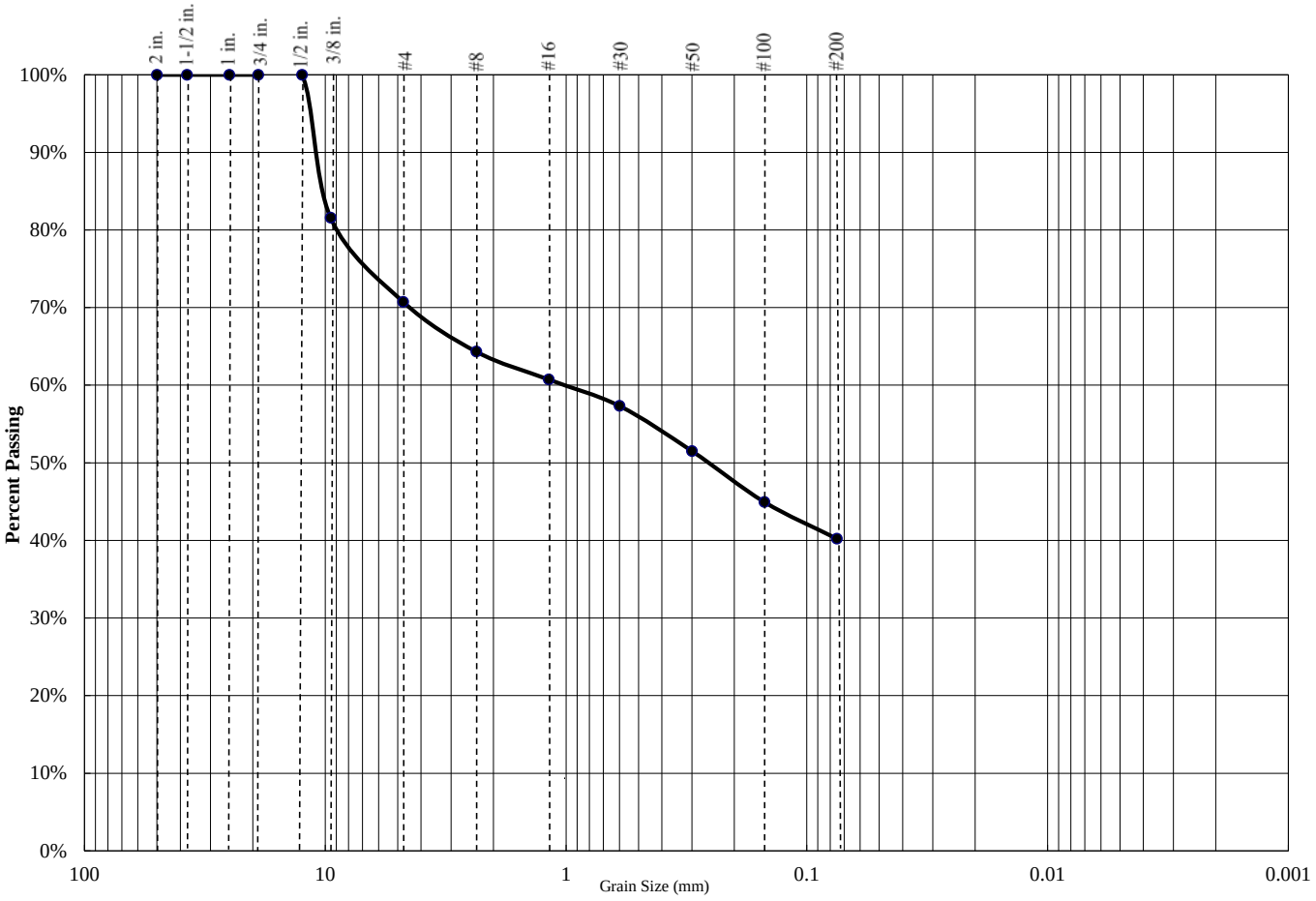
Project Number: 5-221-1209

Boring: B-4 @ 5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
29%	31%	40%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	81.6%
#4	70.7%
#8	64.3%
#16	60.7%
#30	57.3%
#50	51.5%
#100	44.9%
#200	40.2%

Atterberg Limits		
PL=	**LL=**	**PI=**

Coefficients					
D_{85}=		**D_{60}=**		**D_{50}=**	
D_{30}=		**D_{15}=**		**D_{10}=**	
C_u=	N/A	**C_c=**	N/A		

USCS CLASSIFICATION
Clayey SAND with Gravel (SC)

Project Name: Two SFRs - San Martin, CA

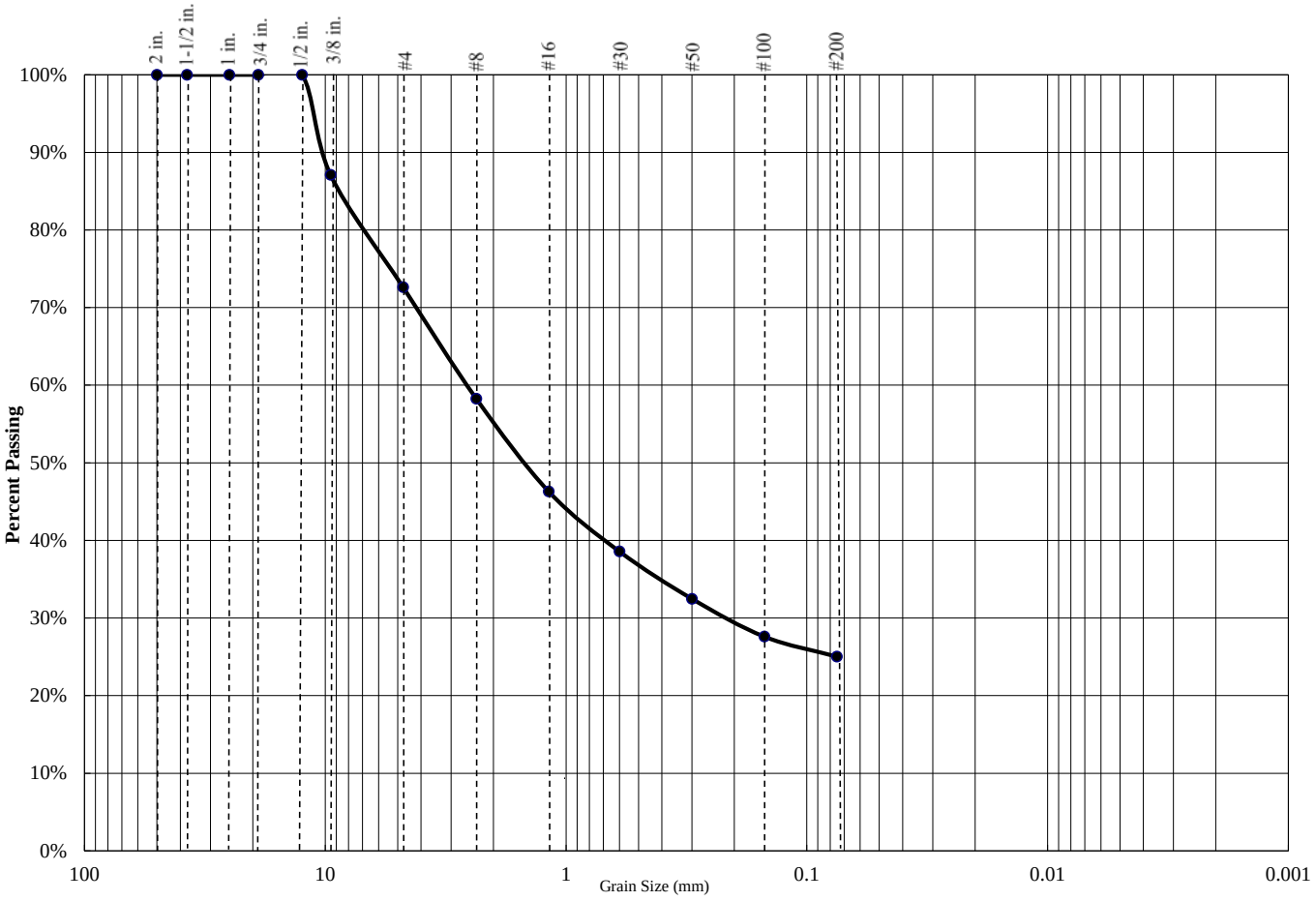
Project Number: 5-221-1209

Boring: B-4 @ 10'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
27%	48%	25%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	87.1%
#4	72.6%
#8	58.3%
#16	46.3%
#30	38.6%
#50	32.5%
#100	27.6%
#200	25.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND with Gravel (SC)

Project Name: Two SFRs - San Martin, CA

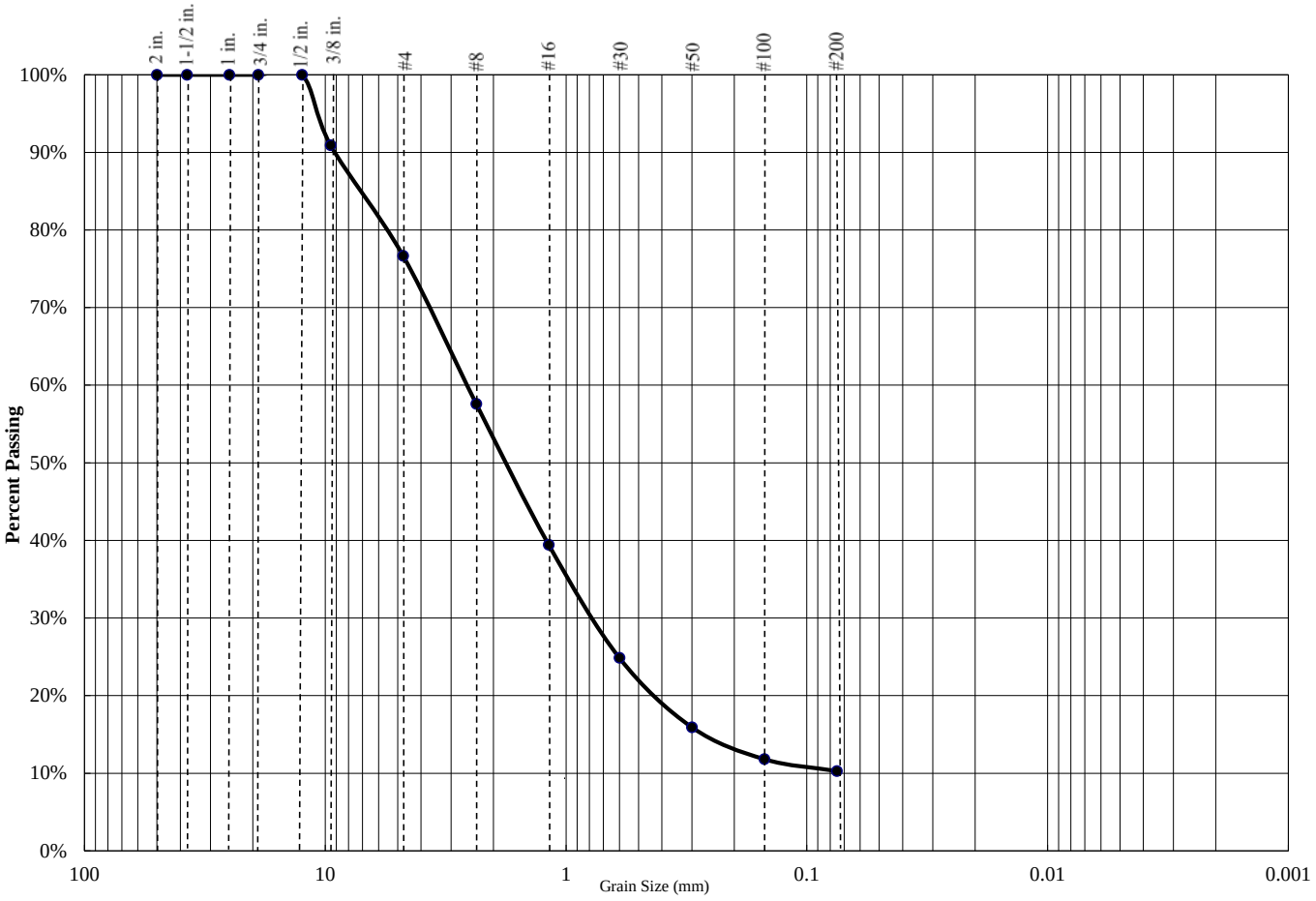
Project Number: 5-221-1209

Boring: B-4 @ 15'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
23%	67%	10%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	90.9%
#4	76.7%
#8	57.6%
#16	39.4%
#30	24.9%
#50	15.9%
#100	11.8%
#200	10.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Poorley Graded SAND with CLAY (SP-SC) and Gravel

Project Name: Two SFRs - San Martin, CA

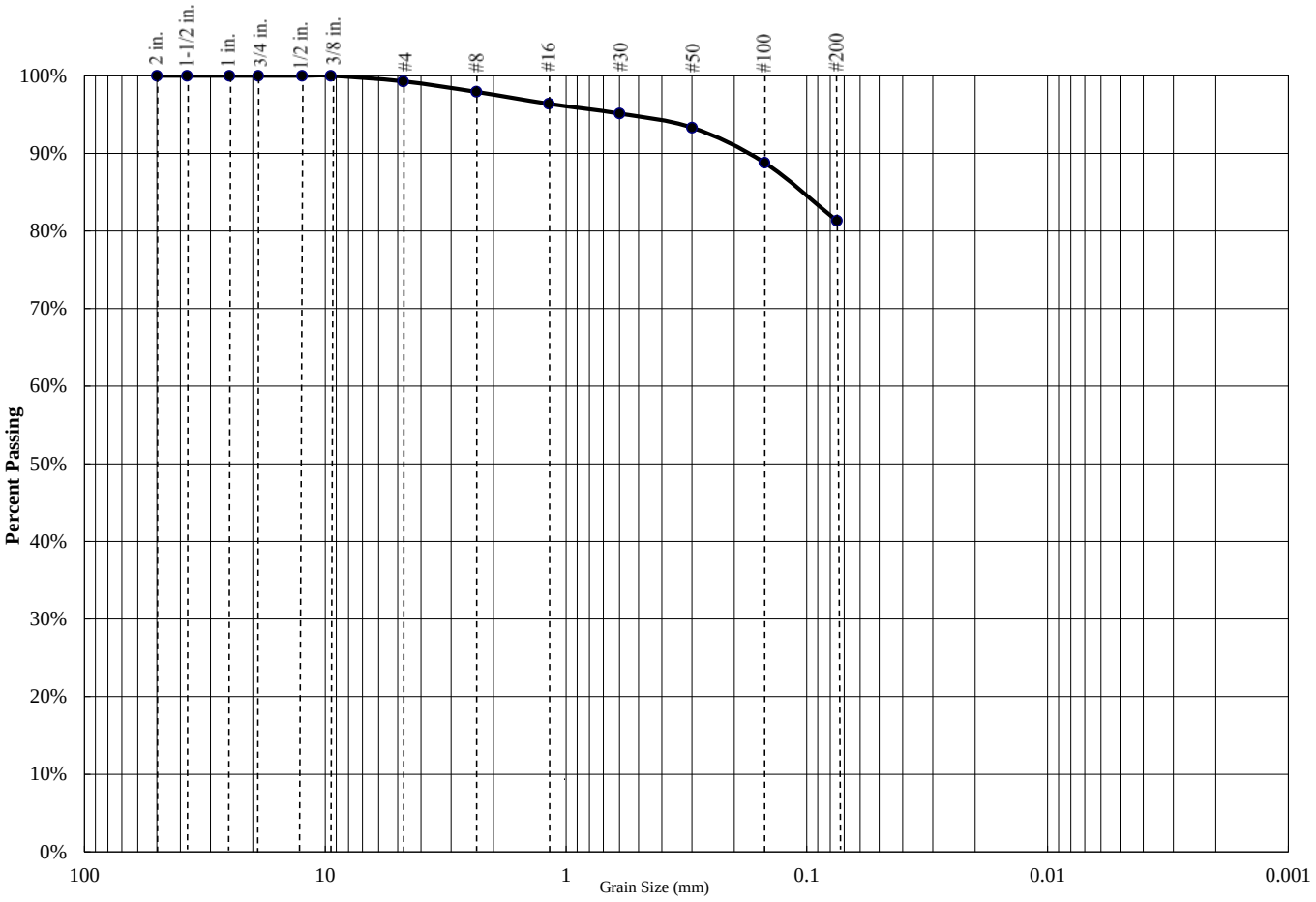
Project Number: 5-221-1209

Boring: B-4 @ 25'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	18%	81%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.3%
#8	97.9%
#16	96.4%
#30	95.1%
#50	93.3%
#100	88.8%
#200	81.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY with SAND (CL)

Project Name: Two SFRs - San Martin, CA

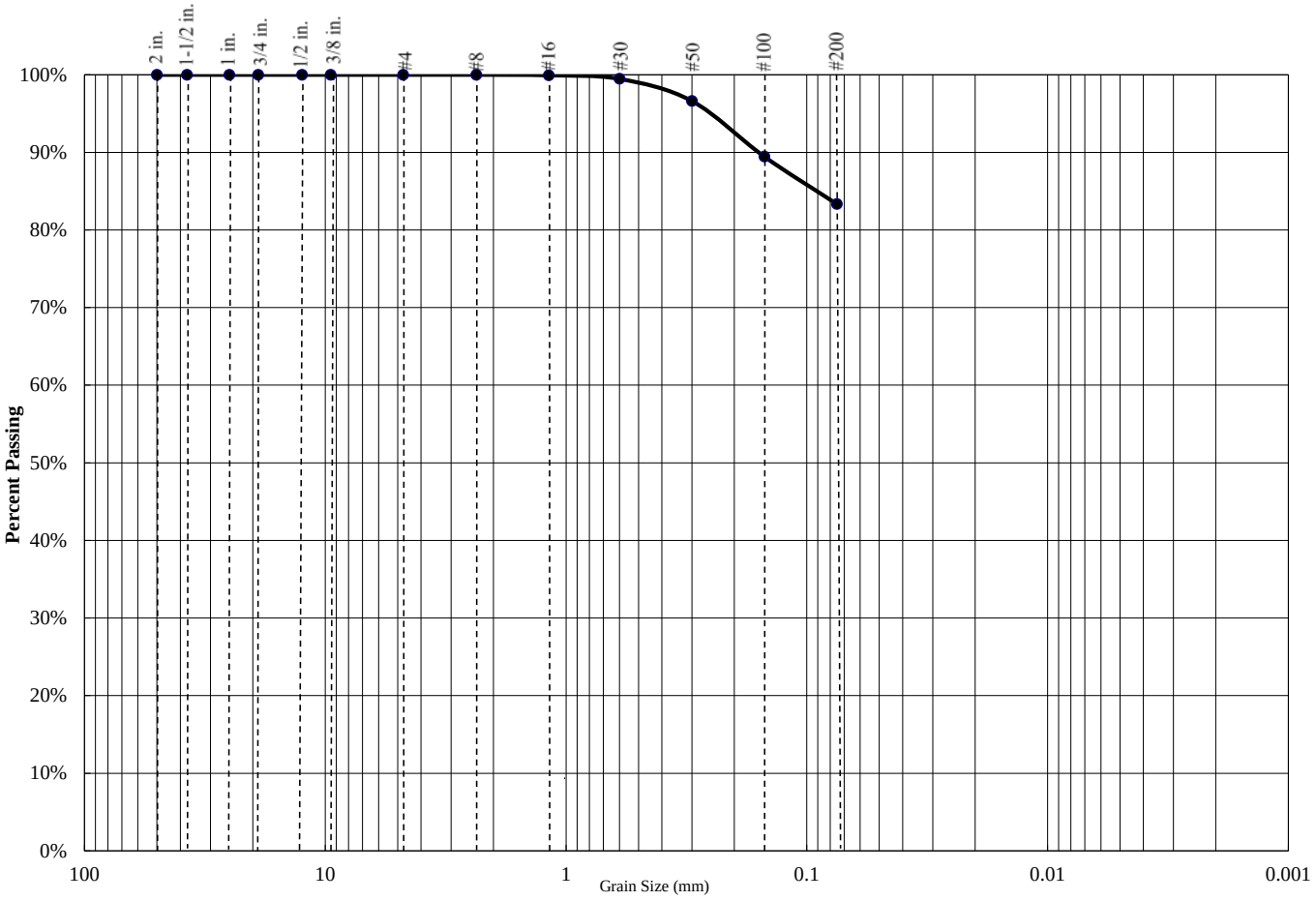
Project Number: 5-221-1209

Boring: B-1 @ 23.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	17%	83%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	100.0%
#16	99.9%
#30	99.5%
#50	96.6%
#100	89.4%
#200	83.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
0

Project Name: Two SFRs - San Martin, CA

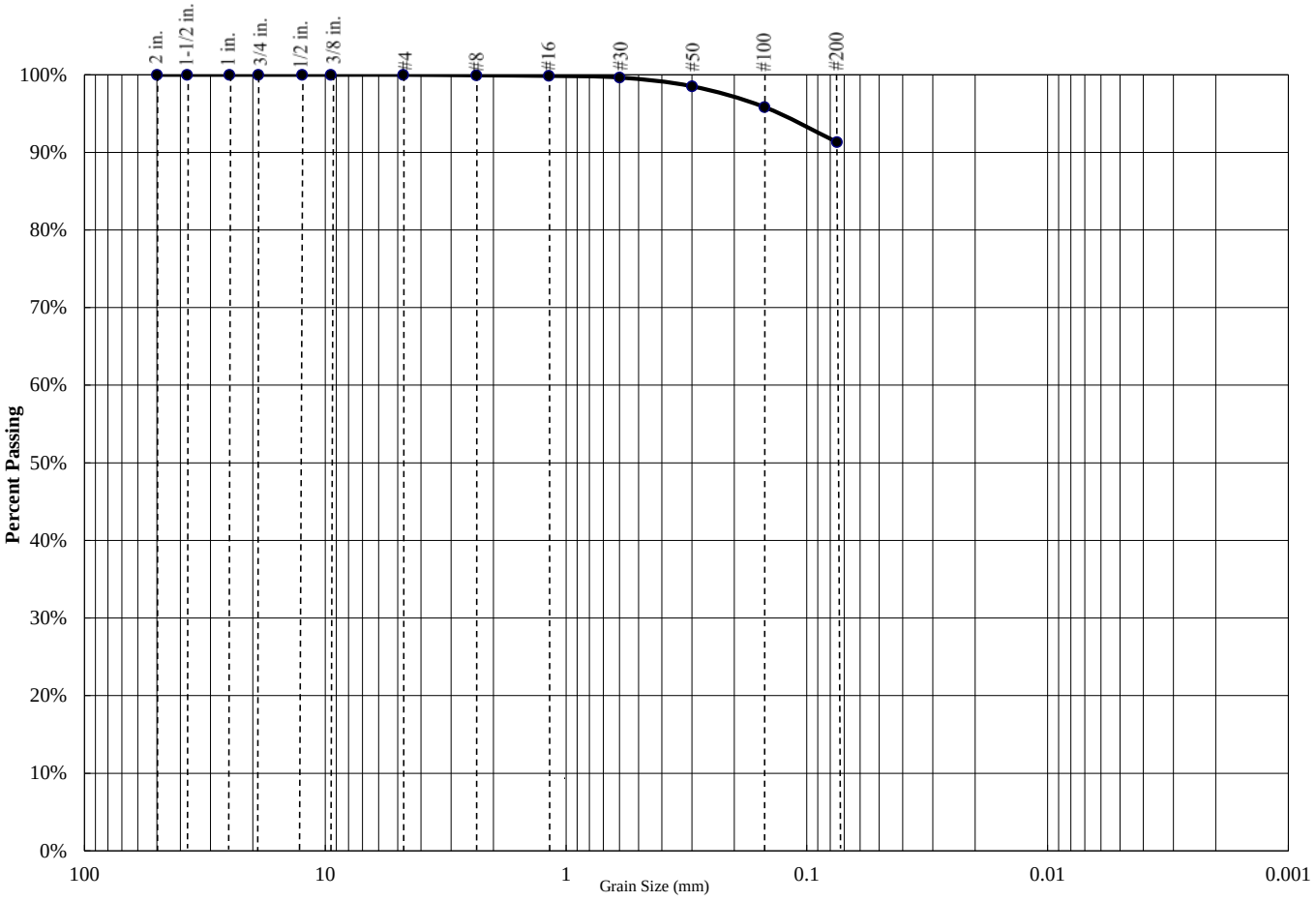
Project Number: 5-221-1209

Boring: B-1 @ 33.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	9%	91%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	99.9%
#16	99.9%
#30	99.6%
#50	98.5%
#100	95.8%
#200	91.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Lean CLAY (CL)

Project Name: Two SFRs - San Martin, CA

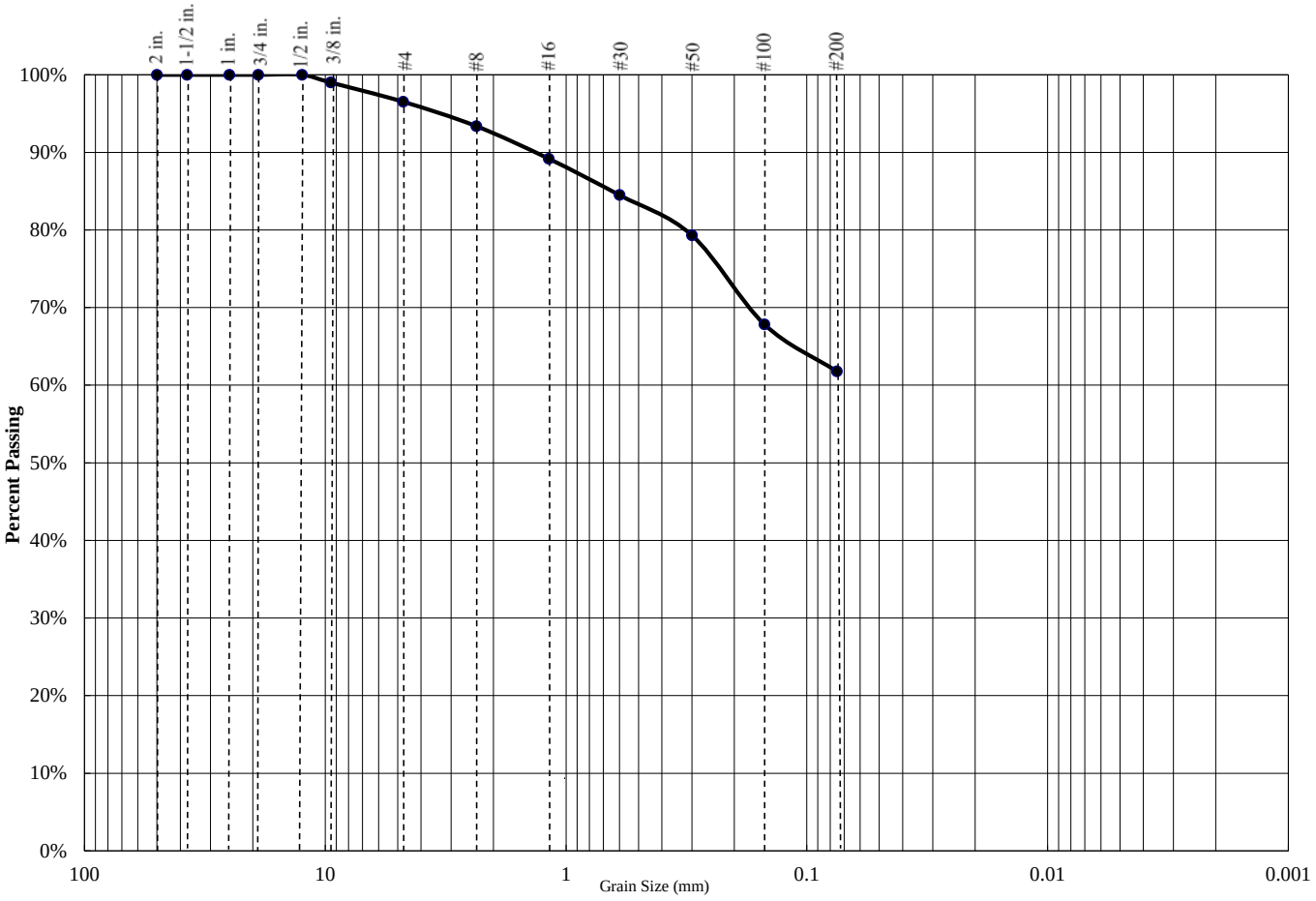
Project Number: 5-221-1209

Boring: B-1 @ 43.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
3%	35%	62%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	99.0%
#4	96.5%
#8	93.4%
#16	89.2%
#30	84.5%
#50	79.3%
#100	67.8%
#200	61.8%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Sandy Lean CLAY (CL)

Project Name: Two SFRs - San Martin, CA

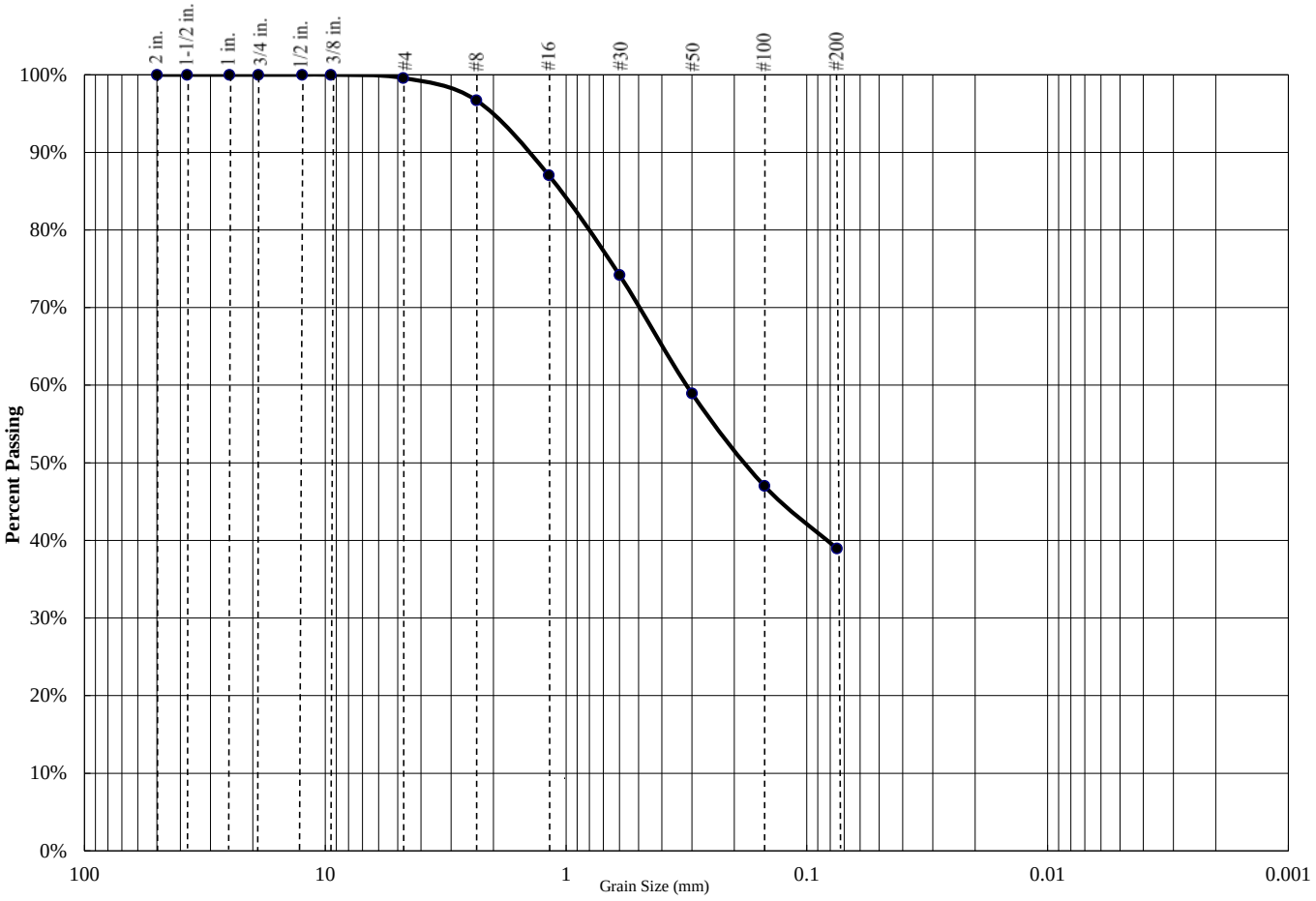
Project Number: 5-221-1209

Boring: B-3 @ 23.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	61%	39%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.6%
#8	96.7%
#16	87.1%
#30	74.2%
#50	58.9%
#100	47.0%
#200	39.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Clayey SAND (SC)

Project Name: Two SFRs - San Martin, CA

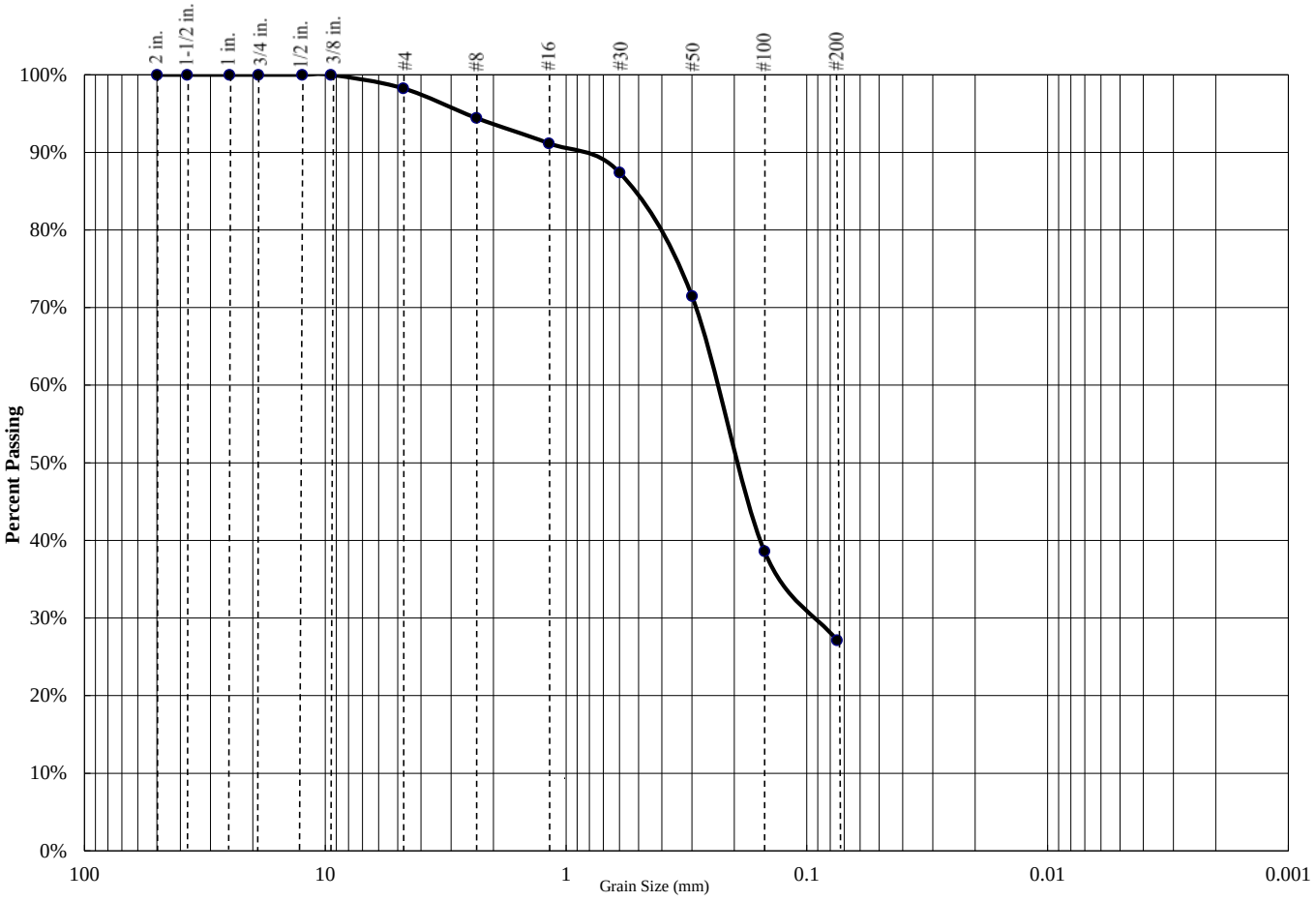
Project Number: 5-221-1209

Boring: B-3 @ 33.5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
2%	71%	27%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.3%
#8	94.4%
#16	91.2%
#30	87.4%
#50	71.5%
#100	38.6%
#200	27.2%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Two SFRs - San Martin, CA

Project Number: 5-221-1209

Boring: B-3 @ 43.5'

SALEM engineering group, inc.

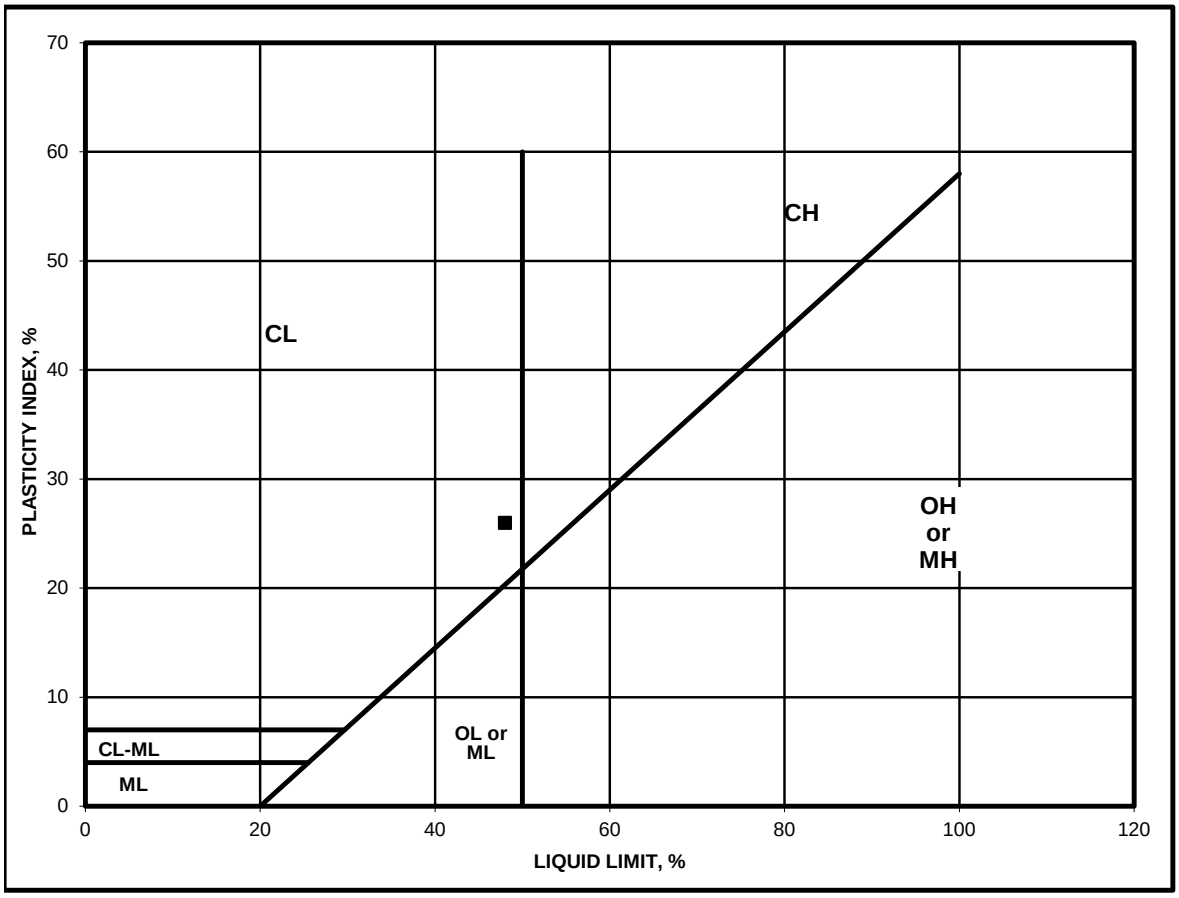
Atterberg Limits Determination
ASTM D4318

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/16/21
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 1.5'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	27.45	28.70	28.36	34.32	36.13	38.82
Weight of Dry Soil & Tare	26.34	27.36	27.00	30.02	31.24	33.02
Weight of Water	1.11	1.34	1.36	4.30	4.89	5.80
Weight of Tare	21.17	21.19	21.03	21.05	21.15	21.16
Weight of Dry Soil	5.17	6.17	5.97	8.97	10.09	11.86
Water Content	21.5	21.7	22.8	47.9	48.5	48.9
Number of Blows				26	24	22

Plastic Limit : 22 **Liquid Limit : 48**

Plasticity Index : 26
Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

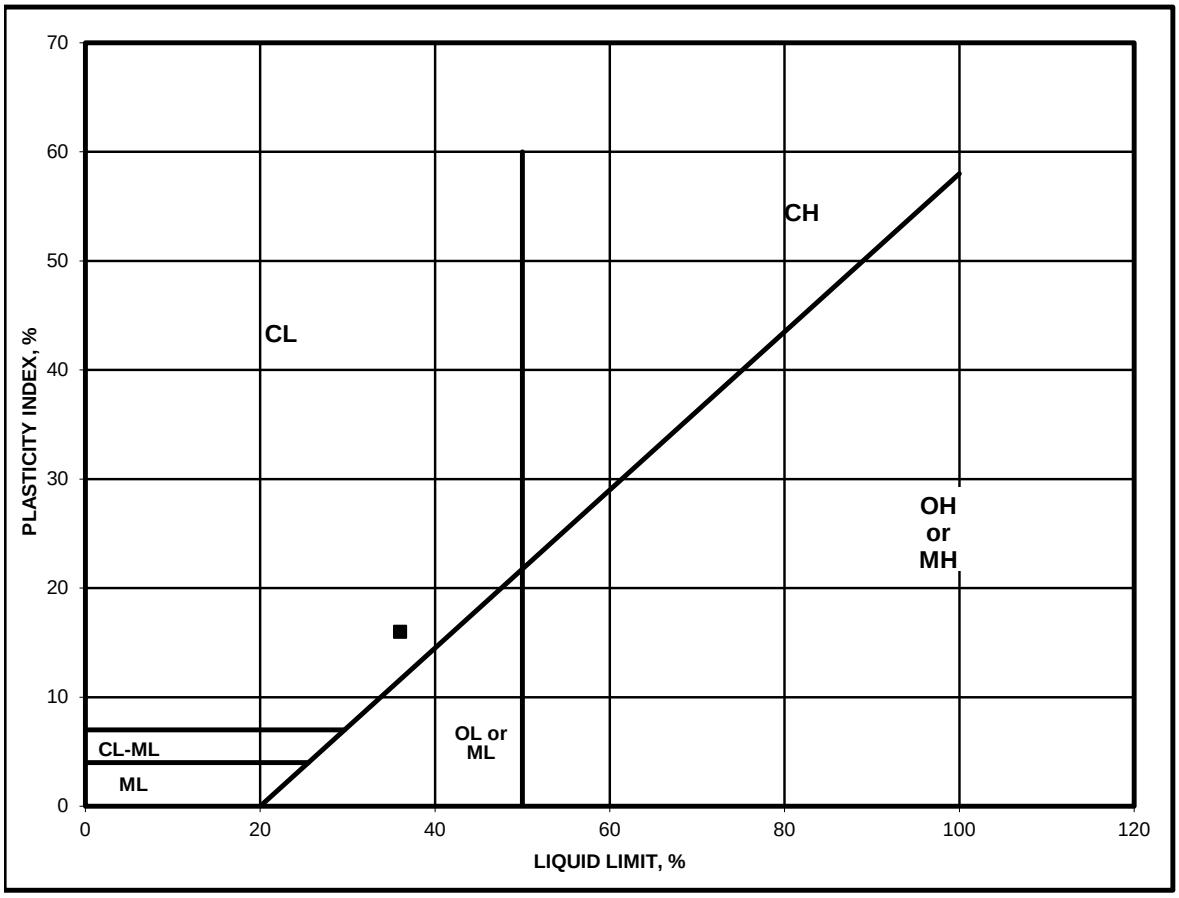
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/16/21
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 5'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.85	29.15	28.96	35.08	32.71	33.62
Weight of Dry Soil & Tare	27.51	27.82	27.56	31.47	29.63	30.34
Weight of Water	1.34	1.33	1.40	3.61	3.08	3.28
Weight of Tare	21.03	21.06	20.78	21.30	21.06	20.92
Weight of Dry Soil	6.48	6.76	6.78	10.17	8.57	9.42
Water Content	20.7	19.7	20.6	35.5	35.9	34.8
Number of Blows				25	22	17

Plastic Limit : 20 **Liquid Limit : 36**

Plasticity Index : 16

Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

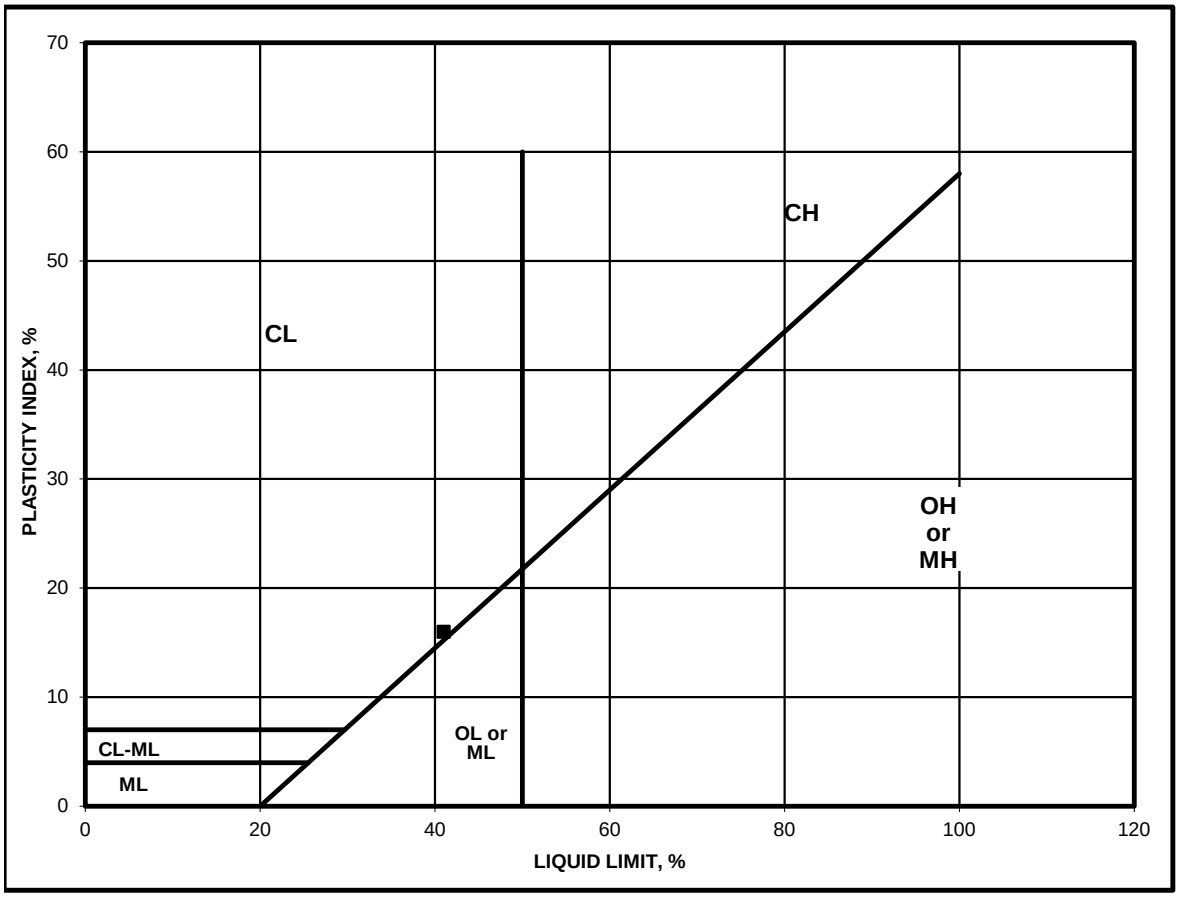
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/16/21
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 18.5'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	29.35	28.54	28.69	35.78	38.07	35.87
Weight of Dry Soil & Tare	27.74	26.95	27.14	31.34	33.31	31.55
Weight of Water	1.61	1.59	1.55	4.44	4.76	4.32
Weight of Tare	21.28	20.75	20.79	20.44	21.08	21.08
Weight of Dry Soil	6.46	6.20	6.35	10.90	12.23	10.47
Water Content	24.9	25.6	24.4	40.7	38.9	41.3
Number of Blows				33	31	23

Plastic Limit : 25 **Liquid Limit : 41**

Plasticity Index : 16

Unified Soil Classification : CL



SALEM engineering group, inc.

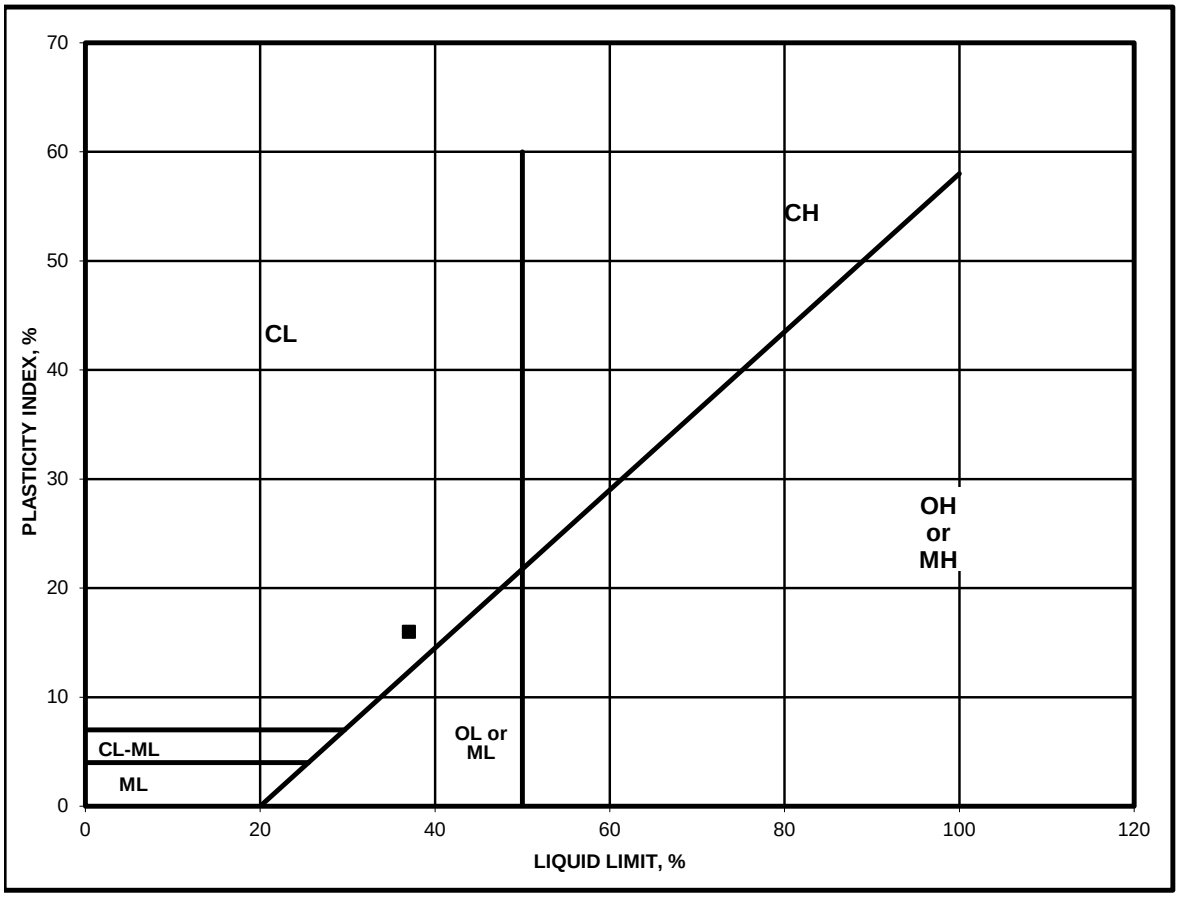
Atterberg Limits Determination
ASTM D4318

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: SA
Sample Location: B-2 @ 10'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.75	28.92	29.10	34.82	35.70	39.45
Weight of Dry Soil & Tare	27.34	27.62	27.75	31.11	31.68	34.48
Weight of Water	1.41	1.30	1.35	3.71	4.02	4.97
Weight of Tare	20.89	21.19	21.18	20.43	21.10	21.09
Weight of Dry Soil	6.45	6.43	6.57	10.68	10.58	13.39
Water Content	21.9	20.2	20.5	34.7	38.0	37.1
Number of Blows				35	21	19

Plastic Limit : 21 **Liquid Limit : 37**

Plasticity Index : 16
Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

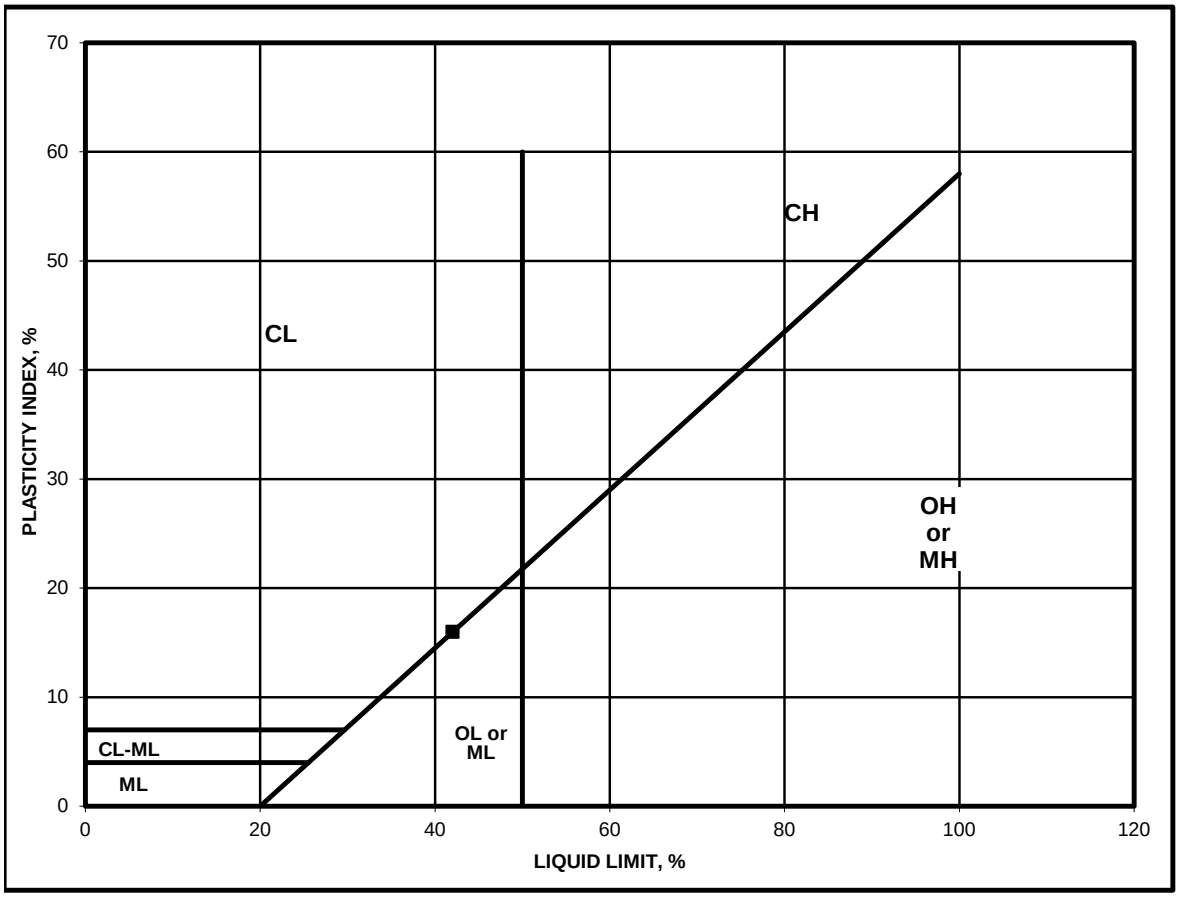
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: SA
Sample Location: B-2 @ 20'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.97	28.51	28.92	36.38	33.79	36.00
Weight of Dry Soil & Tare	27.36	26.89	27.19	32.14	29.88	31.54
Weight of Water	1.61	1.62	1.73	4.24	3.91	4.46
Weight of Tare	21.15	20.65	20.77	21.32	20.55	21.12
Weight of Dry Soil	6.21	6.24	6.42	10.82	9.33	10.42
Water Content	25.9	26.0	26.9	39.2	41.9	42.8
Number of Blows				35	29	20

Plastic Limit : 26 **Liquid Limit : 42**

Plasticity Index : 16

Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

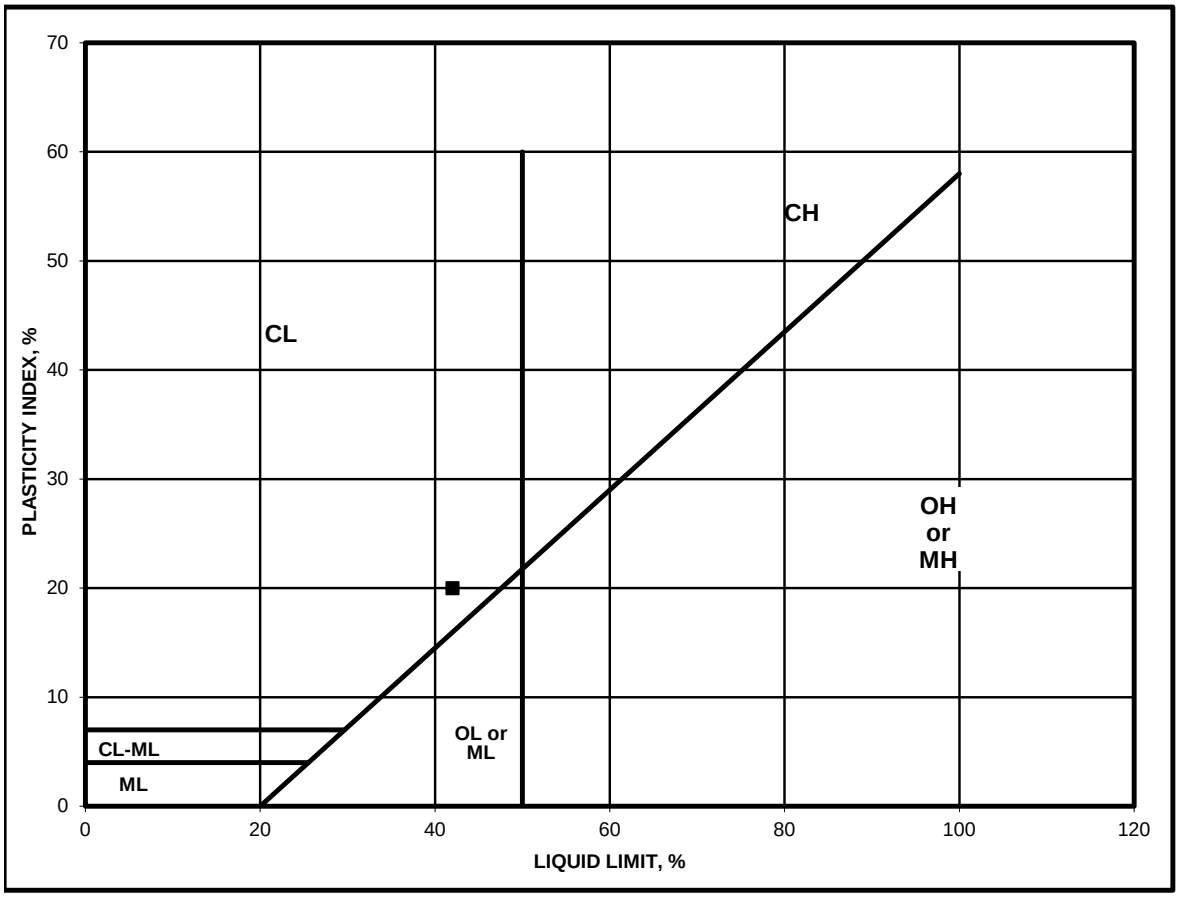
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: SA
Sample Location: B-4 @ 3.5'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.75	28.40	28.94	36.50	38.79	35.35
Weight of Dry Soil & Tare	27.33	27.04	27.62	32.19	33.64	31.09
Weight of Water	1.42	1.36	1.32	4.31	5.15	4.26
Weight of Tare	21.06	20.76	21.17	21.18	20.98	20.85
Weight of Dry Soil	6.27	6.28	6.45	11.01	12.66	10.24
Water Content	22.6	21.7	20.5	39.1	40.7	41.6
Number of Blows				34	30	24

Plastic Limit : 22 **Liquid Limit : 42**

Plasticity Index : 20

Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

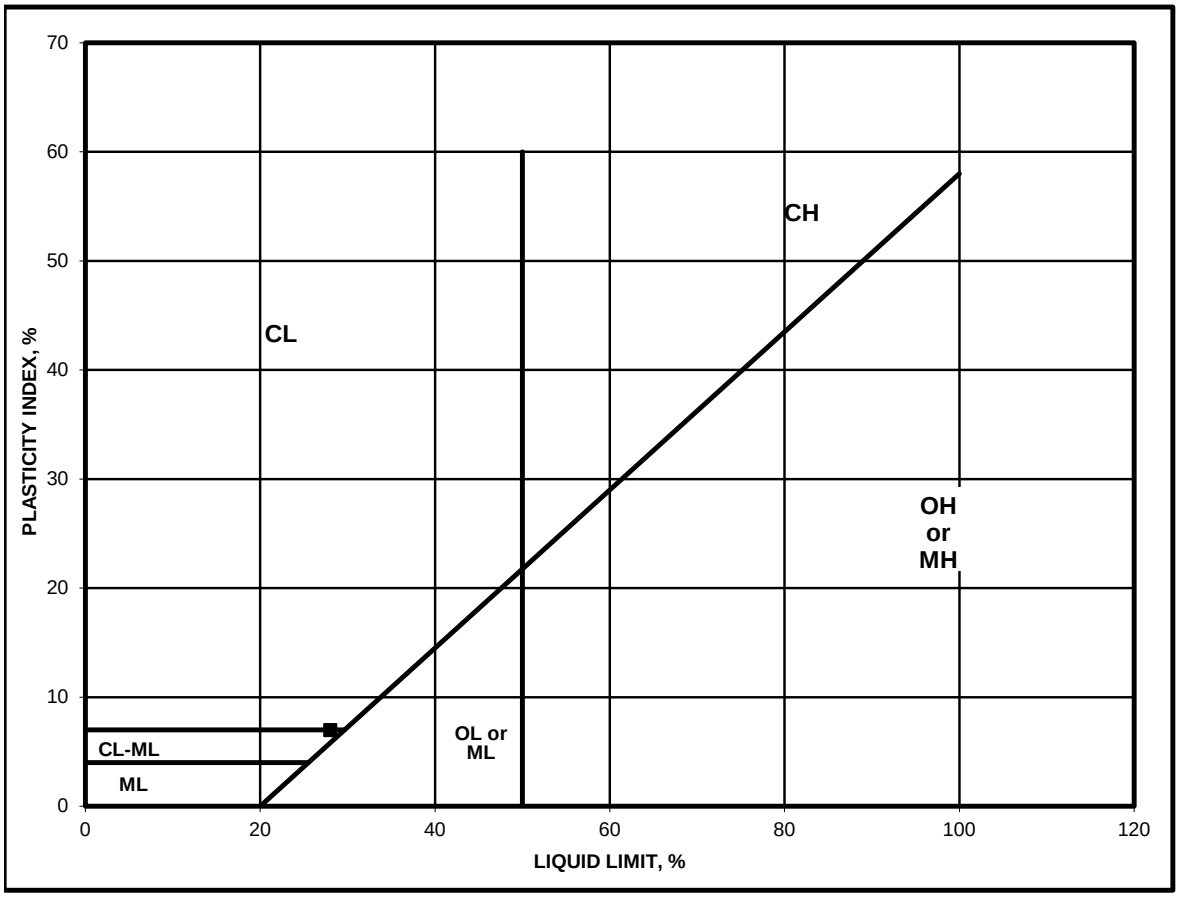
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: SA
Sample Location: B-4 @ 10'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.86	29.00	28.55	41.99	41.88	39.16
Weight of Dry Soil & Tare	27.50	27.61	27.20	37.39	37.21	35.11
Weight of Water	1.36	1.39	1.35	4.60	4.67	4.05
Weight of Tare	20.87	20.88	20.77	20.77	20.75	20.91
Weight of Dry Soil	6.63	6.73	6.43	16.62	16.46	14.20
Water Content	20.5	20.7	21.0	27.7	28.4	28.5
Number of Blows				28	25	19

Plastic Limit : 21 **Liquid Limit : 28**

Plasticity Index : 7

Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

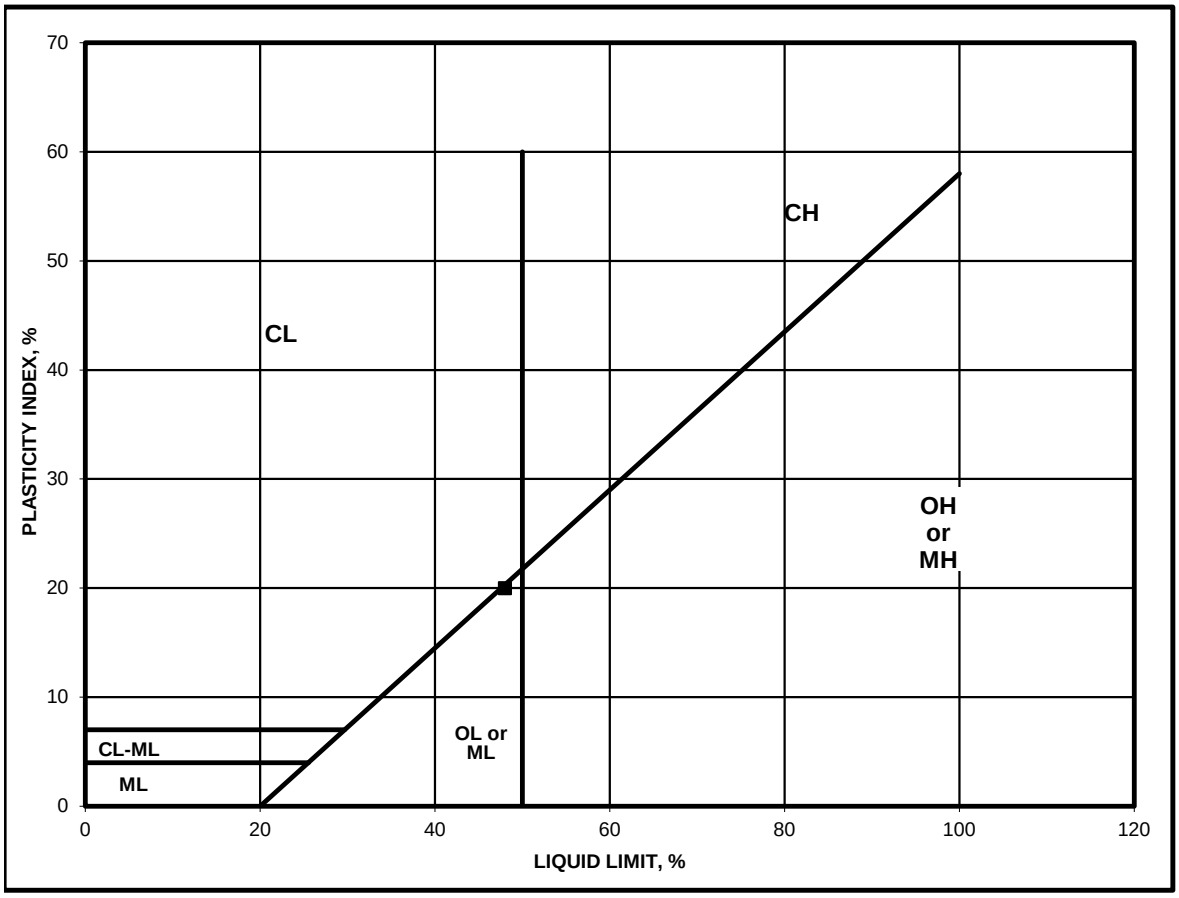
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/3/22
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 25'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.93	29.11	29.13	31.75	32.05	31.61
Weight of Dry Soil & Tare	27.18	27.37	27.36	28.44	28.48	27.87
Weight of Water	1.75	1.74	1.77	3.31	3.57	3.74
Weight of Tare	20.92	21.16	20.98	21.07	21.04	20.48
Weight of Dry Soil	6.26	6.21	6.38	7.37	7.44	7.39
Water Content	28.0	28.0	27.7	44.9	48.0	50.6
Number of Blows				35	23	17

Plastic Limit : 28 **Liquid Limit : 48**

Plasticity Index : 20

Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

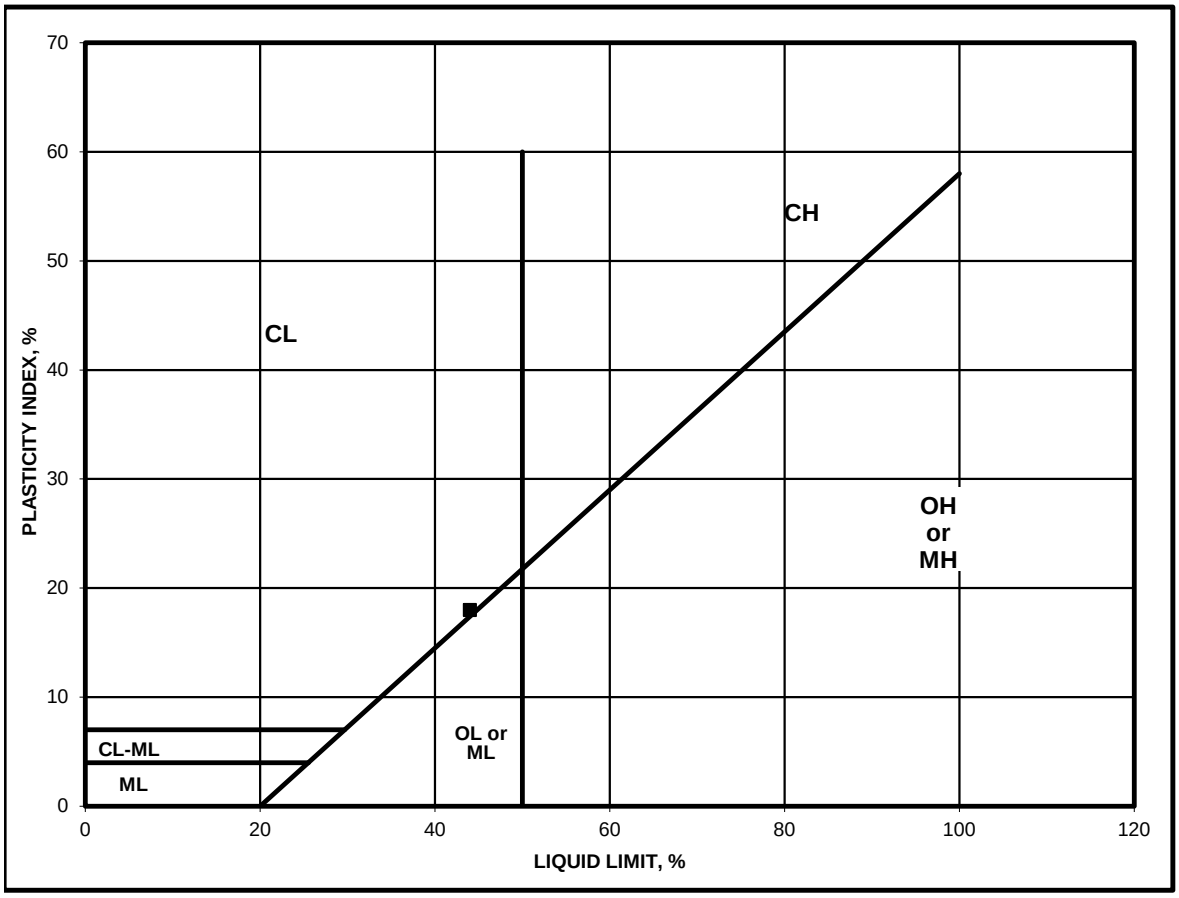
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/3/22
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 35'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	29.67	29.71	29.70	30.94	32.51	30.00
Weight of Dry Soil & Tare	27.89	28.03	27.91	27.84	28.82	26.99
Weight of Water	1.78	1.68	1.79	3.10	3.69	3.01
Weight of Tare	21.22	21.18	21.19	20.81	20.80	20.68
Weight of Dry Soil	6.67	6.85	6.72	7.03	8.02	6.31
Water Content	26.7	24.5	26.6	44.1	46.0	47.7
Number of Blows				25	20	18

Plastic Limit : 26 **Liquid Limit : 44**

Plasticity Index : 18

Unified Soil Classification : CL



SALEM engineering group, inc.

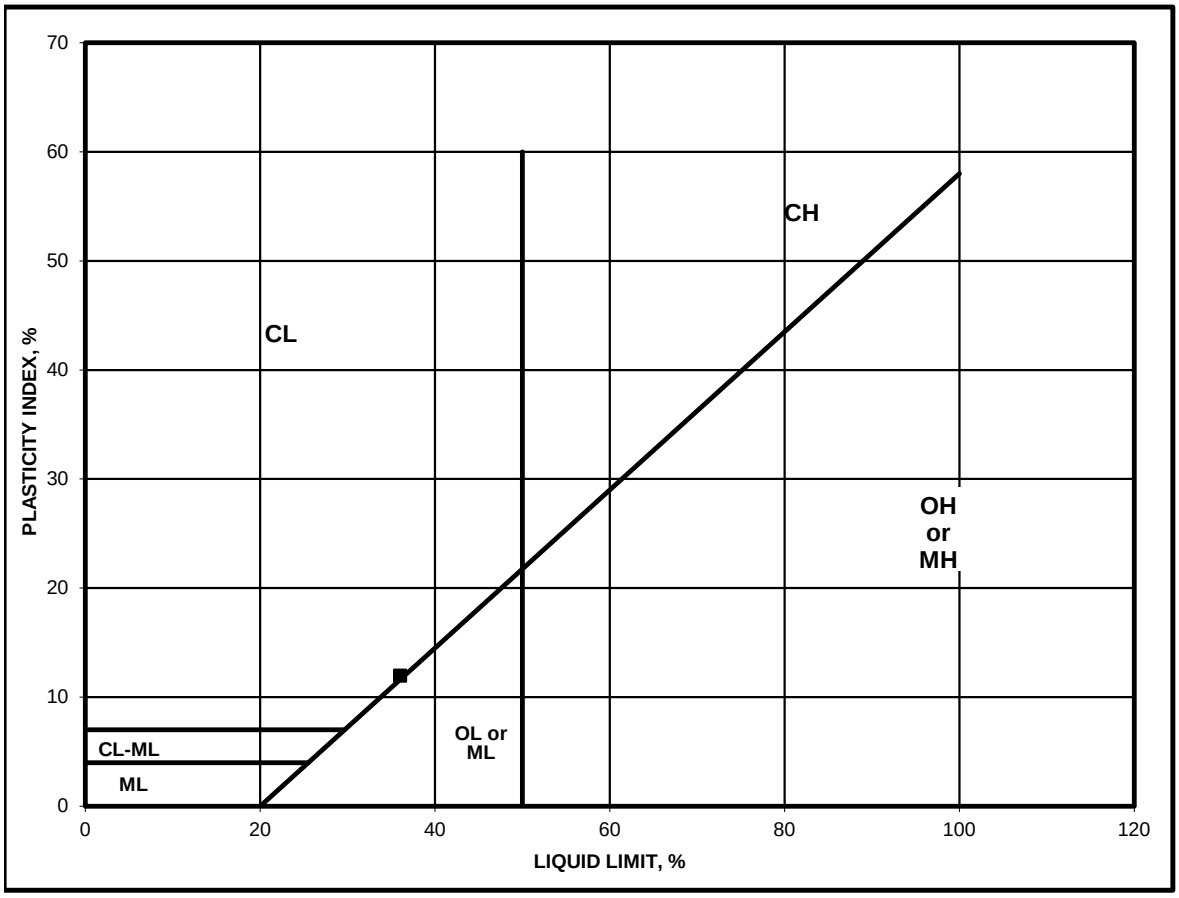
Atterberg Limits Determination
ASTM D4318

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/3/22
Sampled By: SEG Tested By: SA
Sample Location: B-1 @ 45'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	30.26	29.41	29.19	31.38	30.81	30.80
Weight of Dry Soil & Tare	28.62	27.75	27.51	28.72	28.05	28.16
Weight of Water	1.64	1.66	1.68	2.66	2.76	2.64
Weight of Tare	21.77	21.03	20.64	21.27	20.48	21.09
Weight of Dry Soil	6.85	6.72	6.87	7.45	7.57	7.07
Water Content	23.9	24.7	24.5	35.7	36.5	37.3
Number of Blows				25	21	17

Plastic Limit : 24 **Liquid Limit : 36**

Plasticity Index : 12
Unified Soil Classification : CL



SALEM engineering group, inc.

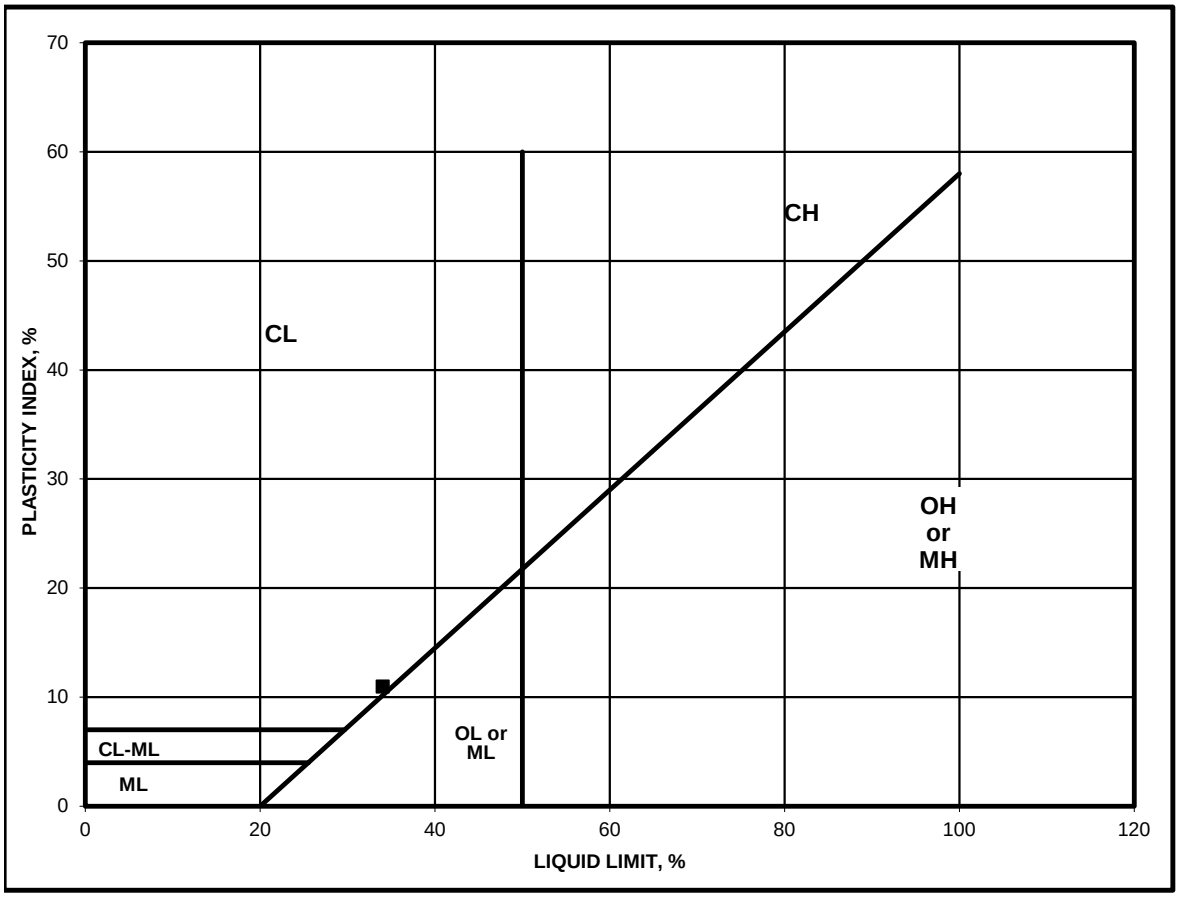
Atterberg Limits Determination
ASTM D4318

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/3/22
Sampled By: SEG Tested By: SA
Sample Location: B-3 @ 25'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.63	28.62	28.72	31.40	31.23	31.70
Weight of Dry Soil & Tare	27.16	27.18	27.23	28.74	28.58	28.87
Weight of Water	1.47	1.44	1.49	2.66	2.65	2.83
Weight of Tare	20.65	20.75	20.64	20.93	20.91	20.91
Weight of Dry Soil	6.51	6.43	6.59	7.81	7.67	7.96
Water Content	22.6	22.4	22.6	34.1	34.6	35.6
Number of Blows				25	23	18

Plastic Limit : 23 **Liquid Limit : 34**

Plasticity Index : 11
Unified Soil Classification : CL



SALEM engineering group, inc.

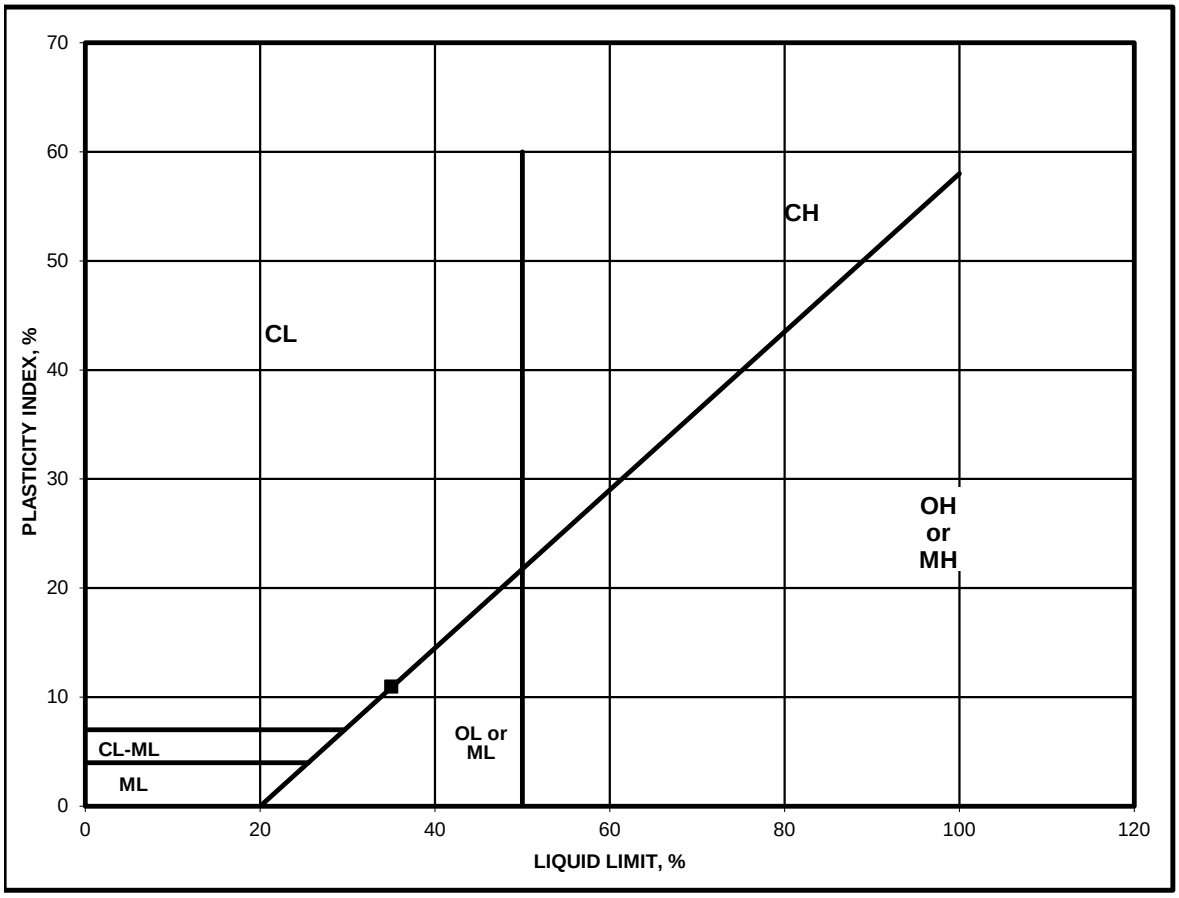
Atterberg Limits Determination
ASTM D4318

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/4/22
Sampled By: SEG Tested By: SA
Sample Location: B-3 @ 35'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	29.32	29.14	29.06	29.50	29.79	29.02
Weight of Dry Soil & Tare	27.60	27.58	27.56	27.10	27.45	26.95
Weight of Water	1.72	1.56	1.50	2.40	2.34	2.07
Weight of Tare	20.97	20.88	21.15	20.27	20.85	21.25
Weight of Dry Soil	6.63	6.70	6.41	6.83	6.60	5.70
Water Content	25.9	23.3	23.4	35.1	35.5	36.3
Number of Blows				26	24	15

Plastic Limit : 24 **Liquid Limit : 35**

Plasticity Index : 11
Unified Soil Classification : CL



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

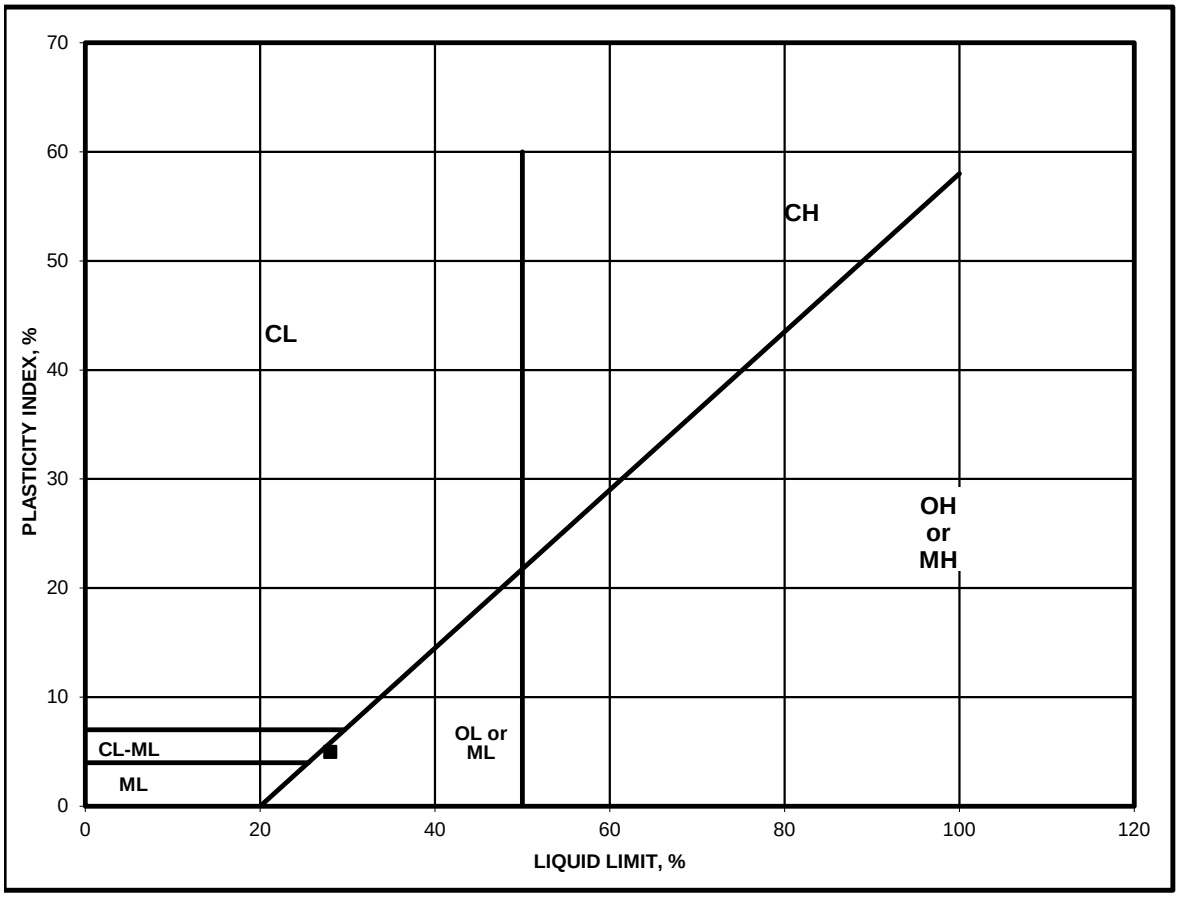
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/4/22
Sampled By: SEG Tested By: SA
Sample Location: B-3 @ 45'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.32	28.23	28.47	31.54	31.56	31.47
Weight of Dry Soil & Tare	26.98	26.83	26.97	29.18	29.02	29.02
Weight of Water	1.34	1.40	1.50	2.36	2.54	2.45
Weight of Tare	21.26	20.80	20.61	20.66	20.35	21.02
Weight of Dry Soil	5.72	6.03	6.36	8.52	8.67	8.00
Water Content	23.4	23.2	23.6	27.7	29.3	30.6
Number of Blows				25	20	16

Plastic Limit : 23 **Liquid Limit : 28**

Plasticity Index : 5

Unified Soil Classification : OL/ML



SALEM engineering group, inc.

Atterberg Limits Determination
ASTM D4318

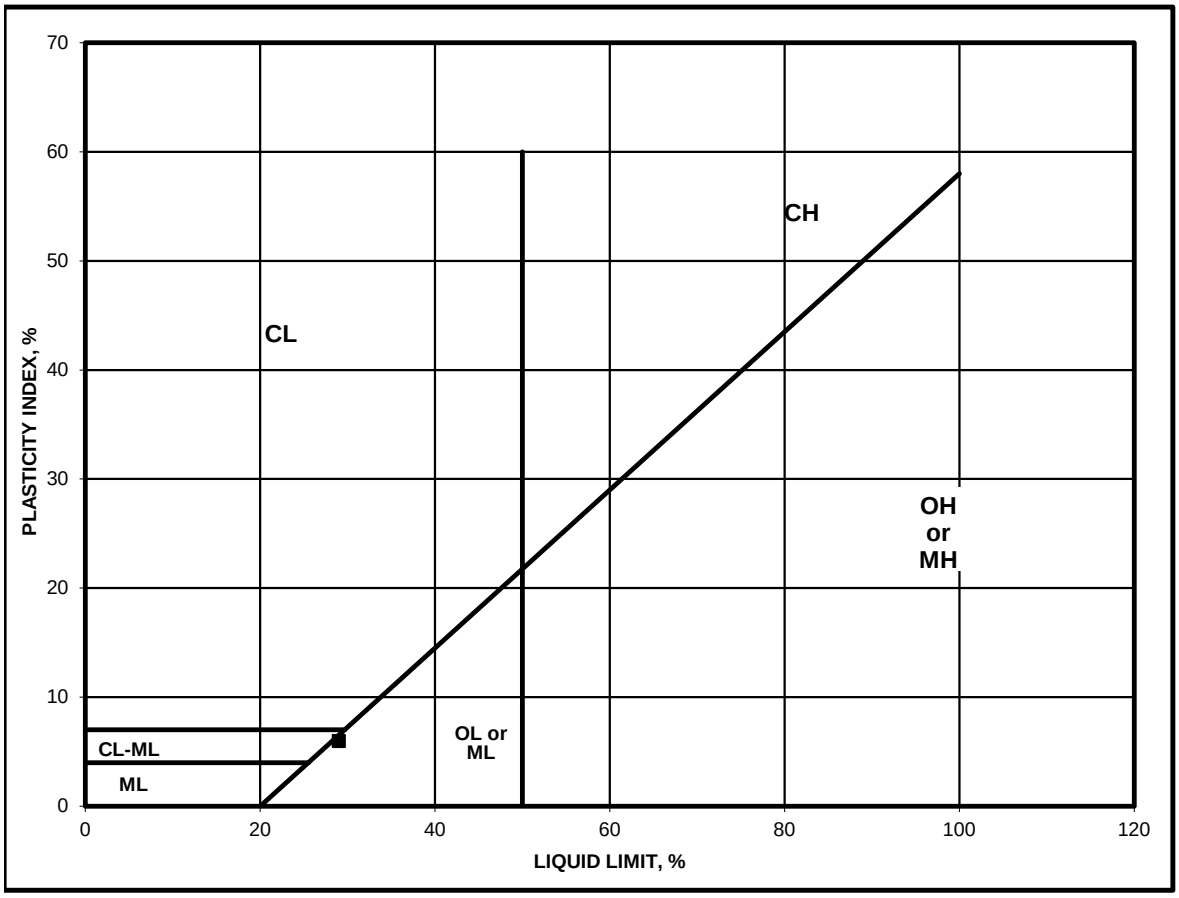
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 1/4/22
Sampled By: SEG Tested By: SA
Sample Location: B-3 @ 50'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	28.85	28.59	29.10	29.68	30.93	29.87
Weight of Dry Soil & Tare	27.41	27.15	27.65	27.84	28.61	27.85
Weight of Water	1.44	1.44	1.45	1.84	2.32	2.02
Weight of Tare	21.13	20.98	21.22	21.45	20.68	20.92
Weight of Dry Soil	6.28	6.17	6.43	6.39	7.93	6.93
Water Content	22.9	23.3	22.6	28.8	29.3	29.1
Number of Blows				25	20	16

Plastic Limit : 23 **Liquid Limit : 29**

Plasticity Index : 6

Unified Soil Classification : OL/ML



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EXPANSION INDEX TEST
ASTM D4829

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/16/21
Sampled By: SEG Tested By: NL
Sample Location: B-1 @ 0 - 3'
Soil Description: Lean CLAY with Sand (CL)

Trial #	1	2	3
Weight of Soil & Mold, g.	554.4		
Weight of Mold, g.	187.8		
Weight of Soil, g.	366.6		
Wet Density, pcf	110.6		
Weight of Moisture Sample (Wet), g.	833.0		
Weight of Moisture Sample (Dry), g.	733.9		
Moisture Content, %	13.5		
Dry Density, pcf	97.4		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	50.0		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.0567	0.0672	--	--	0.0734

Expansion Index $_{measured}$ = 73.4
Expansion Index $_{50}$ = 73.4

Expansion Index = **73**

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

EXPANSION INDEX TEST
ASTM D4829

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: NS
Sample Location: B-3 @ 0 - 3'
Soil Description: Lean CLAY with Sand (CL)

Trial #	1	2	3
Weight of Soil & Mold, g.	548.6		
Weight of Mold, g.	187.8		
Weight of Soil, g.	360.8		
Wet Density, pcf	108.8		
Weight of Moisture Sample (Wet), g.	838.0		
Weight of Moisture Sample (Dry), g.	733.9		
Moisture Content, %	14.2		
Dry Density, pcf	95.3		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	49.9		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.0608	0.0733	--	--	0.0971

Expansion Index $_{measured}$ = 97.1
Expansion Index $_{50}$ = 97.0

Expansion Index = **97**

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/21/21
Sampled By: SEG Tested By: NS
Soil Description: Lean CLAY with Sand (CL)

Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-1 @ 0 - 3'	< 50 mg/kg	128 mg/kg	6.4
1b.	B-1 @ 0 - 3'	< 50 mg/kg	128 mg/kg	6.4
1c.	B-1 @ 0 - 3'	< 50 mg/kg	125 mg/kg	6.4
Average:		**< 50 mg/kg**	**127 mg/kg**	**6.4**

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CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Date Sampled: 12/6/21 Date Tested: 12/20/21
Sampled By: SEG Tested By: NL\ SA
Soil Description: Lean CLAY with Sand (CL)

Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-3 @ 0 - 3'	1080 mg/kg	33 mg/kg	7.9
1b.	B-3 @ 0 - 3'	1090 mg/kg	37 mg/kg	7.9
1c.	B-3 @ 0 - 3'	1090 mg/kg	37 mg/kg	7.9
Average:		**1087 mg/kg**	**36 mg/kg**	**7.9**

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SOIL RESISTIVITY
CTM 643

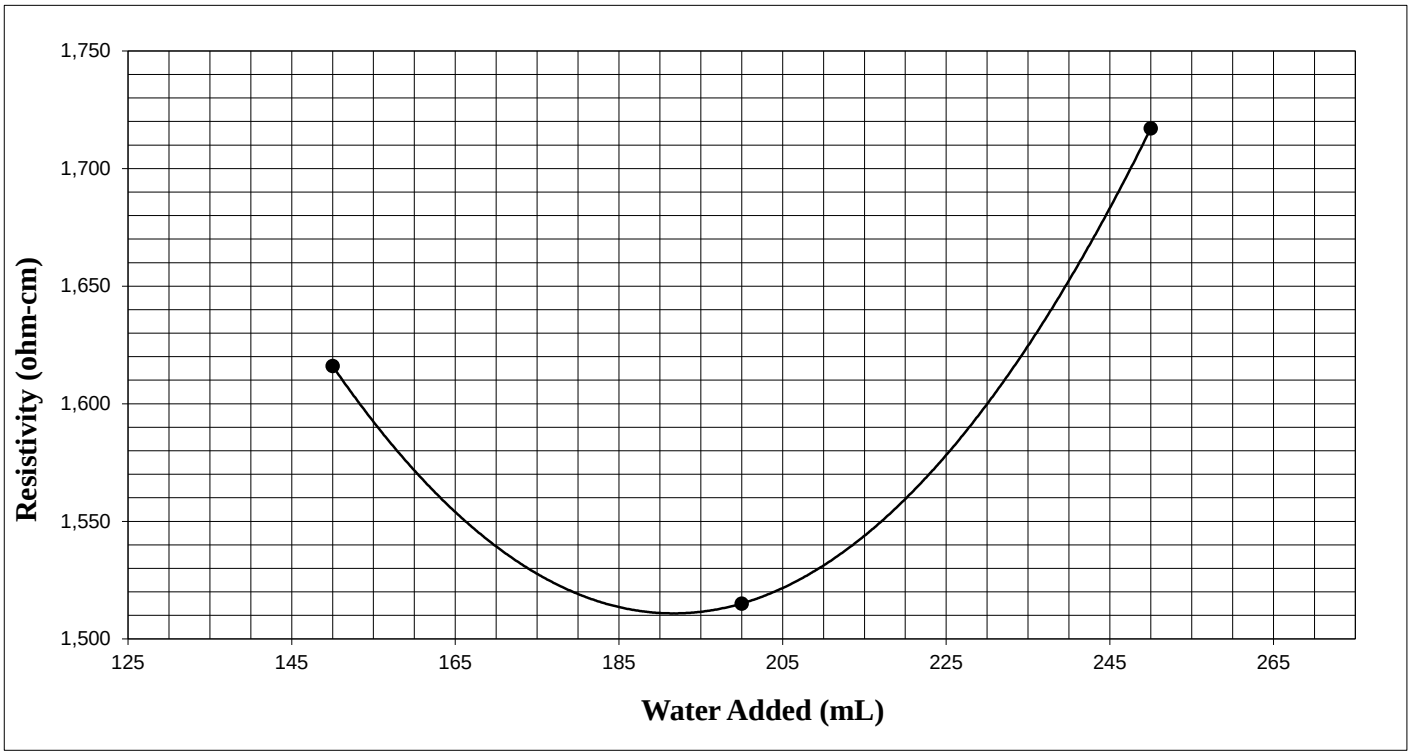
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Sample Location: B-1 @ 0 - 3'
Soil Description: Lean CLAY with Sand (CL)

Date Sampled: 12/6/21
Sampled By: SEG
Date Tested: 12/20/21
Tested By: NS

Chloride Content:	127	mg/Kg	Initial Sample Weight:	700	gms
Sulfate Content:	< 50	mg/Kg	Test Box Constant:	1.010	cm
Soil pH:	6.4				

Test Data:

Trial #	Water Added (mL)	Meter Dial Reading	Multiplier Setting	Resistance (ohms)	Resistivity (ohm-cm)
1	150	1.6	1,000	1,600	1,616
2	200	1.5	1,000	1,500	1,515
3	250	1.7	1,000	1,700	1,717



Minimum Resistivity:	**1,511** ohm-cm

SALEM engineering group, inc.

SOIL RESISTIVITY
CTM 643

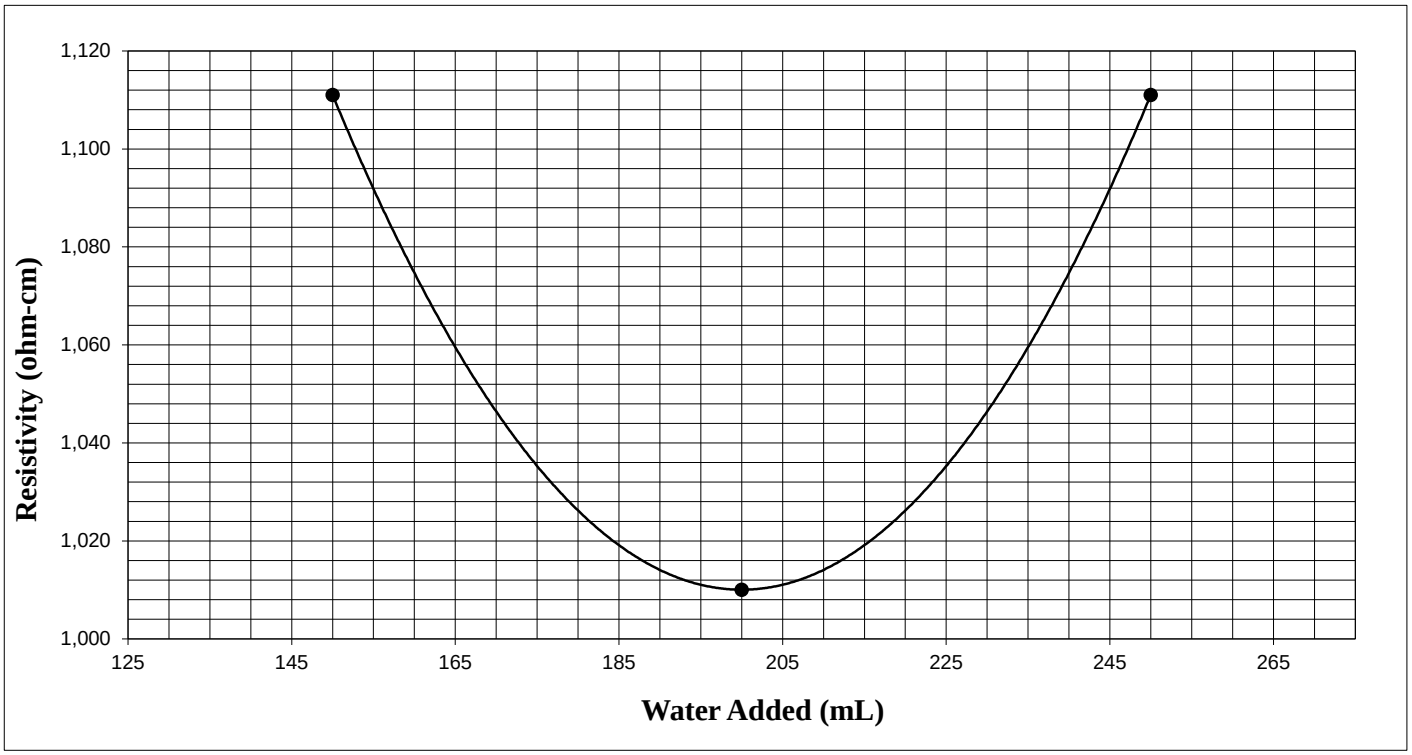
Project Name: Two SFRs - San Martin, CA
Project Number: 5-221-1209
Sample Location: B-3 @ 0 - 3'
Soil Description: Lean CLAY with Sand (CL)

Date Sampled: 12/6/21
Sampled By: SEG
Date Tested: 12/20/21
Tested By: NS

Chloride Content:	36	mg/Kg	Initial Sample Weight:	700	gms
Sulfate Content:	1087	mg/Kg	Test Box Constant:	1.010	cm
Soil pH:	7.9				

Test Data:

Trial #	Water Added (mL)	Meter Dial Reading	Multiplier Setting	Resistance (ohms)	Resistivity (ohm-cm)
1	150	1.1	1,000	1,100	1,111
2	200	1.0	1,000	1,000	1,010
3	250	1.1	1,000	1,100	1,111



Minimum Resistivity:	**1,010** ohm-cm

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APPENDIX

C

APPENDIX C
GENERAL EARTHWORK AND PAVEMENT SPECIFICATIONS

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

1.0 SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

2.0 PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of SALEM Engineering Group, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved, shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

3.0 TECHNICAL REQUIREMENTS: All compacted materials shall be densified to no less than 90 percent of relative compaction (95 percent for granular non-expansive soil) based on ASTM D1557 Test Method (latest edition), UBC or CAL-216, or as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

4.0 SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report. The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor shall not be relieved of liability for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

5.0 DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work. Site preparation shall consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

6.0 CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

7.0 SUBGRADE PREPARATION: Surfaces to receive Engineered Fill and/or building or slab loads shall be prepared as outlined above, scarified to a minimum of 12 inches, moisture-conditioned as necessary, and recompacted to 90 percent relative compaction (95 percent for granular non-expansive soil).

Loose soil areas and/or areas of disturbed soil shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction (95 percent for granular non-expansive soil). All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any fill material.

8.0 EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

9.0 FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence or approval of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

10.0 PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. Compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer. Both cut and fill shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

11.0 SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

12.0 DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to, is the most recent edition of the Standard Specifications of the State of California, Department of Transportation. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as determined by ASTM D1557 Test Method (latest edition) or California Test Method 216 (CAL-216), as applicable.

13.0 PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent (95 percent for granular non-expansive soil) based upon ASTM D1557. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

14.0 AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, ¾-inch or 1½-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

15.0 ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10, unless otherwise stipulated or local conditions warrant more stringent grade. The mineral aggregate shall be Type A or B, ½ inch maximum size, medium grading, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39. The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in the Standard Specifications. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.