PBK

8163 Rochester Avenue
Rancho Cucamonga, CA 91730
P. +1 909-987-0909
PBK.com

October 31, 2024

TO : All Bidders
FROM : Bruce Ou
PROJECT : Capistrano Valley High School Stadium Modernization
230251.41
SUBJECT : Addendum 3

The following changes, omissions, and/or additions to the Project Manual and/or Drawings shall apply to proposals made for and to the execution of the various parts of the work affected thereby, and all other conditions shall remain the same.

Careful note of the Addendum shall be taken by all parties of interest so that the proper allowances may be made in strict accordance with the Addendum, and that all trades shall be fully advised in the performance of the work which will be required of them.

Bidder shall acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

In case of conflict between Drawings, Project Manual, and this Addendum, this Addendum shall govern.

3. GENERAL

3.2 GEOTECHNICAL \ GEOLOGIC HAZARD REPORT

A. Refer to attached Geotechnical \ Geologic Hazard Report titled Geotechnical and Geological Engineering Investigation Report proposed stadium renovation and associated buildings for Capistrano Valley High School, is dated January 30, 2024, and has been prepared for the site by Koury Engineering & Testing, Inc., selected by the owner. CGS Application No. 04-CGS6338

END OF ADDEND

Submitted by,

BRUCE OU, AIA
NCARB, LEED AP
Principal, Architect

LICENSED ARCHITECT
BRUCE OU
No. C 34832
EXP. 10/31/25
STATE OF CALIFORNIA

Attachments: Geotechnical and Geological Engineering Investigation Report

KOURY

PASSION INTEGRITY QUALITY

KOURYENGINEERING.COM

GEOTECHNICAL AND GEOLOGICAL ENGINEERING INVESTIGATION REPORT

CAPISTRANO VALLEY HIGH SCHOOL STADIUM
26301 VIA ESCOLAR,
SAN JUAN CAPISTRANO, CALIFORNIA 92692

PREPARED FOR:
CAPISTRANO UNIFIED SCHOOL DISTRICT
33122 VALLE ROAD
SAN JUAN CAPISTRANO, CA 92675

PREPARED BY:
KOURY ENGINEERING & TESTING, INC.
14280 EUCLID AVENUE
CHINO, CALIFORNIA 91710

PROJECT NO. 23-1859

JANUARY 30, 2024

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January 30, 2024
Project No. 23-1859

Capistrano Unified School District
33122 Valle Road
San Juan Capistrano, Ca 92675

Attention: Mr. Greg Smith
TELACU Construction Management

SUBJECT: Geotechnical and Geological Engineering Investigation
Proposed Stadium Renovations and Associated Buildings
Capistrano Valley High School
26301 Via Escolar,
San Juan Capistrano, CA 92692

1. INTRODUCTION

This report presents the results of a Geotechnical and Geological Engineering Investigation performed by Koury Engineering & Testing, Inc., (Koury) for the proposed stadium renovation and associated buildings at the Capistrano Valley High School located at 26301 Via Escolar in the City of San Juan Capistrano, California. The study was performed to evaluate the subsurface soil conditions in the area of the stadium and associated buildings in order to provide geotechnical recommendations for design and construction. This report includes our findings and recommendations for the design and construction of the proposed buildings and associated improvements from a geotechnical standpoint.

The recommendations provided within this submittal are based on the results of our field exploration, laboratory testing and engineering analyses. Our services were performed in general accordance with our Proposal No. 23-1859 dated October 25, 2023.

Our professional services have been performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared exclusively for the Capistrano Unified School District and their consultants for the subject project. It has not been prepared for use by other parties and may not contain sufficient information for the purposes of other parties or other uses.

2. SITE CONDITIONS

The Capistrano Valley High School campus is bounded by residential homes on the north and east, Via Escolar on the south, and a retail/commercial building complex on the west. The main entrances to the site are from Via Escolar from the south. A Vicinity Map with site regional ground contour elevations is presented in Appendix A as Figure A-1.

The stadium is located within the northeast corner of the campus and on the northwest side of the softball and baseball fields. The football field is surrounded by the track. There are bleachers located on the opposite sides of the football field/track and two small buildings and a shade structure located at the southwest end of the track. Beyond the small buildings and toward the southwest, there is a small parking lot, three portable classroom buildings, tennis courts, and volleyball courts. There are also a few small buildings and volleyball courts located on the south side of the track.

The relatively level portion of the campus generally slopes to the north and northwest from about elevations 338 to 316 feet (NAVD88). The football field and the asphalt paved area immediately surrounding the track generally lie at elevations 316 to 317 feet. However, the site grades beyond the northwestern perimeter of the stadium, descend at a slope inclination of approximately 3:1 (horizontal:vertical), with an overall vertical slope height varying from approximately 50 to 60 feet. For the most part, drainage is presently by sheet flow to the west and southwest, to low areas of the site, and to local storm drains and to the streets.

3. PROPOSED IMPROVEMENTS

Koury understands the Capistrano Unified School District is planning to modernize the existing Capistrano Valley High School Stadium and to construct associated buildings. The improvements will include new aluminum home and visitor bleachers, a press box, ticket/concession building, restrooms, home & visitor team rooms, stadium lights, and an electronic scoreboard. Architectural and structural design details for the proposed improvements at the site were not provided.

Based on the preliminary site plan it is understood the visitor bleachers with dimensions of about 20 feet wide and 280 feet long will be located on the northwest side of the track while the home bleachers with dimensions of about 35 by 280 feet will be located on the southeast side of the track. The visitor bathroom and team room, referred to as Building A, will be located near the northwest corner of the track and will have dimensions of about 26 by 112 feet. The home team room and bathroom, referred to as Building B, will be located near the southwest corner of the track and will have dimensions of about 14 by 26 feet in width and a total length of approximately 120 feet. Building C, which is anticipated to be used for multipurpose, with a length of approximately 63 feet and width of about 13 to 23 feet, will be located at the southern corner of the basketball courts on the south side of the track. Building D, which is anticipated to be used mainly for storage, will be located on the east side of the track and at the northeast end of the home bleachers, will have dimensions of about 25 by 50 feet.

The one-story buildings, which are anticipated to be metal stud bearing wall framing, with some steel columns with light weight roofing, will be supported on pad footings and continuous wall footings. The wall loads are anticipated to be mostly on the order of 1 to 3 kips (dead plus live load) per lineal foot and the column loads to be less than 20 kips (dead plus live load). The stadium lights and the electronic scoreboard are anticipated to be supported by pole/pier foundations. The bleachers are anticipated to be supported by either pad footings or pier footings.

The associated improvements will include new utility lines, sidewalks, curbs & gutters, concrete and asphalt pavements, and landscaping. The running track will be resurfaced. The new pavement surrounding the running track will consist of Portland cement concrete. The small parking lot at the west end of the track and north of the tennis courts and the asphalt paved access at the southeast corner of the track will be repaved with asphalt. There will be new landscaping at the west end of the visitor bleachers and west of the proposed team room buildings A and B on the northwest side of the track.

4. FIELD EXPLORATION

The field exploration program consisted of drilling ten soil test borings on December 7, 2023, using a truck-mounted hollow-stem auger rig within the general area of proposed improvements.

The borings were drilled to depths ranging from about 6½ to 46½ feet below the existing ground surface. The boring locations are shown on the Boring Location Map, Figure A-2, presented in Appendix A.

Standard penetration test samples, California ring samples, and bulk samples were obtained from the borings for laboratory testing. The depths, blow counts, and description of the samples are shown on the attached boring logs presented in Appendix B of this report. The drilling subcontractor used a 140-lbs automatic hammer falling 30 inches to drive the samplers 18 inches into the soil.

5. LABORATORY TESTING

Laboratory tests, including moisture content, dry unit weight, #200 washes, pocket penetrometer, consolidation with hydrocollapse, expansion index, and direct shear were performed on selected samples obtained from the borings to aid in the classification of the soils encountered and to evaluate their engineering properties. Soluble sulfate, chloride, resistivity, and PH tests (corrosivity tests) were also performed on a representative soil sample. The results of laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

6. SOIL CONDITIONS

The subsurface soil profile consists of shallow fill, underlain old alluvial deposits, which in turn is underlain by Capistrano Formation at depth. The fill, as encountered in the soil borings, consists predominantly of firm to very stiff sandy lean clay with varying amounts of fine to medium sized gravel. The depth of the fill encountered in the borings ranges from about 2 to 6½ feet. Layers of medium dense clayey sand were noted within the fill in Borings B-6 and B-10. The fill was found to be capped with 3 to 5½ inches of asphalt concrete underlain by 0 to 4 inches of aggregate base except at Boring B-8 which is located outside the paved area.

Underling the fill, older alluvial deposits were encountered in all soil borings to the maximum depth explored, except in Boring B-7, where Capistrano Formation was encountered at a depth of 38 feet below ground surface. The older alluvium consists predominantly of stiff to very stiff lean clay to sandy lean clay (CL), and medium dense to dense clayey sand (SC). Layers of dense to very dense silty sand, and poorly graded sand with silt, were also noted at varying depths within the older alluvium. Capistrano Formation was only encountered in Boring B-7 at a depth of 38 feet, where siltstone material was penetrated.

The fill was generally moist with moisture contents ranging from about 7½ to 17½ percent with an average of approximately 12 percent. With a few exceptions, the older alluvial deposits consisting of clay and clayey sand have moisture contents ranging from about 6 to 27 percent with an average of about 16 percent. The moisture contents of two Capistrano formation samples indicated moisture contents on the order of 35 to 37 percent.

The dry unit weights of the fill range from about 111 to 120 pcf with an average of about 115 pcf while, with a few exceptions, the older alluvial deposits' unit weights range from 105 to 122 pcf with an average of approximately 114 pcf. One sample of the Capistrano formation indicated a unit weight of 84 pcf.

The #200 sieve wash tests indicated that the fill soils have fine contents in the range of about 42 to 63 percent with an average of about 55 percent. The laboratory test data indicates that the clay soil layers of older alluvium have fine contents in the range of 50 to 97 percent with an average of approximately 68 percent, while the sandy layers of the alluvium have fine contents in the range of 5 to 41 percent, with an average of 22½ percent.

The consolidation tests on sand material indicated low potential for hydrocollapse and low to moderate consolidation characteristics. However, the rebound curves of two samples indicated significant soil heaving potential. One direct shear test indicated peak and ultimate friction angles on the order of 21 degrees with corresponding cohesion on the order of 200 psf. The pocket penetrometer tests performed on alluvial samples indicated unconfined compression strength ranging from about 1.5 to 4.5 tsf with an average of approximately 3.3 tsf (tons per square foot). The pocket penetrometer tests performed on fill material indicated values ranging from 1.7 to 4.5, with an average of about 3.1 tsf.

Except where gravel was present, the standard penetration test blow counts and equivalent blow counts from the modified California sampler indicated fill sampling blow counts for clay soils ranging from about 7 to 28 with an average around 17 blows per foot of the sampler penetration, which indicates a range of firm to very stiff clay fill. For the alluvial clay, except where blow count refusal was encountered, the blow counts range from about 10 to 46 with an average of 33, which indicates predominantly stiff to very stiff clay soils. For the sand soils, including clayey sand, except where blow count refusal was encountered, the blow counts range from about 19 to 52 with an average of approximately 30, which indicates a range of medium dense to very dense sand.

The soil conditions described in this report are based on the soils observed in the test borings drilled for this study and the laboratory test results. Variations between and beyond the borings should be anticipated.

7. GROUNDWATER

No groundwater was encountered in the site borings drilled to a maximum depth of 46½ feet. The Seismic Hazard Zone Report for the San Juan Capistrano 7.5-Minute Quadrangle, California, does not define the historical highest groundwater level at the site (see Figure A-4). However, because of the sloping terrain, no shallow water table is anticipated.

The groundwater level should be expected to fluctuate based on irrigation, seasonal rainfall and/or groundwater recharge, and time of the year. Localized perched water may be encountered at shallow depths during construction, depending on the time of the year and seasonal precipitation patterns.

8. SITE GEOLOGY

The project site is located within the Peninsular Range Geomorphic Province, which is comprised of a western basin area of very low relief rimmed by mountainous and hilly terrain. The basin, where most of the urban development has taken place, is bordered on the south and southwest by the Pacific Ocean, on the north and northwest by the Puente Hills, on the northeast by the Santa Ana Mountains, and on the southeast by the San Joaquin Hills. The Peninsular Ranges extend north to the San Gabriel Mountains and south into Mexico to the tip of Baja California. The Peninsular Ranges Geomorphic Province is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults.

The USGS Geologic Map of the San Bernadino and Santa Ana 30'x60' Quadrangle (2007) shows the site to be underlain by very old axial-channel deposits and siltstone facies of the Capistrano Formation. The borings drilled onsite during our field exploration in December 2023 encountered old alluvial deposits. The Capistrano Formation was noted in one of the deep soil borings, at a depth of 38 feet below ground surface. Thus, the geologic observations in the soil borings are considered consistent with the mapped geology for the site region (see Figure A-3 for Regional Geologic Map).

9. OIL WELLS

The site is not located within an Oil/Gas Field. There is no known active oil/gas well located in the immediate vicinity of the site. No evidence of hazardous materials related to oil field was encountered during our field investigation. It is our opinion that no hazardous materials associated with active oil fields should be present on site based on readily available oil/gas well information.

10. SEISMIC CONSIDERATIONS

10.1. General

The Capistrano Valley High School, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto, Newport-Inglewood and Whittier-Elsinore fault zones.

By definition of the California Geological Survey (CGS), an active fault is one which has had surface displacement within the Holocene Epoch (roughly the last 11,000 years). The CGS has defined a pre-Holocene fault as any fault which has been active during the Quaternary Period (approximately the last 2,000,000 years, excluding the Holocene). These definitions are used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Geologic Hazard Zones Act of 1972 and as subsequently revised in 1997 as the Alquist-Priolo Earthquake Fault Zones. The intent of the act is to require fault investigations for sites located within Special Studies Zone to preclude new construction of certain inhabited structures across the trace of active faults.

The subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on California Geological Survey maps, one of the nearest Alquist-Priolo Earthquake Fault Zone is the strike-slip Newport Inglewood Fault with a trace located about 7.1 miles southwest of the site, which is zoned as an active fault by the California Geological Survey. The southwest dipping San Joaquin Hills thrust Fault is located about 3.8 miles north of the site. The strike-slip Palos Verdes Fault is located about 22 miles west of the site while the strike-slip Whittier Elsinore Fault Zone is located about 18 miles northeast of the site. No evidence of active or potentially active faulting was observed onsite during our investigation. Surface rupture is not considered to be a significant potential hazard to the site based on the readily available published information to date.

Based on the information available at this time, according to CGS, there is a potential for an Mw7.5 earthquake on the Newport Inglewood Fault Zone, an Mw7.1 on the San Joaquin Hills Fault, an Mw7.7 earthquake on the Palos Verde, and an Mw7.8 earthquake on the Whittier Elsinore connected Fault Zone. Large earthquakes could occur on other faults in the general area, but because of their greater distance and/or lower probability of occurrence, they are considered less important to the site from a seismic shaking standpoint.

Due to the proximity of the site to active faults, near field effects from strong ground motion associated with large earthquakes along these faults may occur at the site. These near field effects, including “fling” and directivity of strong ground motion, may result in high accelerations at the site. Figure A-5, presented in Appendix A, shows the approximate locations of some of the nearby active or potentially active faults.

According to the EQSEARCH program, within a search radius of 60 miles, about 51 earthquakes of magnitude 5 or greater have been recorded up to the year 2000. Within that same period, there are records of 13 earthquakes of magnitude 6 or greater, 5 earthquakes of magnitude 6.5 or greater, and 2 earthquakes of magnitude 7 or greater within the same search area. The largest and closest earthquake for the search was reported to have occurred in 1858 at a location about 33 miles from the site. The 1933 Long Beach Earthquake with a magnitude of 6.3 was located about 24 miles north of the site. Using the attenuation relationship of Campbell and Bozorgnia for alluvium (1997), the highest acceleration at the site could have been on the order of 0.11g. A summary of the earthquakes with magnitudes 5 and greater is attached in Appendix D.

10.2. Landsliding

The stadium site is located in a relatively flat ground. However, the site grades beyond the northwestern side of the stadium, descends at a slope inclination of approximately 3:1 (horizontal:vertical), with an overall vertical slope height varying from approximately 50 to 60 feet. The State of California Seismic Hazard Zones Map (Figure A-6 in Appendix A) indicates the existing slopes bordering the stadium area on the northwest, being within the potential Earthquake Induced Landslide Hazard Zone.

During our field investigations, no evidence for landsliding was observed on or in the immediate vicinity of the site. Based on our site observations, and our evaluation of subsurface soil stratigraphy and site conditions, it is our professional opinion that the potential for damage to the proposed building structures due to landslides is low.

10.3. Liquefaction and Dry Settlement

Liquefaction may occur when saturated, loose to medium dense, cohesionless soils are densified by ground shaking or vibrations. The densification results in increased pore water pressures if the soils are not sufficiently permeable to dissipate these pressures during and immediately following an earthquake. When the pore water pressure is equal to or exceeds the overburden pressure, liquefaction of the affected soil layers occurs. For liquefaction to occur, three conditions are required:

- Ground shaking of sufficient magnitude and duration;
- Groundwater level at or above the level of the susceptible soils during the ground shaking; and
- Soils that are susceptible to liquefaction.

The Seismic Hazard Zones Map prepared by the State of California (San Juan Capistrano Quadrangle, 2001) indicates that the site is not located in a liquefaction susceptibility zone (Figure A-6 in Appendix A). Furthermore, the site subsurface stratigraphy consists predominately of stiff to very stiff clay material and medium dense to very dense older alluvial deposits underlain by siltstone of the Capistrano Formation. In addition, the anticipated site acceleration is relatively low ($PGA_M = 0.56g$). Thus, the potential for soil liquefaction and significant seismic dry settlement for the site is considered very low.

10.4. Lateral Spreading

The damaging effect of liquefaction settlement can be exacerbated when the soil is subject to lateral spreading. Due to the absence of liquefiable soil layers underlying the site, potential for lateral spreading is considered very low.

10.5. Tsunamis and Seiches

The proposed building site is located at approximate elevation 313 to 314 feet (NAVD88), and about 5 miles away from the coastline. Therefore, tsunamis are not considered a hazard. Since there are no large bodies of water located immediately adjacent to the school campus, seiches are also not considered a hazard.

11. FLOODING

The project site not located within a special flood hazard area, or other areas of flood hazard, as identified in the FEMA Flood Map #06059C0441J, effective date December 3,2009 (Figure A-7, Appendix A). The map indicates the proposed improvements lie outside the 1 percent annual chance floodplain. Flooding is not considered to be a constraint at the subject site.

12. SOIL COLLAPSE

Soils prone to hydrocollapse are generally young and deposited by flash floods and wind. The site deposits consist generally of very old alluvial deposits, which normally have a low propensity to collapse. . Samples of the upper 8 feet of the subsurface soil were tested for Hydrocollapse potential. The test results indicated negligible hydrocollapse potential.

13. CONCLUSIONS AND RECOMMENDATIONS

13.1. General

In our opinion, the planned improvements are feasible from a geotechnical engineering point of view provided the geotechnical recommendations presented in this report are followed. The main concerns from a geotechnical standpoint are the presence of undocumented shallow fill and potentially expansive clay soils.

The following sections contain geotechnical recommendations for design and construction of the subject improvements and include our recommendations and discussions about bearing capacity, settlement, flatwork, slabs-on-grade, temporary excavations, and utility trenches.

13.2. Grading

13.2.1. Building Pad

Prior to grading, any existing pavement, foundation, vegetation, abandoned underground utilities and other debris should be removed from the proposed building area. Within the building pad areas, we recommend overexcavating the subgrade to completely remove the existing undocumented fill and a minimum overexcavation of 2 feet below the footing bottoms, whichever is deeper. Where feasible, the overexcavation should extend laterally at least 5 feet beyond the building perimeter and 5 feet beyond the footing edges, whichever is greater.

Following approval, the bottom of the removal excavations should be scarified to a depth of 10 inches, moisture conditioned to at least optimum moisture content for sand and 125 percent of optimum moisture for clay and recompacted to 90% relative compaction as determined by ASTM D1557. All sand fill placed below the buildings should be compacted to at least 92% relative compaction; no high plastic clay soils should be used to backfill below the building pads unless approved otherwise by the Geotechnical Consultant at the time of construction.

13.2.2. Exterior Flatwork and Pavement Areas

Similarly to the building footprint area, the site should be stripped of all vegetation, topsoil, abandoned utilities and other existing improvements, and the excavations should be backfilled with new engineered fill. We recommend overexcavating at least 18 inches of subgrade material below all new exterior flatwork and the overexcavation should extend at least 2 feet beyond the edge of pavement, where feasible. Prior to fill placement, the subgrade should be scarified to a depth of 10 inches, moisture conditioned to at least optimum and recompacted to 90 percent relative compaction. Except for vehicular pavement areas, all sand fill outside the structure areas should be compacted to at least

90% relative compaction. Within vehicular pavement areas, the upper 12 inches of subgrade soils should be compacted to 92% relative compaction for clay soil and to 95% percent relative compaction for sand soils.

13.3. General Grading Requirements

1. All fill within building pad areas, unless otherwise specifically stated in the report, should be compacted to at least 92% of the maximum dry density as determined by ASTM D1557 Method of Soil Compaction for sand soils and 90% relative compaction for clay soils.

2. No fill should be placed until the area to receive the fill has been adequately prepared and approved by the Geotechnical Consultant or his representative.

3. Fill soils should be kept free of debris and organic material.

4. Rocks or hard fragments larger than 3 inches may not be placed in the fill without approval of the Geotechnical Consultant or his representative, and in a manner specified for each occurrence. There should not be any concentrations of particles sizes of 2 inches or greater; proper mixing should be performed.

5. The fill material should be placed in lifts which, when loose, should not exceed 8 inches per lift. Each lift should be spread evenly and should be thoroughly mixed during the spreading to obtain uniformity of material and moisture.

6. When the moisture content of the fill material is lower than the specified value or is too low to obtain adequate compaction, water should be added and thoroughly dispersed until the sand soils have a moisture content above optimum and the clay soils have a moisture content of at least 125 percent of optimum except as indicated otherwise in this report and unless determined otherwise by the Geotechnical Engineer at the time of construction.

7. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material should be aerated by blading or other satisfactory methods until the soil has a moisture content as specified herein.

8. Permanent fill and cut slopes should not be constructed at gradients steeper than 2:1(H: V).

13.4. Fill Materials

13.4.1. Onsite Materials

The onsite sandy clay and clayey sand encountered in the borings at shallow depths are considered to have a medium expansion potential. Except for the topsoil, most of these soils are considered suitable for backfilling purposes, except for the upper 18 inches of building pads and other structures that are sensitive to soil movement. The onsite soil should be free of deleterious materials, construction debris, and oversize particles and properly processed and moisture conditioned prior to use. Non expansive soil (EI <20) imported materials should be used to backfill the upper 18 inches of the building pads.

Overexcavation and re-compaction will induce fill shrinkage. Many factors such as mixing, relative compaction of the fill, and topographic approximations will affect shrinkage. We cannot estimate the exact amount of shrinkage; however, in our opinion, the shrinkage may be on the order of 5 to 10 percent for fill material excavated and recompacted to 90 percent relative compaction. This estimate does not include the material that will be required to fill in the excavations after the removal of any subsurface structures left in-place from prior use of the site and removal of topsoil.

13.4.2. Import

Import materials should contain sufficient fines (binder material) so as to be relatively impermeable and result in a stable subgrade when compacted. The imported materials should have an expansion index (EI) less than 20 and should be free of organic materials, debris, and cobbles larger than 2 inches with no more than 40% passing the #200 sieve. A bulk sample of potential import material, weighing at least 35 pounds, should be submitted to the Geotechnical Consultant at least 48 hours before fill operations. Other than aggregate base and bedding sand, all proposed import materials should be tested for corrosivity, should be environmentally cleared from contamination and should be approved by the Geotechnical Consultant prior to being imported onsite.

13.5. Temporary Excavations

Temporary excavations adjacent to un-surcharged areas are anticipated to be stable near vertical to a depth up to 5 feet in fill or undisturbed alluvium. The shallow undisturbed site soils are expected to be temporarily stable when excavated at a gradient of 1:1 (H:V) for un-surcharged excavations that are between 5 and 10 feet in depth.

The tops of slopes should be barricaded to prevent vehicles and storage loads within 6 feet of the tops of slopes or ½ the excavation depth, whichever is greater. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes; we should be advised of such heavy vehicle loadings so that specific setback requirements can be established. When excavating adjacent to existing footings or building supports, proper means should be employed to prevent any possible damage to the existing structures. Un-shored excavations should not extend below a 1½:1 (H:V) plane extending downward from the lower edge of adjacent footings and should start at least 2 feet away from the footings. Where there is insufficient space to slope back an excavation, shoring may be required. All regulations of State and Federal OSHA should be followed. Some sloughing and caving of excavations should be anticipated.

Temporary excavations are assumed to be those that will remain un-shored for a period of time not exceeding one week. In dry weather, the excavation slopes should be kept moist, but not soaked. If excavations are made during the rainy season (normally from November through April), particular care should be taken to protect slopes against erosion. Mitigative measures, such as installation of berms, plastic sheeting, or other devices, may be warranted to prevent surface water from flowing over or ponding at the top of excavations.

13.6. Floor Slabs

13.6.1. General

The grading recommendations for the new building floor slabs are provided in Section 13.2.1. Due to soil expansion potential, the building floor slabs on grade, as a minimum, should have a thickness of at least 5½ inches and should contain as a minimum No. 5 bars spaced a maximum of 16 inches on centers, in both directions unless determined otherwise by the Structural Engineer. Thicker slabs and additional reinforcement may be required depending on the floor loads and the structural requirements as determined by the Structural Engineer. It is recommended that the compacted subgrade be moistened prior to placement of the vapor retarder. The concrete strength should be at least 4000 psi unless recommended otherwise by the Structural Engineer.

13.6.2 Moisture Sensitive Floor Covering

Water vapor transmitted through floor slabs is a common cause of floor covering problems. In areas where moisture-sensitive floor coverings (such as tile, hardwood floors, linoleum or carpeting) are planned, a vapor retarder should be installed below the concrete slabs to reduce excess vapor transmission through the slab.

The function of the recommended relatively impermeable membrane (vapor retarder) is to reduce the amount of soil moisture or water vapor that is transmitted through the floor slab. The membrane should be 15-mil thick, Class A, and care should be taken to preserve the continuity and integrity of the membrane beneath the floor slab. The vapor retarder should conform to ASTM E1745. The vapor retarder should be installed in strict conformance with the manufacture recommendations.

The use of capillary break is left to the discretion of the Project Architect/Structural Engineer. However, if a capillary break is used, at least 4 inches of free draining crushed rock, with no more than 2 percent passing the No. 200 sieve, should be placed below the vapor retarder. The crushed rock should be vibrated in place to achieve the compaction required by the project specifications. The gradation for the free draining capillary break material should conform to the requirements for No. 4 Concrete Aggregates as specified in Section 200-1.4 of the Standard Specifications for Public Works Construction (Greenbook) or approved equivalent.

Another factor affecting vapor transmission through floor slabs is the water to cement ratio in the concrete used for the floor slab. A high water to cement ratio increases the porosity of the concrete, thereby facilitating the transmission of water vapor through the slab. The project Structural Engineer should provide recommendations for design of concrete for footings and floor slabs in accordance with the latest version of the applicable codes. We recommend a concrete strength of at least 4000 psi with a water cement ratio not exceeding 0.5. The placement of sand above the vapor retarder is the purview of the Structural Engineer.

13.7. Seismic Coefficients

Under the Earthquake Design Regulations of Chapter 16, Section 1613A of the CBC 2022, the following coefficients and factors (mapped values) presented in Table 1 were calculated using the USGS web site and the SEAOC/OSHPD tool (see Figures A-8a and A-8b).

The site class is determined in accordance with ASCE 7 Chapter 20 using shear wave velocity, SPT blow count or undrained shear strength. For a site to be classified as Site Class D the weighted average SPT blow count should be between 15 and 50. For Class C the weighted average SPT blow count should be between 50 and 100. Based on the blow counts recorded during sampling of nine borings, it was determined that Class C corresponds to Borings B-1, B-5 and B-6. Class D corresponds to Borings B-2, B-3, B-4, and B-7. The SPT blow count test results presented on the boring logs indicate that the site Class is borderline between Classes C and D. Therefore, the Structural Engineer should use the Class determined by the individual borings or use the most conservative of the two Class for the corresponding building or structure.

Table 1 – Seismic Coefficients and Factors

Site Class (CBC 2022 – 1613A.2.2)	D	C
Seismic Design Category based on Occupancy Category III (CBC 2022-1604A.5 &1613A.2.5)	D	D
Acceleration Parameter for Short Period (0.2 Second), S_S	1.189	1.189
Acceleration Parameter for 1.0 Second, S_1	0.428	0.427
Adjusted Maximum Spectral Response Parameter for Short Period (0.2 Second), S_{MS}	1.218	1.427
Adjusted Maximum Spectral Response Parameter for 1.0 Second Period, S_{M1}	*	0.641
Design Spectral Response Acceleration Parameter, S_{DS}	0.812	0.952
Design Spectral Response Acceleration Parameter, S_{D1}	*	0.427
Peak Ground Acceleration (PGA_M)	0.555	0.605
Period (T_0/T_S)	$^+$.131/.657	$^+$.150/.748
Earthquake Design Magnitude (Deaggregation	7.7	7.7

Project Site Coordinates: Longitude: W-117.6697936º Latitude: N33.5415426, $^+$Based on Fv of 1.87 for period calculation of Site Class D and 1.50 for Site Class C. *See Section 11.4.8, Supplement 3, ASCE 7-16 for exception to site-specific ground motion study.

No site-specific ground motion study is required per ASCE Standard 7-16, Supplement 3, Section 11.4.8 Item 1, where the value of the parameter S_{M1} determined by Equation 11.4-2 is increased by 50% for all applications of S_{M1} in this Standard. The resulting value of the parameter S_{D1} determined by Equation 11.4-4 should be used for all applications of SD1.

13.8. Foundations

General: For the purpose of this report, we have assumed that the proposed one-story building will have wall loads (dead plus live) on the order of 1 to 3 kips per lineal foot, and column loads (dead plus live) less than 20 kips.

The proposed footing bottoms should be founded on at least 2 feet of new engineered fill compacted to 92 percent relative compaction for granular material and to 90 percent relative compaction for clayey soils. The recommendations for preparation of the soils underlying the footings are provided in the "Grading" section of this report. The Structural Engineer should design foundations and floor slabs in accordance with the requirements of the applicable building code.

Footings supporting the proposed structures should have a minimum width of 2 feet for isolated footings and 1.5 feet for continuous footings. The bottom of footings should be located at least 24 inches below the lowest adjacent finish grade. A net vertical bearing value of 2,000 psf may be used to design the footings. This bearing value may be increased by 300 psf for each additional foot of width or depth up to a maximum of 3,000 psf. If a footing is located within one footing width of an existing foundation, the allowable bearing pressure should be reduced by 30 percent. A one-third increase in the bearing value may be used when considering wind or seismic loads. The footings should be reinforced with at least two No. 5 bars top and bottom or other reinforcement as determined by the Structural Engineer.

Footings supporting small ancillary facilities, for which the settlement or heave is not critical, should have a minimum width of 2 feet for isolated footings and 1.5 feet for continuous footings. The bottom of footings should be located at least 18 inches below the lowest adjacent finish grade and the footings should be supported on at least 1½ feet of new engineered fill. A net bearing pressure of 1800 psf may be used for these footings. A one-third increase in the bearing value may be used when considering wind or seismic loads.

Lateral Resistance: Lateral load resistance may be derived from passive resistance along the vertical sides of the foundations, friction acting at the base of the foundations, or a combination of the two. A coefficient of friction of 0.3 may be used between the footings, floor slabs, and the supporting soils comprised of compacted sand materials. The friction coefficient used for a slab supported on the vapor retarder should not exceed 0.1. The passive resistance of level properly compacted fill soils in direct contact with the footings may be assumed to be equal to the pressure developed by a fluid with a density of 250 pcf, to a maximum pressure of 2,500 psf (allowable). A one-third increase in the passive value may be used for wind or seismic loads. The frictional resistance and the passive resistance of the soils may be combined provided that the passive resistance is reduced by one third. We recommend that the upper 12 inches of soil cover be neglected in the passive resistance calculations if the ground surface is not protected from erosion or disturbance by a slab, pavement or in a similar manner.

Estimated Settlement: Based on the results of our analyses and provided that our recommendations in preceding sections of this report are followed, we estimate that the total static settlement of isolated and/or strip footings under sustained loads will be on the order of ¾ inch for the anticipated maximum structural loads. The maximum static differential settlement, over a horizontal distance of 40 feet, is anticipated to be on the order of ½ inch for similarly loaded footings.

13.9. Retaining Walls

Retaining walls in the range of 1½ to 4 feet in height may be associated with the improvements. The pressure behind retaining walls depends primarily on the allowable wall movement, wall inclination, type of backfill materials, backfill slopes, surcharge, and drainage. Determination of whether the active or at-rest condition is appropriate for design will depend on the flexibility of the walls. Walls that are free to rotate at least 0.002 radians at the top (deflection at the top of the wall of at least 0.002 x H, where H is the unbalanced wall height) can be designed for active conditions. The recommended active and at-rest pressures for imported granular backfill material are presented in the following table. No clay should be used to backfill behind retaining walls~~.~~

Table 2 - Earth Pressures for Retaining Walls

Wall Movement	Backfill Condition	Equivalent Fluid Pressure (imported granular material) (pcf)
Free to Deflect	Level	40
Restrained	Level	65

The above lateral earth pressures do not include the effects of surcharge (e.g. traffic, footings, hydrostatic pressure) or compaction. Any surcharge (live, including traffic, or dead load) located within a 1:1 plane drawn upward from the base of the excavation should be added to the lateral earth pressures. The lateral pressure addition of a uniform surcharge load located immediately behind walls may be calculated by multiplying the surcharge by 0.33 for cantilevered walls and 0.5 for restrained walls. For vehicular surcharge adjacent to driveways or parking areas, a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot traffic surcharge, should be used.

A drainage system should be provided behind the walls to reduce the potential for development of hydrostatic pressure. If a drainage system is not installed, the walls should be designed to resist the hydrostatic pressure in addition to the earth pressure.

Walls should be properly drained and waterproofed. Except for the upper 1½ feet, the backfill immediately behind retaining walls (minimum horizontal distance of 12 inches) should consist of free-draining ¾-inch crushed rock wrapped with filter fabric. A 4-inch diameter perforated PVC pipe, placed perforations down at the bottom of the crushed rock backfill, leading to a suitable gravity outlet, should be installed.

All undocumented fill should be removed from the footing area for retaining walls exceeding 3 feet in height. The wall footings should be underlain by at least 1½ feet of new engineered fill. The footing embedment should be at least 2 feet below the lowest adjacent grade. The maximum allowable bearing pressure recommended is 2,000 psf.

13.10. Pole Foundation for Light Fixtures

As a typical foundation, cast-in-place drilled piers (shafts) are usually used to support the axial and lateral loads of this kind of structure. Lateral loads on the foundation shaft for the proposed pole may be resisted by the passive resistance utilized by the surrounding soils. The passive resistance when the ground surface is level, may be assumed to be equal to the pressure developed by a fluid with a density of 200 pcf, with zero point 1.5 feet below ground surface and to a maximum value 2,500 psf. These values apply to the design of the poles when they are adversely affected by 0.5 inch of lateral movement at ground level. These lateral resistance values should not be multiplied by 2 as addressed in section 1806A.3.4 of the CBC. If the embedment depth is obtained in accordance with the Pole Formula provided in the CBC, the allowable lateral soil-bearing pressure based on a depth of one-third of the embedment depth (S_1 in Section 1807A.3.2.1 of CBC) may be calculated according to the aforementioned lateral resistance values. The S_1 may be obtained from the equation; S_1= 85 (d-1.5), where d is the embedment depth. If movement of 0.5 inch or greater at the ground surface is allowed, the equivalent fluid pressure may be multiplied by 2.

For vertical support, a bearing pressure of 1500 psf may be used provided the bottom of the excavation is cleaned of all loose soils. In addition, a skin friction resistance of 350 psf may be used provided the friction resistance in the upper 3½ feet of soil is neglected.

13.11. Utility Trench Backfill

Bedding material immediately around utility lines and extending to a point 12 inches above the line should consist of either sand, fine-grained gravel, or sand-cement slurry to support and/or to protect the lines. A minimum of 4-inch thick bedding material should be placed below the bottom of the utility lines on a firm and unyielding subgrade. The bedding material should meet the specifications given in the latest edition of the “Standard Specifications for Public Works Construction” (Greenbook) and the project specifications. Sand or gravel should be compacted in accordance with the Greenbook specifications and project specifications, whichever is more stringent.

Above the bedding, up to finished subgrade in areas other than landscape and up to one foot below flatwork and pavements, utility trenches should be backfilled with onsite sand and mechanically compacted to at least 90% of the maximum dry density of the soils.

Below pavements, a minimum relative compaction of 92% is required in the upper 12 inches of the subgrade for clay material and 95% for sand material. For utility trenches within the building, the backfill should be compacted to the minimum required relative compaction indicated under the "Grading" section of this report and the backfill material should correspond to the material used as fill for the building. The backfill should be observed, tested and approved by the Geotechnical Consultant. The trench bedding materials should be placed in accordance with Section 306-6 of the "Standard Specifications for Public Works Construction" (Greenbook).

When adjacent to any footings, utility trenches and pipes should be laid above an imaginary line measured at a gradient of 1½:1 (H:V) projected down from the bottom edges of any footings. Otherwise, the pipe should be designed to accept the lateral effect from the footing load or the footing bottom should be deepened as needed to comply with this requirement. Backfill consisting of 2-sack sand-cement slurry may also be used.

13.12. Drainage

Foundation, slab, flatwork, and pavement performance depend greatly on proper drainage within and along the boundary of the improvements. Perimeter grades around the building should be sloped in a manner allowing water to drain away from the buildings and not pond next to the foundations. Roof downdrains should be connected to underground pipes carrying water away from the building area or have extenders so water does not drain and pond next to the building. Per the CBC, landscape areas within 10 feet of buildings should slope away at gradients of at least 5 percent unless flatter grades are needed for ADA requirements. Paved areas within 10 feet of buildings should slope away at gradients of at least 2 percent unless variations are needed for ADA requirements. Proper drainage is recommended for all surfaces to reduce the potential settlement or heave due to water infiltration.

Due to soil heaving potential, no planter should be constructed within 8 feet of building foundations unless enclosed planters with solid bottoms are used along with drains connected to the storm drain. We recommend minimizing the size and number of planters adjacent to the building and other foundations and using drought resistant planting in order to avoid distress due to heave or settlement.

13.13. Asphalt Concrete (AC) Pavement

The required pavement structural sections depend on the expected wheel loads, volume of traffic, and subgrade soils. The characteristics of subgrade soils are determined by R-value testing. Based on soil classification and prior experience with similar soils, we anticipate an R-value on the order of 10 for the clay encountered at shallow depth in the borings. The R-values should be confirmed with additional tests, if necessary, at the time of construction. The following pavement sections were calculated based on assumed traffic indices of 4, 5, 6 and 7. The project Civil Engineer should determine the traffic index to be used for different areas of the site. A traffic index of 6 to 7 is normally utilized to design fire lanes.

Table 3 - Asphalt Pavement Sections (clayey sand subgrade)

Traffic Index	Asphalt Thickness (Inches)	Base Course (CAB) Thickness (Inches)
4	3.0	6.0
5	3.5	8.0
6	4.0	10.5
7	4.5	13.5

Base course material should consist of Crushed Aggregate Base (CAB) as defined by Section 200-2.2 of the Standard Specifications for Public Works Construction ("Greenbook"). Base course should be compacted to at least 95 percent of the maximum dry density of that material. Crushed Miscellaneous Base (CMB) may be used only if the supplier can demonstrate that the aggregate does not contain contaminated material.

The grading for flatwork is addressed in Section 13.2.2 of this report. The subgrade should be in a "non-pumping" condition at the time of compaction.

Any onsite surficial organic soils within landscaped/turf areas should not be used as subgrade materials. Where feasible, the overexcavation should extend laterally a minimum of 2 feet beyond the perimeters and edges of parking areas, roadways and curbs. Any abandoned footing and/or underground concrete structure within the work limit should be removed entirely and the excavation should be backfilled to grade.

13.14. Portland Cement Concrete (PCC) Pavement

The grading recommendations for vehicular PCC pavement are provided in Section 13.2.2 of this report. Base course material, used in the vehicular pavement sections, should consist of Crushed Aggregate Base (CAB) as defined by Section 200-2.2 of the Standard Specifications for Public Works Construction (Greenbook 2018). The aggregate base course should be compacted to at least 95% of the maximum dry density of that material. Crushed Miscellaneous Base (CMB) may be used only if the supplier can demonstrate that the aggregate does not contain contaminated material.

The recommendations presented herein should be used for design and construction of the slabs and pertaining grading work underlying vehicular pavement areas. A minimum modulus of rupture of 550 psi for concrete has been assumed in designing the PCC pavement sections; this corresponds to a concrete compressive strength of approximately 4,000 psi at 28 days. A qualified design professional should specify where heavy duty and standard duty slabs are used based on the anticipated type and frequency of traffic. Fire access roads are normally considered heavy duty pavement. The recommended vehicular PCC pavement sections are provided in the following table.

Table 4 - Vehicular PCC Pavement Sections

Pavement Type	Portland Cement Concrete Thickness (inches)	Base Course (CAB) Thickness (inches)
Light Duty	6.5	4.0
Heavy Duty	7.5	6.0

These vehicular concrete pavement sections should be increased for bus traffic areas, where applicable. The following recommendations should also be incorporated into the design and construction of PCC pavement.

- The pavement sections should be reinforced with No. 3 rebars spaced at 18 inches on centers each way to reduce the potential for shrinkage cracking.
- Joint spacing in feet should not exceed twice the slab thickness in inches, e.g., 12 feet for a 6-inch thick slab. Regardless of slab thickness, joint spacing should not exceed 15 feet.
- Layout joints should form square panels. When this is not practical, rectangular panels can be used if the long dimension is no more than 1.5 times the short one.
- Control joints should have a depth of at least 1/4 the slab thickness, e.g., 1 inch for a 4-inch thick slab.
- Pavement section design assumes that proper maintenance such as sealing and repair of localized distress will be performed on a periodic basis.

13.15. Portland Cement Pedestrian Pavement, Pavers and Turf Blocks

The grading recommendations for exterior flatwork are provided in Section 13.2.2. Exterior concrete slabs for pedestrian traffic or landscape should be at least four inches thick. Weakened plane joints should be located at intervals of no more than about 6 feet unless slabs thicker than 4 inches are used. The pavement sections should be reinforced with No. 3 rebars spaced no further than 18 inches on centers each way to reduce the potential for shrinkage cracking. A thickened edge is recommended at the exterior edge of the flatwork adjacent to landscape subject to irrigation. The thickened edges should be a minimum of 12 inches deep and 8 inches wide and reinforced with two No. 3 bars at the top and bottom. In addition to the thickened edges, the walkway should be underlain by at least 12 inches of non-expansive granular/sandy soils and the upper 12 inches of the clay subgrade should have a moisture content of at least 125 percent of optimum prior to placement of the granular soils. The concrete strength for pedestrian walkways should be at least 2,500 psi unless determined otherwise by the Structural Engineer.

If pedestrian pavers are used, they should be supported on one inch of sand underlain by 4 inches of crushed aggregate base (CAB). For light vehicular traffic, the pavers should be underlain by one inch of sand and at least 9 inches of aggregate base (CAB). For heavy duty traffic areas, we recommend increasing the aggregate base thickness to 14 inches. The aggregate base should be underlain by a separation/filter fabric for heavy duty traffic areas. A similar heavy-duty construction may be used for fire truck turf block pavers. For turf block pavers, a filter fabric should also be placed also above the aggregate base to prevent contamination of the base by the planting soils. The aggregate base should extend at least one foot outside the edge of the road where feasible.

14. SOIL EXPANSIVITY

The subsurface soils encountered at shallow depth consist predominantly of sandy lean clay. These types of material generally have a moderate susceptibility to expansion when facing seasonal cycles of saturation/desiccation. The expansion index test indicated a value of 69, which is considered a moderate expansion potential. As such, the recommendations provided in this report regarding drainage system, moisture content during compaction, presoaking, the use of non-expansive granular blankets and other pertinent recommendations for site improvements should be incorporated into the design and construction.

15. SOIL CORROSIVITY

The corrosion potential of the onsite materials to steel and buried concrete was preliminarily evaluated. Laboratory testing was performed on a soil sample to evaluate pH, minimum resistivity, chloride and soluble sulfate contents. The test results are presented in the following table.

Table 5 - Corrosion Test Results

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	pH	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)
B-1	1-5	7460	7.5	31	12

These tests are only an indicator of soil corrosivity for the sample tested. Other soils found on site may be more, less, or of a similar corrosive nature. Imported fill materials should be tested to confirm their corrosion potential. Based on the minimum resistivity results from the soil tested, some of the near-surface site soils are slightly corrosive towards buried ferrous metals. The concentrations of soluble sulfates indicate that the potential of sulfate attack on concrete in contact with the onsite soils is “negligible” based on ACI 318 Table 4.3.1. The exposure of soluble chloride is also considered negligible. Cement Type II or approved equivalent may be used in concrete. The exposures to site class in accordance ACI 318-14, Table 19.3.1.1 are F_0, S_0, W_0, and C_1. Maximum water-cement ratios are not specified for the sulfate concentrations; however, the Structural Engineer should select a concrete with appropriate strength. Further interpretation of the corrosivity test results, including the resistivity value, and providing corrosion design and construction recommendations are the purview of corrosion specialists/consultants.

16. OBSERVATION AND TESTING

This report has been prepared assuming that Koury Engineering & Testing, Inc. will perform all geotechnical-related field observations and testing. If the recommendations presented in this report are utilized, and observation of the geotechnical work is performed by others, the party performing the observations must review this report and assume responsibility for the recommendations contained herein. That party would then assume the title of “Geotechnical Consultant of Record”. A representative of the Geotechnical Consultant should be present to observe all grading operations as well as all footing excavations.

17. CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the borings should be anticipated. Koury should be notified if subsurface conditions are encountered, which differ from those described in this report to determine if revised recommendations are necessary. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please call our office.

Respectfully submitted,

KOURY ENGINEERING & TESTING, INC.

JACQUES B. ROY
NO. 2077
Ex. Date 9/30/25
Geotechnical

Shaofu Chen
2688

Jacques Roy

Jacques B. Roy P.E. G.E.
Principal Geotechnical Engineer

Shaofu Chen, C.E.G. 2688
Principal Geologist

Distribution: 1. Addressee (a pdf copy via e-mail)
2. File (B)

APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1
Boring Location Map – Figure A-2
Regional Geologic Map – Figure A-3
Historically Highest Groundwater Map – Figure A-4
Fault Map – Figure A-5
Seismic Hazard Zones Map – Figure A-6
Flood Map – Figure A-7
Seismic Parameters – Figures A-8a and A-8b

Appendix B: Field Exploratory Boring Logs

Borings B-1 through B-9

Appendix C: Laboratory Test Results

Appendix D: Historical Earthquake Data

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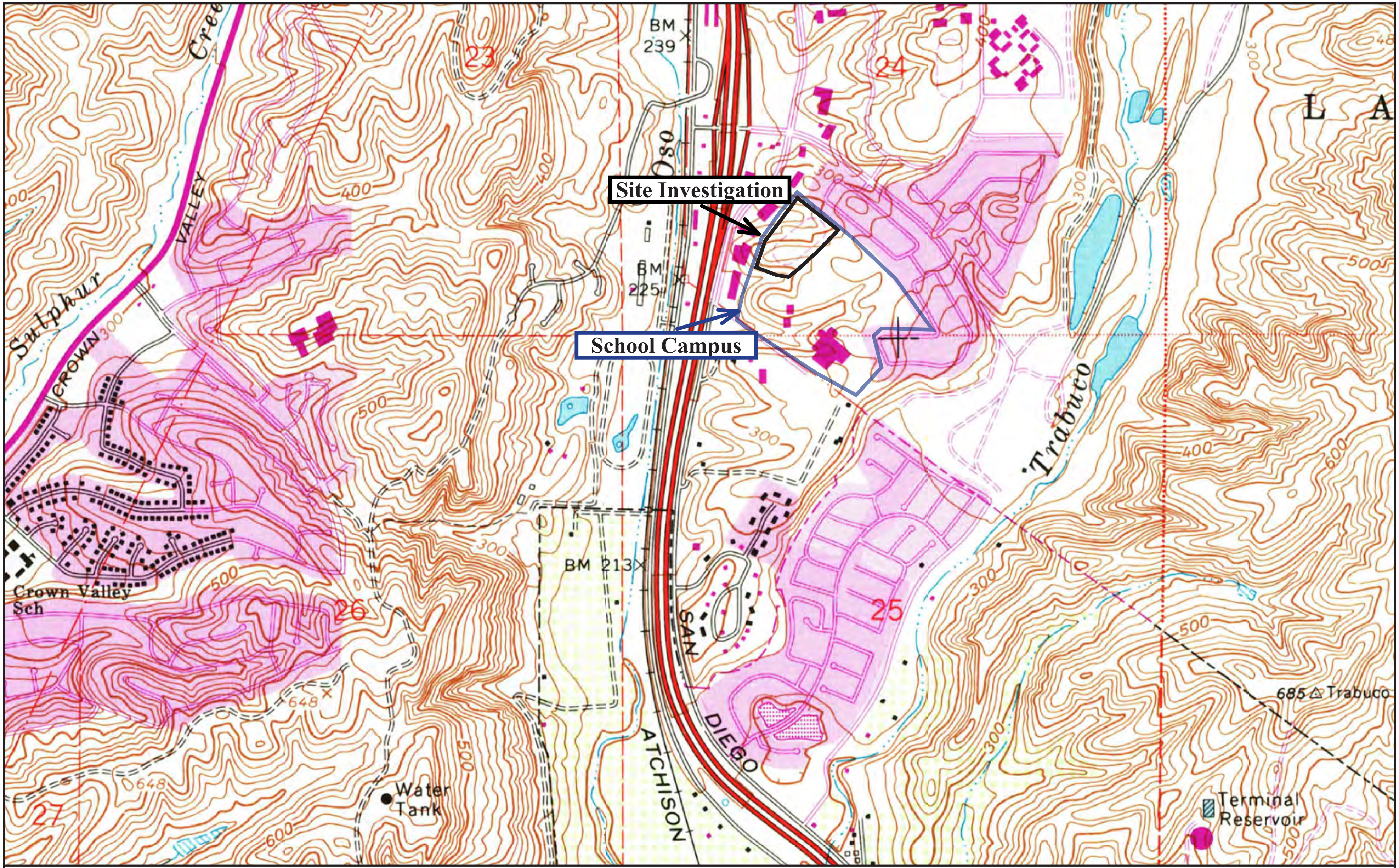
APPENDIX A

Maps and Plans



0 1/4 1/2Mile

N

Reference: USGS Topographic Map, San Juan Capistrano Quadrangle, California-Orange County, 7.5 Minute Series, 1968 - Contour Interval 20 ft. Scale 1:24,000.

Project Name: Capistrano Valley High School Stadium Modernization	**Project No.:** 23-1859 **Date:** January 2024	**Drawing Title:** Vicinity Map	**Figure:** A-1

LEGEND

● B-10 Approximate Hollow Stem Boring Location & Number

🟩 Approximate Location of Proposed Buildings

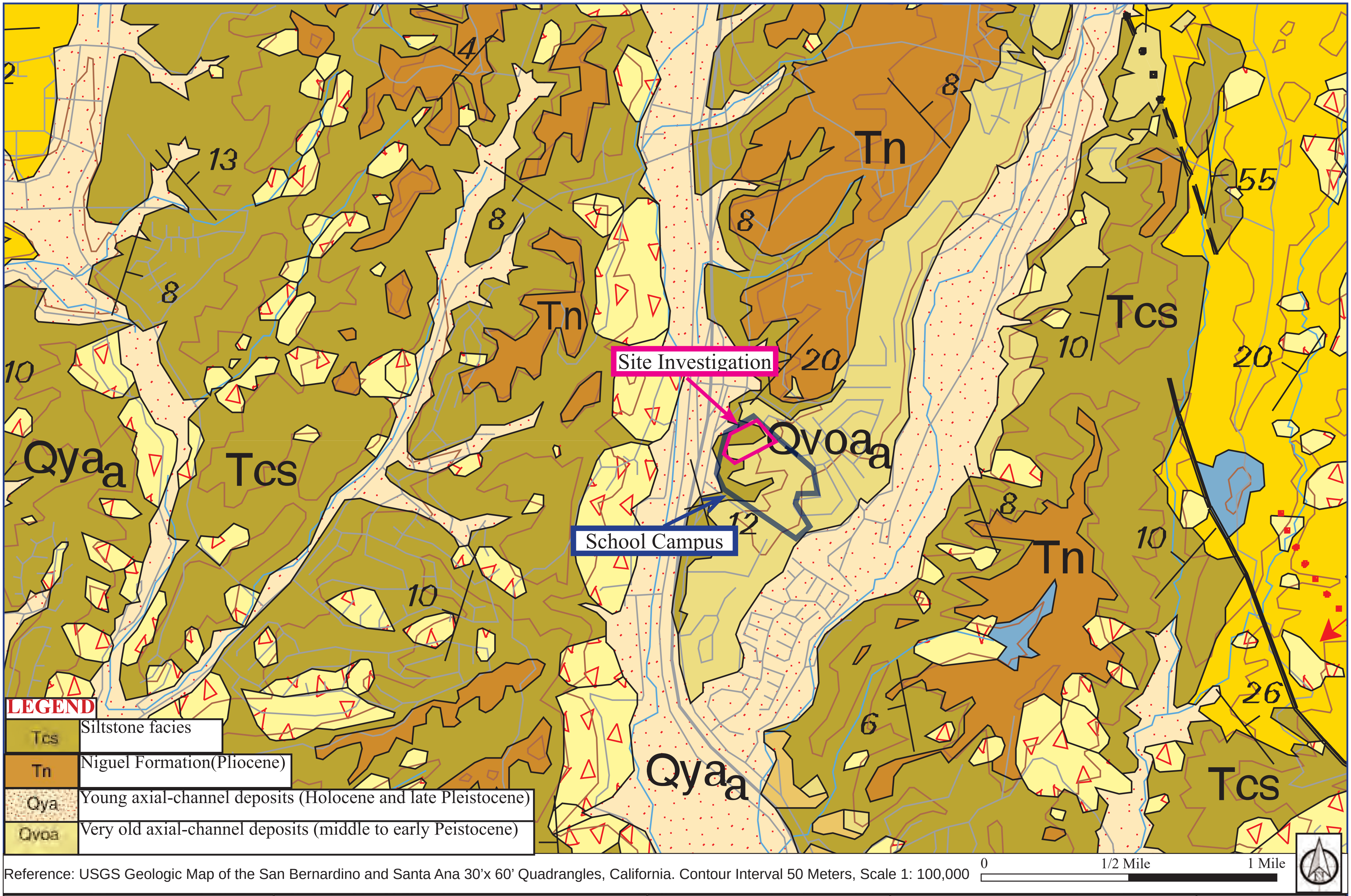
0 50’ 100’

N

Reference: Google Earth Image © 2023 Imagery Date: 8/1/2021

KOURY
PASSION INTEGRITY QUALITY

Project Name: **Capistrano Valley High School** **Stadium Modernization**	**Project No.:** 23-1859 **Date:** January 2024	**Drawing Title:** **Boring Location Map**	**Figure:** **A-2**



Reference: USGS Geologic Map of the San Bernardino and Santa Ana 30'x 60' Quadrangles, California. Contour Interval 50 Meters, Scale 1: 100,000

Project Name:

Capistrano Valley High School
Stadium Modernization

Project No.: **23-1859**

Date: **January 2024**

Drawing Title:

Regional Geologic Map

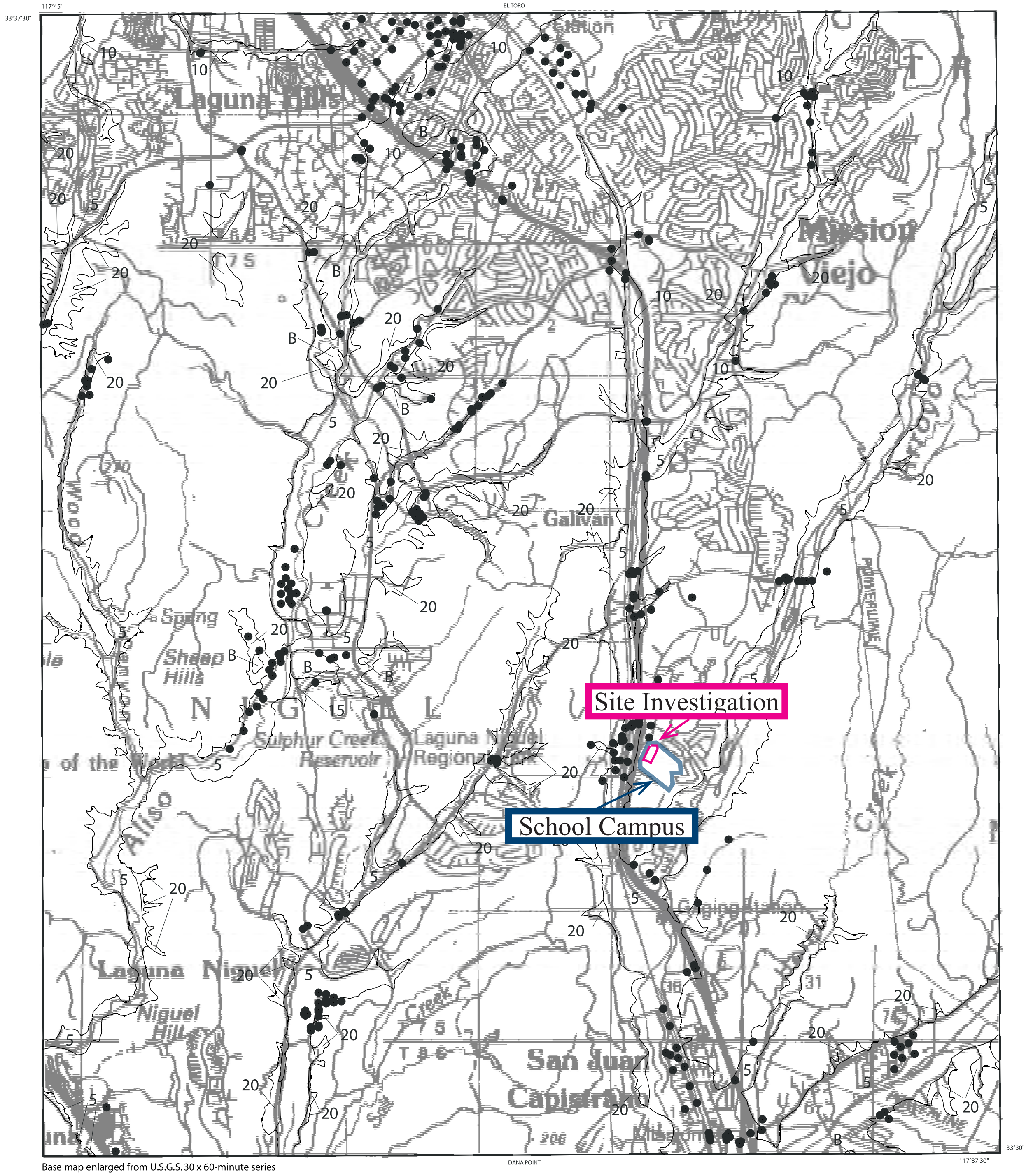
Figure:

A-3

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS, STATE GEOLOGIST

STATE OF CALIFORNIA–GRAY DAVIS, GOVERNOR
THE RESOURCES AGENCY–MARY D. NICHOLS, SECRETARY
DEPARTMENT OF CONSERVATION–DARRYL YOUNG, DIRECTOR

San Juan Capistrano Quadrangle Plate 1.2
SEISMIC HAZARD ZONE REPORT 053



Base map enlarged from U.S.G.S. 30 x 60-minute series

SAN JUAN CAPISTRANO QUADRANGLE

SCALE

N

20 Depth to groundwater (in feet)

B = Pre-Quarternary bedrock.
See Geologic Conditions section in
report for descriptions of the units.

● Geotechnical bore holes used in liquefaction evaluation

Reference: Division of Mines and Geology, 2008, Seismic Hazard Zone Report for the San Juan Capistrano 7.5 Minute Quadrangle, California

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PASSION INTEGRITY QUALITY

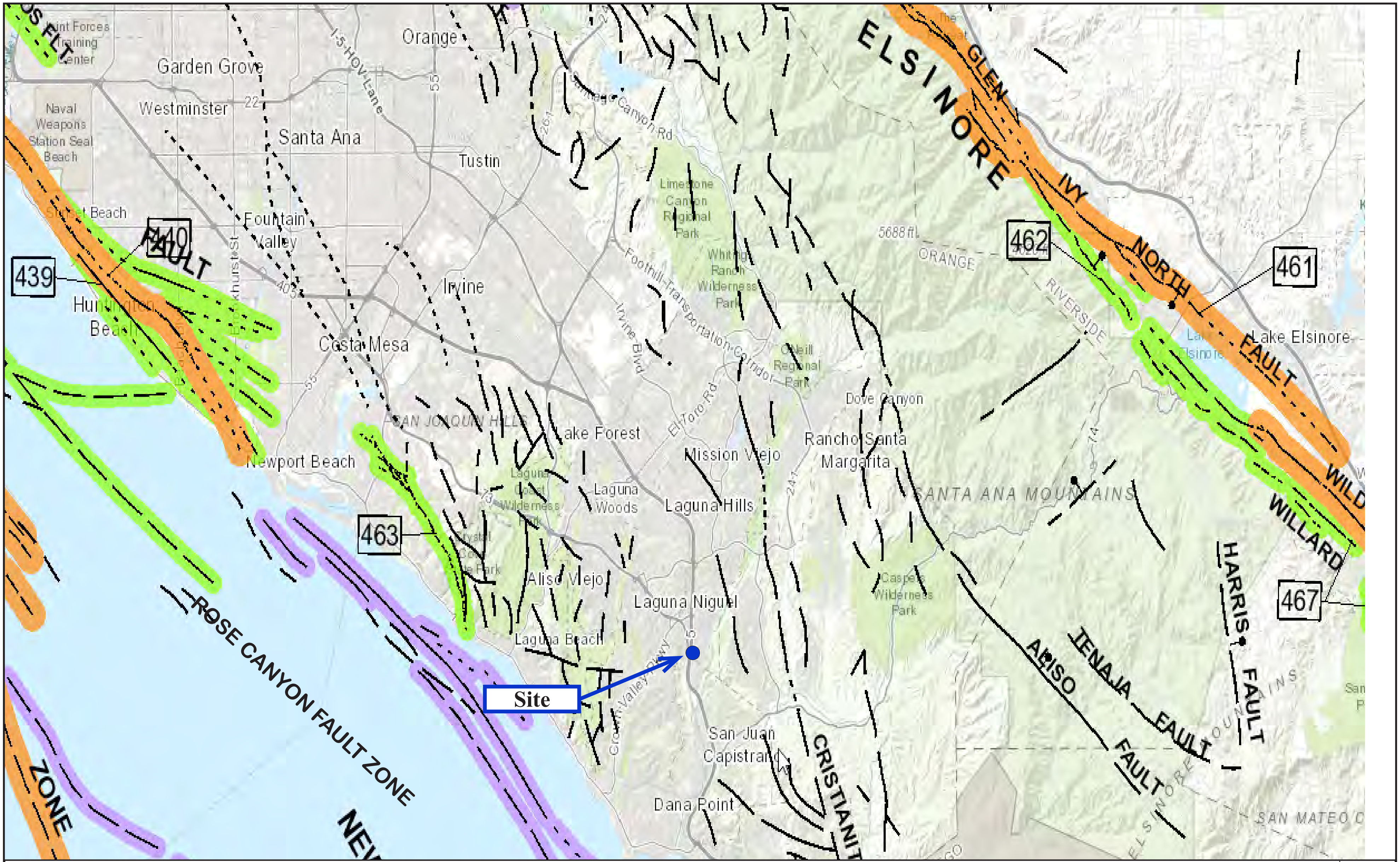
Project Name: **Capistrano Valley High School Stadium**

Project No.: **23-1859**

Date: **January 2024**

Drawing Title: **Historically Highest Groundwater Map**

Figure: **A-4**



Reference: Fault Activity Map of California (2015) - California Geological Survey
Web Site @ https://maps.conservation.ca.gov/cgs/fam/ - See Figure 5a for explanation

Project Name:	Project No.: 23-1859	Drawing Title:	Figure:
Capistrano Valley High School Stadium Modernization	Date: January 2024	**Fault Map**	**A-5**

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

FAULT CLASSIFICATION COLOR CODE (Indicating Recency of Movement)

🟥 Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.
(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.
(c) displaced survey lines.

1906 ▶ ◀ 1906

1838 ▷ ◁ 1838

A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

▶ 1951 ◀

Date bracketed by triangles indicates local fault break.

1992

No triangle by date indicates an intermediate point along fault break.

CREEP

Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.

1969

1968 ■ ■ 1968

Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate termi- nal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

🟧 Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.

🟩 Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

🟪 Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement some- time during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferenti- ated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

⇄ Arrows along fault indicate relative or apparent direction of lateral movement.

↑ Arrow on fault indicates direction of dip.

▼ Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip

OTHER SYMBOLS

491

Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geolo- gist to delineate zones to encompass faults with Holocene displacement.

Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate disconti- nuities between basement rocks.

▨ Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults

KOURY
PASSION INTEGRITY QUALITY

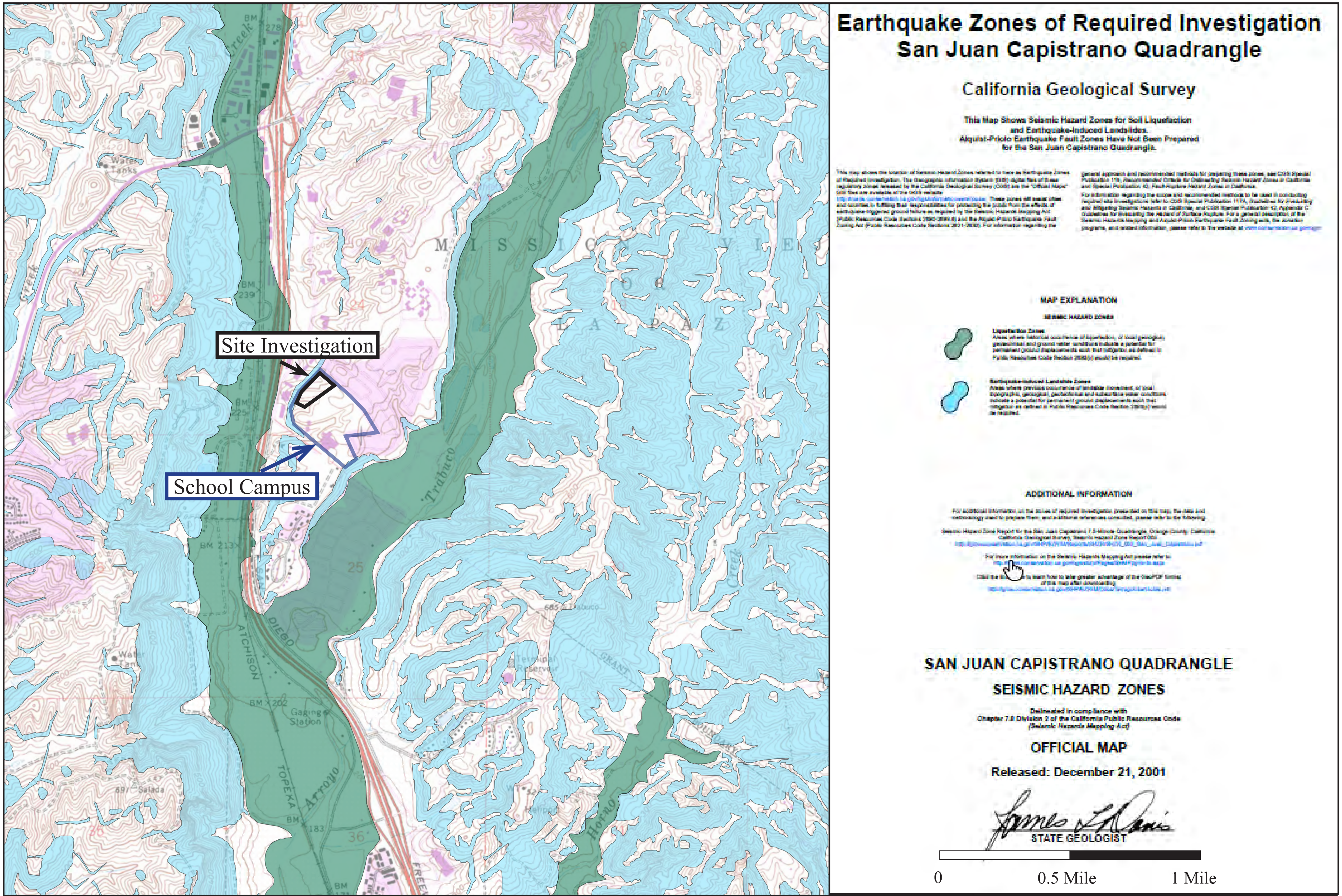
Project Name: Capistrano Valley High School Stadium

Project No.: 23-1859

Date: January 2024

Drawing Title: Fault Map Legend

Figure: A-5a



Project Name:

Capistrano Valley High School
Stadium Modernization

Project No.: 23-1859

Date: January 2024

Drawing Title:

Seismic Hazard Zones
Map

Figure:

A-6

National Flood Hazard Layer FIRMette

FEMA

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR* Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X* Future Conditions 1% Annual Chance Flood Hazard *Zone X* Area with Reduced Flood Risk due to Levee. See Notes. *Zone X* Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X* Effective LOMRs Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation 8 Coastal Transect 513 Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Available No Digital Data Available Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/4/2024 at 5:46 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

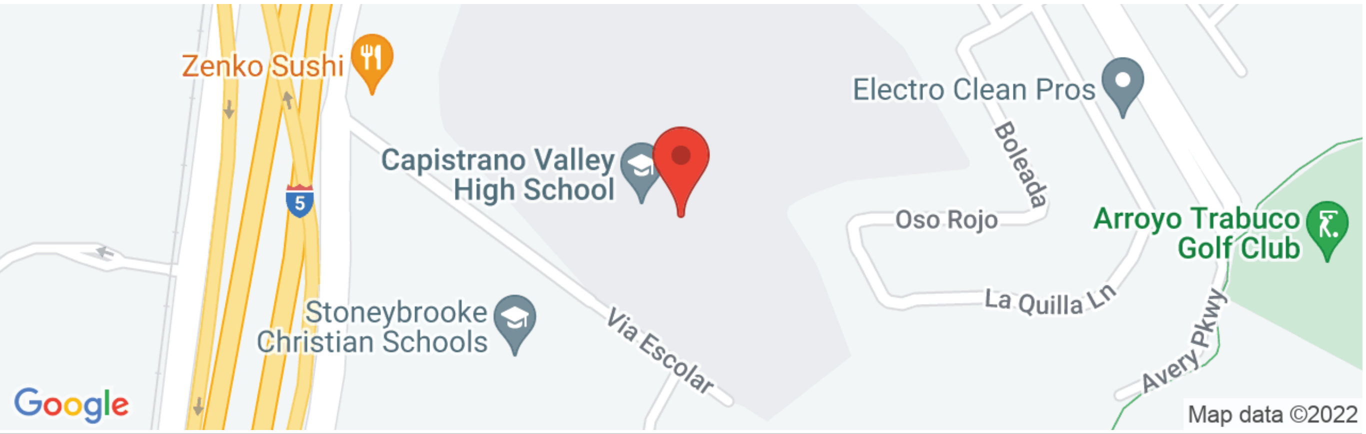
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

KOURY PASSION INTEGRITY QUALITY	**Project Name:** **Capistrano Valley High School Stadium**	**Project No.:** **23-1859** **Date:** **January 2024**	**Drawing Title:** **Flood Map**	**Figure:** **A-7**

Capistrano Valley HS SI

26301 Via Escolar, San Juan Capistrano, CA 92692, USA

Latitude, Longitude: 33.5417264, -117.6697959



Date	6/29/2022, 4:11:35 PM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.189	MCE$_R$ ground motion. (for 0.2 second period)
S_1	0.428	MCE$_R$ ground motion. (for 1.0s period)
S_{MS}	1.218	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.812	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.024	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.505	MCE$_G$ peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.555	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.189	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.276	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	3.168	Factored deterministic acceleration value. (0.2 second)
S1RT	0.428	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.458	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	1.019	Factored deterministic acceleration value. (1.0 second)
PGAd	1.269	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.932	Mapped value of the risk coefficient at short periods
C_{R1}	0.934	Mapped value of the risk coefficient at a period of 1 s

Project Name: **Capistrano Valley High School Stadium**	Project No.: **23-1859** Date: **January 2024**	Drawing Title: **Seismic Parameters Class D**	Figure: **A-8a**

Capistrano Valley HS SI

26301 Via Escolar, San Juan Capistrano, CA 92692, USA

Latitude, Longitude: 33.5415426, -117.6697936

Date	1/22/2024, 4:31:24 PM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	1.189	MCE$_R$ ground motion. (for 0.2 second period)
S_1	0.427	MCE$_R$ ground motion. (for 1.0s period)
S_{MS}	1.427	Site-modified spectral acceleration value
S_{M1}	0.641	Site-modified spectral acceleration value
S_{DS}	0.952	Numeric seismic design value at 0.2 second SA
S_{D1}	0.427	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.505	MCE$_G$ peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.605	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.189	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.276	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	3.168	Factored deterministic acceleration value. (0.2 second)
S1RT	0.427	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.458	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	1.019	Factored deterministic acceleration value. (1.0 second)

KOURY PASSION INTEGRITY QUALITY	Project Name: **Capistrano Valley High School Stadium**	Project No.: **23-1859** Date: **January 2024**	Drawing Title: **Seismic Parameters Class C**	Figure: **A-8b**

APPENDIX B

Field Exploratory Boring Logs

KEY TO LOGS

SOILS CLASSIFICATION

MAJOR DIVISIONS			GRAPHIC LOG	USCS SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	**GRAVELS** MORE THAN 50% OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	**CLEAN GRAVELS** LESS THAN 5% FINES	░	**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			░	**GP**	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	▥	**GM**	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			▤	**GC**	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS 50% OR MORE OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	**CLEAN SANDS** LESS THAN 5% FINES	▩	**SW**	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			░	**SP**	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES MORE THAN 12% FINES	▦	**SM**	SILTY SANDS, SAND-SILT MIXTURES
			▚	**SC**	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS 50% OR MORE OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	**SILTS AND CLAYS** LIQUID LIMIT IS LESS THAN 50		▥	**ML**	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			▨	**CL**	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			▚	**OL**	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS 50 OR MORE		▧	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS
			▨	**CH**	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			▩	**OH**	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			▤	**PT**	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

SILT AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
	#200	#40	#10	#4	3/4"	3"	12"

SIEVE SIZES

KEY TO LOGS (continued)

SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY					
FINE-GRAINED SOILS (SILTS, CLAYS, etc.)			GRANULAR SOILS (SANDS, GRAVELS, etc.)		
CONSISTENCY	*BLOWS/FOOT		RELATIVE DENSITY	*BLOWS/FOOT	
	SPT	CD		SPT	CD
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8
FIRM	5-8	5-9	LOOSE	5-10	9-18
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54
VERY STIFF	16-30	19-39	DENSE	31-50	55-90
HARD	over 30	over 39	VERY DENSE	over 50	over 90

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (**VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY**)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE	
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPROXIMATE MOISTURE CONTENT DEFINITION	
DEFINITION	DESCRIPTION
DRY	Dry to the touch; no observable moisture
SLIGHTLY MOIST	Some moisture but still a dry appearance
MOIST	Damp, but no visible water
VERY MOIST	Enough moisture to wet the hands
WET	Almost saturated; visible free water

Koury Engineering

14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-1

Latitude : 33.543423
Longitude : -117.671684
Elevation : Not Surveyed
Total Depth : 38.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/07/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples: Bulk	Samples: SPT Sample	Samples: Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Soil Origin	Classification Code	Material Description	Testing: % Fines	Testing: Moisture %	Testing: Dry Density (pcf)	Testing: Other
0–0.3						Non-Soil	ASP	Asphalt 4 inches of AC, no AB				
0.3						Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff, trace fine sized gravel, moist, dark yellowish brown.				
1–5	X											
2		X		10, 13, 17, (N = 30)								
2.5						Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown, pockets of clayey sand .	97	25.1		PP=3-3.2tsf
5			X		8, 10, 19, (N = 18.85)	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff to very stiff, fine grained sand, low plasticity, moist, dark yellowish brown mottled with dark olive brown, layers of lean clay, pockets of very moist clay .		16.7	119	PP=4-4.5tsf
7		X		12, 15, 21, (N = 36)		Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense to dense, moist, trace fine sized gravel, dark olive brown with dark yellowish brown, layers of clayey sand .	36	12.1		
10			X		9, 14, 19, (N = 21.45)	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, dark olive brown, layers of clayey sand .		13.9	113	PP=4.5tsf
14						Old Alluvium	SP-SM	POORLY GRADED SAND WITH SILT (SP-SM) : fine to medium grained, dense, moist, trace fine sized gravel, light yellowish brown, pockets of clay .				
15		X		18, 20, 23, (N = 43)					11	3.9		
17						Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : very stiff, fine grained sand, low plasticity, moist, brown, layers of sandy clay .				

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14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-1

Latitude	: 33.543423	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859	**Sheet**	: 2 OF 2
Longitude	: -117.671684	**Driller Company**	: OneWay Drilling	**Client**	: Telacu		
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization		
Total Depth	: 38.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692		

Depth (ft)	Samples: Bulk	Samples: SPT Sample	Samples: Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing: % Fines	Testing: Moisture %	Testing: Dry Density (pcf)	Testing: Other
20–21.5			■		12, 17, 28, (N = 29.25)	▨	Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : very stiff, fine grained sand, low plasticity, moist, brown, layers of sandy clay .	77	20.6	108	PP=3.7-4tsf
23						░	Old Alluvium	SP-SM	POORLY GRADED SAND WITH SILT (SP-SM) : fine to medium grained, dense, moist to slightly moist, light yellowish brown.				
25–26.5		⧗		14, 16, 21, (N = 37)		░				5	4.4		
29						▦	Old Alluvium	SP	POORLY GRADED SAND WITH SILT (SP) : dense, moist, trace fine to medium sized gravel, dark yellowish brown.				
30–31.5			■		50, (N = 65)	▦					4.1	122	
35		⧗		50/2in, (N = 100)		▦	Old Alluvium	SM	SILTY SAND WITH GRAVEL (SM) : fine to coarse grained, fine to medium grained gravel, dense, moist, dark yellowish brown.	66	6.1		
38.5									**B-1 refusal at 38.5ft (No Groundwater Encountered, Percentages of fines are estimates.)**				

Boring No.: B-2

Latitude	: 33.543546	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859
Longitude	: -117.671583	**Driller Company**	: OneWay Drilling	**Client**	: Telacu
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization
Total Depth	: 26.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples: Bulk	Samples: SPT Sample	Samples: Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing: % Fines	Testing: Moisture %	Testing: Dry Density (pcf)	Testing: Other
0.5						■	Non-Soil	ASP	Asphalt 4.5 inches of AC, no AB				
1	☒					▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff, trace fine to medium sized gravel, moist, dark yellowish brown, layers of clayey sand.				
2	☒	⧗		5, 5, 5, (N = 10)		▨					10.4		PP=4.5tsf
3	☒					▨	Fill	CL	SANDY LEAN CLAY (CL) : fine to medium grained sand, stiff, trace fine sized gravel, moist, dark yellowish brown and dark reddish brown, pockets of very moist sandy clay, pockets of clayey sand.				
5			■		2, 5, 7, (N = 7.8)	▨					12.4	111	PP=2-2.5tsf
6						▨	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense, very moist to moist, trace fine sized gravel, dark yellowish brown, small pockets of clay .				
7		⧗		17, 17, 22, (N = 39)		▨				14	8.6		
8						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff to very stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, dark yellowish brown mottled with pale yellow, layers of clayey sand .				
10			■		13, 21, 24, (N = 29.25)	▨					26.3	105	PP=3-3.2tsf
11						▨	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense to dense, moist, light yellowish brown, thin layers of sandy clay .				
15		⧗		6, 17, 20, (N = 37)		▨				18	6.3		
16.5						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, tan and brownish yellow, layers of clayey sand .				

Boring No.: B-2

Latitude	: 33.543546	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859	**Sheet**	: 2 OF 2
Longitude	: -117.671583	**Driller Company**	: OneWay Drilling	**Client**	: Telacu		
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization		
Total Depth	: 26.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692		

Depth (ft)	Samples Bulk	 SPT Sample	 Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing % Fines	 Moisture %	 Dry Density (pcf)	 Other
21 22 23			■		9, 14, 25, (N = 25.35)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, tan and brownish yellow, layers of clayey sand .		6.5	120	
24 25 26		⧗		12, 21, 31, (N = 52)		⁘	Old Alluvium	SP-SM	POORLY GRADED SAND WITH SILT (SP-SM) : fine to medium grained, dense to very dense, moist, light yellowish brown, small pockets of sandy clay .	12	5.3		
27 28 29 30 31 32 33 34 35 36 37 38 39									**B-2 Terminated at 26.5ft (No Groundwater Encountered, Percentage of fines are estimates.)**				

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14280 Euclid Avenue, Chino, California, 91710
Phone: 909 606 6111

Boring No.: B-3

Latitude	: 33.543446	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859
Longitude	: -117.671444	**Driller Company**	: OneWay Drilling	**Client**	: Telacu
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization
Total Depth	: 26.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0.65							Non-Soil	PAV	Asphalt over Aggregate Base 3 inches of AC over 4 inches of AB				
1	☒					▨	Fill	CL	SANDY LEAN CLAY WITH GRAVEL (CL) : fine to medium grained sand, soft, moist, dark yellowish brown, small pockets of very moist clay .				
2	☒		■		9, 15, 20, (N = 22.75)	▨	Fill	CL	SANDY LEAN CLAY (CL) : fine to medium grained sand, stiff, moist, dark yellowish brown, pockets of sandy clay and pockets of very moist clay .		7.9	120	PP=1.7-4.5ts
5		⧗		4, 5, 7, (N = 12)		▨	Fill	CL	SANDY LEAN CLAY WITH GRAVEL (CL) : fine grained sand, soft, very moist, dark yellowish brown with dark gray.		10.4		
6.5			■		6, 6, 12, (N = 11.7)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : medium stiff to stiff, fine grained sand, trace fine sized gravel, low plasticity, very moist, dark yellowish brown.	50	16.0		
10		⧗		5, 7, 9, (N = 16)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine to medium grained sand, trace fine to medium sized gravel, low plasticity, moist, dark yellowish brown mottled with dark grayish brown, pockets of very moist clay .		18.5		PP=2.5-3tsf
15			■		17, 20, 27, (N = 30.55)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff to very stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, dark yellowish brown mottled with light grayish brown, layers of clayey sand .	70	26.9	102	PP=2.7-3.3ts

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14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-3

Latitude	: 33.543446	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859
Longitude	: -117.671444	**Driller Company**	: OneWay Drilling	**Client**	: Telacu
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization
Total Depth	: 26.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 2 OF 2

Depth (ft)	Samples Bulk	 SPT Sample	 Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing % Fines	 Moisture %	 Dry Density (pcf)	 Other
20		⧗		10, 15, 19, (N = 34)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff to very stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, dark yellowish brown mottled with very dark grayish brown, layers of silty sand and pockets of sand with silt .	65	22.6		PP=2.5-3.5ts
21													
22													
23													
24						▨	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense, moist, light olive brown, layers of clayey sand .				
25			■		18, 19, 22, (N = 26.65)					30	10.2	118	
26													
27									**B-3 Terminated at 26.5ft (No Groundwater Encountered, Percentages of fines are estimates.)**				
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													

Koury Engineering

14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-4

Latitude : 33.543568
Longitude : -117.670386
Elevation : Not Surveyed
Total Depth : 21.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/11/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples: Bulk	Samples: SPT Sample	Samples: Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing: % Fines	Testing: Moisture %	Testing: Dry Density (pcf)	Testing: Other
0 – 0.65							Non-Soil	PAV	Asphalt over Aggregate Base 4.5 inches of AC, 2 inches of AB				
0.65 – 2	1 – 5						Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, firm to stiff, trace fine sized gravel, moist, dark brown.				
2 – 6			2 – 3.5		10, 12, 19, (N = 20.15)		Old Alluvium	SC	CLAYEY SAND WITH GRAVEL (SC) : fine to coarse grained, fine to medium grained gravel, medium dense, moist, mottled brown, light yellowish brown and grey.		4.4	121	
5 – 6.5		5 – 6.5		5, 6, 11, (N = 17)						27	8.6		
6 – 10			7 – 8.5		10, 31, 40, (N = 46.15)		Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, light yellowish brown, layers of clayey and silty sand.	71	20.2	108	
10 – 13		10 – 11.5		8, 8, 9, (N = 17)			Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : stiff to very stiff, fine to medium grained sand, low plasticity, moist, pale brown and light yellowish brown, layers of silty sand .	81	25.0		
13 –			15 – 16.5		18, 21, 24, (N = 29.25)		Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : stiff, fine to medium grained sand, low plasticity, moist, light yellowish brown, layers of silty sand .		18.2	108	

Koury Engineering

14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-4

Latitude : 33.543568
Longitude : -117.670386
Elevation : Not Surveyed
Total Depth : 21.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/11/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 2 OF 2

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
21		⧗		5, 7, 12, (N = 19)		▨	Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : stiff, fine to medium grained sand, low plasticity, moist, light yellowish brown, layers of silty sand .	82	25.7		
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39									**B-4 Terminated at 21.5ft (No Groundwater Encountered, Percentages of fines are estimates.)**				

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14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-5

Latitude : 33.543726
Longitude : -117.670366
Elevation : Not Surveyed
Total Depth : 21.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/11/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0–0.45						■	Non-Soil	ASP	Asphalt 5 inches of AC, no AB				
0.45–2	☒					▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff, trace fine sized gravel, moist, dark brown.				
2–4	☒		■		8, 12, 15, (N = 17.55)	▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff, trace fine sized gravel, moist, dark brown and brown.	57	15.7	117	
4–7	☒	⧗		9, 13, 20, (N = 33)		▩	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense, moist, dark yellowish brown, pockets of sandy clay .	22	7.9		
7–9			■		16, 18, 22, (N = 26)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, light yellowish brown, pockets of clayey sand .		19.4	107	
9–17		⧗	■	6, 14, 19, (N = 33)	14, 18, 20, (N = 24.7)	▩	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense, moist, light yellowish brown, layers of sandy clay.	34 41	12.3 13.4	 119	
17–						▩	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, dense, moist, light yellowish brown, layers of sandy clay .				

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Phone: 909 606 6111

Boring No.: B-5

Latitude	: 33.543726	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859	**Sheet**	: 2 OF 2
Longitude	: -117.670366	**Driller Company**	: OneWay Drilling	**Client**	: Telacu		
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization		
Total Depth	: 21.5 ft	**Date**	: 12/11/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692		

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
21		⧗		10, 17, 20, (N = 37)		▨	Old Alluvium	SC	CLAYEY SAND (SC) : fine to medium grained, dense, moist, light yellowish brown, layers of sandy clay .		11.8		
22									**B-5 Terminated at 21.5ft (No Groundwater Encountered, Percentages of fines are estimates.)**				
23													
24													
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													

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14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-6

Latitude : 33.544565
Longitude : -117.670112
Elevation : Not Surveyed
Total Depth : 26.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/11/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 2

Depth (ft)	Samples: Bulk	Samples: SPT Sample	Samples: Mod Cal Sample	Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing: % Fines	Testing: Moisture %	Testing: Dry Density (pcf)	Testing: Other
0.5							Non-Soil	ASP	Asphalt 5.5 inches of AC, no AB				
2.5	☒		■		30, 36, 37, (N = 47.45)		Fill	SC	CLAYEY SAND WITH GRAVEL (SC) : fine to medium grained, fine to medium grained gravel, medium dense, moist, dark yellowish brown.				
5							Fill	CL	SANDY LEAN CLAY WITH GRAVEL (CL) : fine to medium grained sand, fine grained gravel, very stiff, moist, dark yellowish brown.	63	17.5	112	PP=3.5-4
6.5		⧗		16, 17, 24, (N = 41)			Fill	SC	CLAYEY SAND WITH GRAVEL (SC) : fine to coarse grained, fine to medium grained gravel, medium dense, moist, brown with grey.		7.4		
9			■		9, 11, 19, (N = 19.5)		Old Alluvium	SC	CLAYEY SAND (SC) : fine to coarse grained, medium dense, moist, dark yellowish brown, layers of clayey sand, pockets of very moist clay .	28	18.1	110	
14		⧗		16, 50, (N = 100)			Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown, layers of very moist clayey sand with gravel .		16.8		PP=3.7-4.2ts
19			■		28, 50, (N = 65)		Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine to medium grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown, layers of clayey sand .	50	15.0	119	PP=4-4.5tsf
							Old Alluvium	SM	SILTY SAND (SM) : fine to medium grained, dense to very dense, moist, tan.				

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Phone: 909 606 6111

Boring No.: B-6

Latitude	: 33.544565	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859
Longitude	: -117.670112	**Driller Company**	: OneWay Drilling	**Client**	: Telacu
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization
Total Depth	: 26.5 ft	**Date**	: 12/11/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 2 OF 2

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
20–21.5		⧗		18, 22, 28, (N = 50)		▨	Old Alluvium	SM	SILTY SAND (SM) : fine to medium grained, dense to very dense, moist, tan, layers of poorly graded sand with silt	14	4.6		
23						▨	Old Alluvium	SM	SILTY SAND (SM) : fine to medium grained, dense to very dense, moist, tan, layers of poorly graded sand with silt.				
25			■		30, 50/3in, (N = 130)	▨					5.4	110	

Depth scale: 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39

B-6 Terminated at 26.5ft (No Groundwater Encountered, Percentages of fines are estimates.)

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Phone: 909 606 6111

Boring No.: B-7

Latitude	**: 33.545643**	**Drill Supplier**	**: OneWay Drilling**	**Job Number**	**: 23-1859**	**Sheet**	**: 1 OF 3**
Longitude	**: -117.671017**	**Driller Company**	**: OneWay Drilling**	**Client**	**: Telacu**		
Elevation	**: Not Surveyed**	**Logged By**	**: Albert Buffet**	**Project**	**: Capistrano Valley High School - Stadium Modernization**		
Total Depth	**: 46.5 ft**	**Date**	**: 12/11/2023**	**Location**	**: 26301 Via Escolar, Mission Viejo, CA 92692**		

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0.45						■	Non-Soil	ASP	Asphalt 5 inches of AC, no AB				
1	☒					▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, firm, trace fine to medium sized gravel, moist, brown.				
2.5			■		12, 12, 18, (N = 19.5)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine to medium grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown.	65	13.3	116	PP=4.5tsf
4		⧗		4, 4, 6, (N = 10)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : firm to stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, brown, layers of gravelly clay, pockets of very moist clay .		7.7		PP=4.5tsf
6.5			■		7, 9, 18, (N = 17.55)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown, layers of brown clay with trace of gravel .		11.7	120	PP=4.5tsf
9		⧗		12, 10, 10, (N = 20)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, dark yellowish brown, layers of clayey sand.	50	12.7		PP=4.5tsf
13			■		7, 11, 14, (N = 16.25)	▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, very moist to moist, dark yellowish brown.	61	14.3	118	PP=2.1-2.3ts
19						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, dark yellowish brown, layers of sandy				

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14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-7

Latitude : 33.545643
Longitude : -117.671017
Elevation : Not Surveyed
Total Depth : 46.5 ft
Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/11/2023
Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692
Sheet : 2 OF 3

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
		⧗		4, 7, 11, (N = 18)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, dark yellowish brown, layers of sandy clay with gravel, pockets of very moist clay .		15.1		PP=1.8-3.2ts
25			■		6, 7, 10, (N = 11.05)	▨					20.3	109	PP=1.5-1.7ts
26.5						▨	Old Alluvium	CL	LEAN CLAY WITH SAND (CL) : stiff, fine grained sand, low plasticity, moist, very dark grayish brown with reddish brown, layers of sandy clay, pockets of very moist clay .				
30		⧗		6, 8, 10, (N = 18)		▨				59	18.9		PP=2.1-2.3ts
33						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine to medium grained sand, low plasticity, moist, dark yellowish brown, pockets of very moist clay and layers of clay .				
35			■		10, 18, 21, (N = 25.35)	▨					10.8	118	PP=2.1tsf
38						▤	Capistrano Formation	SLT	SILTSTONE: distinctly weathered, low to medium strength, dark olive brown, fine grained, laminated texture, distinct, moist.				

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Phone: 909 606 6111

Boring No.: B-7

Latitude	: 33.545643	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859	**Sheet**	: 3 OF 3		
Longitude	: -117.671017	**Driller Company**	: OneWay Drilling	**Client**	: Telacu				
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization				
Total Depth	: 46.5 ft	**Date**	: 12/11/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692				

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
41		⧗		16, 16, 18, (N = 34)		▤	Capistrano Formation	SLT	SILTSTONE: distinctly weathered, low to medium strength, dark olive brown, fine grained, laminated texture, distinct, moist.		35.3		PP=2.8-3.3ts
42 43 44						▤							
45 46			■		12, 18, 31, (N = 31.85)	▤				95	37.0	84	PP=2.7-3.1ts
47 48 49 50 51 52 53 54 55 56 57 58 59									**B-7 Terminated at 46.5ft (No Groundwater Encountered, Percentages of fines are estimates)**				

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14280 Euclid Avenue, Chino, California, 91710
Phone: 909 606 6111

Boring No.: B-8

Latitude	**: 33.545057**	**Drill Supplier**	**: OneWay Drilling**	**Job Number**	**: 23-1859**
Longitude	**: -117.673950**	**Driller Company**	**: OneWay Drilling**	**Client**	**: Telacu**
Elevation	**: Not Surveyed**	**Logged By**	**: Albert Buffet**	**Project**	**: Capistrano Valley High School - Stadium Modernization**
Total Depth	**: 16.5 ft**	**Date**	**: 12/07/2023**	**Location**	**: 26301 Via Escolar, Mission Viejo, CA 92692**

Sheet : 1 OF 1

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0–2	☒					▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff, trace fine sized gravel, moist, dark yellowish brown.				
2–3.5	☒		■		10, 17, 19, (N = 23.4)	▨	Old Alluvium (from 2.5)	CL	SANDY LEAN CLAY (CL) : stiff to very stiff, fine to medium grained sand, low plasticity, moist, dark yellowish brown mottled with light yellowish brown, pockets of very moist clay .	78	19.9	105	PP=4.0tsf
3.5–5	☒					▨							
5–6.5		⧗		6, 7, 10, (N = 17)		▨	Old Alluvium (from 6)	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, trace fine sized gravel, low plasticity, moist, dark yellowish brown, specs of black, .		15.5		PP=4.5tsf
7–8.5			■		24, 26, 40, (N = 42.9)	▨				72	15.8	120	
9–10						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine grained sand, low plasticity, moist, light yellowish brown and tan, layers of silty sand .				
10–11.5		⧗		7, 15, 18, (N = 33)		▨				66	12.9		PP=4.5tsf
12–15						▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : very stiff, fine to medium grained sand, low plasticity, moist, pale brown, layers of clayey sand.				
15–16.5			■		17, 27, 36, (N = 40.95)	▨				59	13.7	121	
16.5–20									**B-8 Terminated at 16.5ft (No Groundwater Encountered, Percentages of fines are estimates.)**				

Koury Engineering

14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-9

Latitude	: 33.543408	**Drill Supplier**	: OneWay Drilling	**Job Number**	: 23-1859
Longitude	: -117.671604	**Driller Company**	: OneWay Drilling	**Client**	: Telacu
Elevation	: Not Surveyed	**Logged By**	: Albert Buffet	**Project**	: Capistrano Valley High School - Stadium Modernization
Total Depth	: 6.5 ft	**Date**	: 12/07/2023	**Location**	: 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 1

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0–0.75							Non-Soil	PAV	Asphalt over Aggregate Base 5 inches of AC over 4 inches of AB				
0.75–4	☒ (1–5)		■ (2–3.5)		22, 16, 19, (N = 22.75)	▨	Fill	CL	SANDY LEAN CLAY (CL) : fine grained sand, stiff to very stiff, trace fine sized gravel, very moist to moist, dark yellowish brown.	58	15.9		PP=2.5-2.7ts
4–6.5		⧗ (5–6.5)		4, 6, 8, (N = 14)		▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, very moist to moist, dark yellowish brown.		19.5		PP=1.5-2.9ts

B-9 Terminated at 6.5ft (No Groundwater Encountered, Percentages of fines are estimates.)

Koury Engineering

14280 Euclid Avenue, Chino, California, 91710

Phone: 909 606 6111

Boring No.: B-10

Latitude : 33.545192
Longitude : -117.669467
Elevation : Not Surveyed
Total Depth : 6.5 ft

Drill Supplier : OneWay Drilling
Driller Company : OneWay Drilling
Logged By : Albert Buffet
Date : 12/07/2023

Job Number : 23-1859
Client : Telacu
Project : Capistrano Valley High School - Stadium Modernization
Location : 26301 Via Escolar, Mission Viejo, CA 92692

Sheet : 1 OF 1

Depth (ft)	Samples			Blows per 6" (SPT)	Blows per 6" (ModCal)	Graphic Log	Soil Origin	Classification Code	Material Description	Testing			
	Bulk	SPT Sample	Mod Cal Sample							% Fines	Moisture %	Dry Density (pcf)	Other
0.4						■	Non-Soil	ASP	Asphalt 5 inches of AC, no AB				
1	☒					▨	Fill	SC	CLAYEY SAND (SC) : fine to medium grained, medium dense, moist, dark yellowish brown, layers of sandy clay .				
2	☒		■		22, 22, 21, (N = 27.95)	▨				42	10.2		
4	☒					▨	Old Alluvium	CL	SANDY LEAN CLAY (CL) : stiff, fine grained sand, low plasticity, moist, dark yellowish brown.				
5		⧗		5, 6, 7, (N = 13)		▨					15.4		PP=4.2tsf

B-10 Terminated at 6.5ft (No Groundwater Encountered, Percentages of fines are estimates.)

APPENDIX C

Laboratory Test Results

EXPANSION INDEX TEST

DENSITY AND MOISTURE CONTENT DATA - EI TEST

Location/ Elevation	B8 @ 0-5	
USCS Symbol		
Normal Load (psf)		
SAMPLE CONDITION	**Initial**	**Final**
Wt Specimen & Ring (gr)	761.60	
Wt. of ring (gr)	366.10	
Wt. Specimen (gr)	395.500	
Specimen diameter (in)	4.010	
Specimen radius (cm)	5.09	
Area of Specimen (cm^2)	81.479	
Init. Spec. height (in)	1.0000	N/A
Height change (final)(in)	N/A	0.0692
Adjusted Spec.height(in)	1.0000	0.9308
" " (cm)	2.540	2.364
Specimen Volume (cm^3)	206.957	
Moist Density (pcf)	119.31	
MOISTURE CONTENT		
Wt. moist soil+tare(gr)	100.30	
Wt. dry soil+tare(gr)	91.00	
Wt. of tare(gr)	0.00	
Wt. dry soil (gr)	91.00	
Wt. of water (gr)	9.30	
M/C (%)	10.22	
DRY DENSITY (pcf)	108.2	
% Saturation* (48%-52%)	49.5	

Timed Rate Readings (includes intial consolidated weight reading)		Time Rate Notes:
Intial Reading	1	0.1754
10 minute consolidated	2	0.1754
Introduction of Water		
15 second reading	3	
30 second reading	4	
1 minute reading	5	
2 minute reading	6	
4 minute reading	7	
8 minute reading	8	
15 minute reading	9	
30 minute reading	10	
1 hour reading	11	
2 hour reading	12	
4 hour reading	13	
8 hour reading	14	
16 hour reading	15	
24 hour reading	16	0.2446
Final Height Change		0.0692

Material Observed Description: SC F-C Brown

Approximate % of Material retained on the #4:

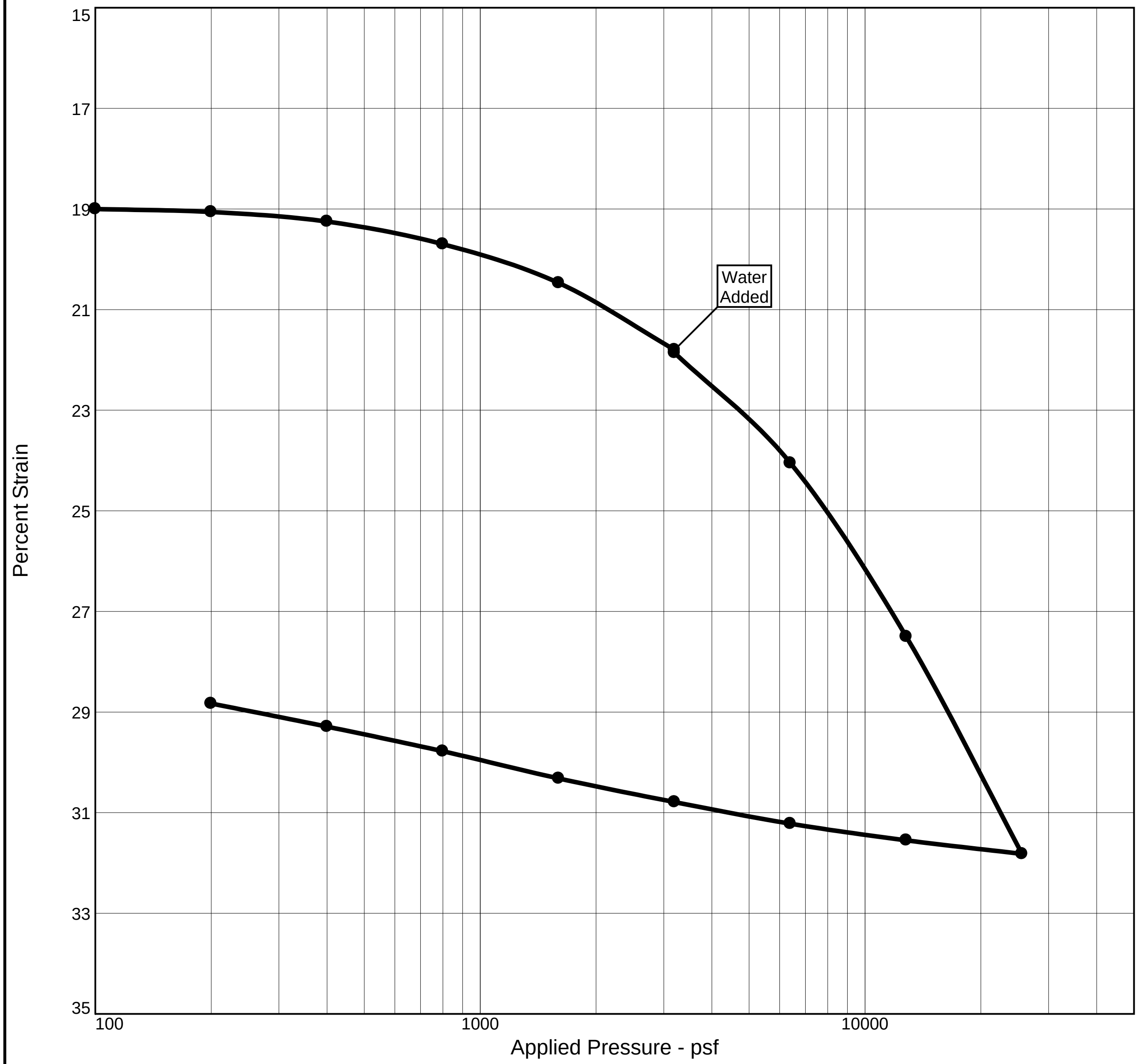
*Assumes Gs = 2.7

EXPANSION INDEX = 69

Potential Expansion *(per ASTM 4829-08)* Medium

KOURY PASSION INTEGRITY QUALITY	**Project Name: CVHS**	**Project #: 23-1859** **Date: 1-9-24**	**Run by: LS** **QA:**	**Lab: 9283**

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_s	Swell Press. (psf)	Clpse. %	e_o
Sat.	Moist.											
98.2 %	17.9 %	111.5			2.65		8009	0.21	0.02		0.1	0.484

MATERIAL DESCRIPTION	USCS	AASHTO
Sandy Lean Clay		

Project No. 23-1859 **Client:**

Project: Capistrano Valley High School - Stadium

Location: B-1 @6' **Sample Number:** 4

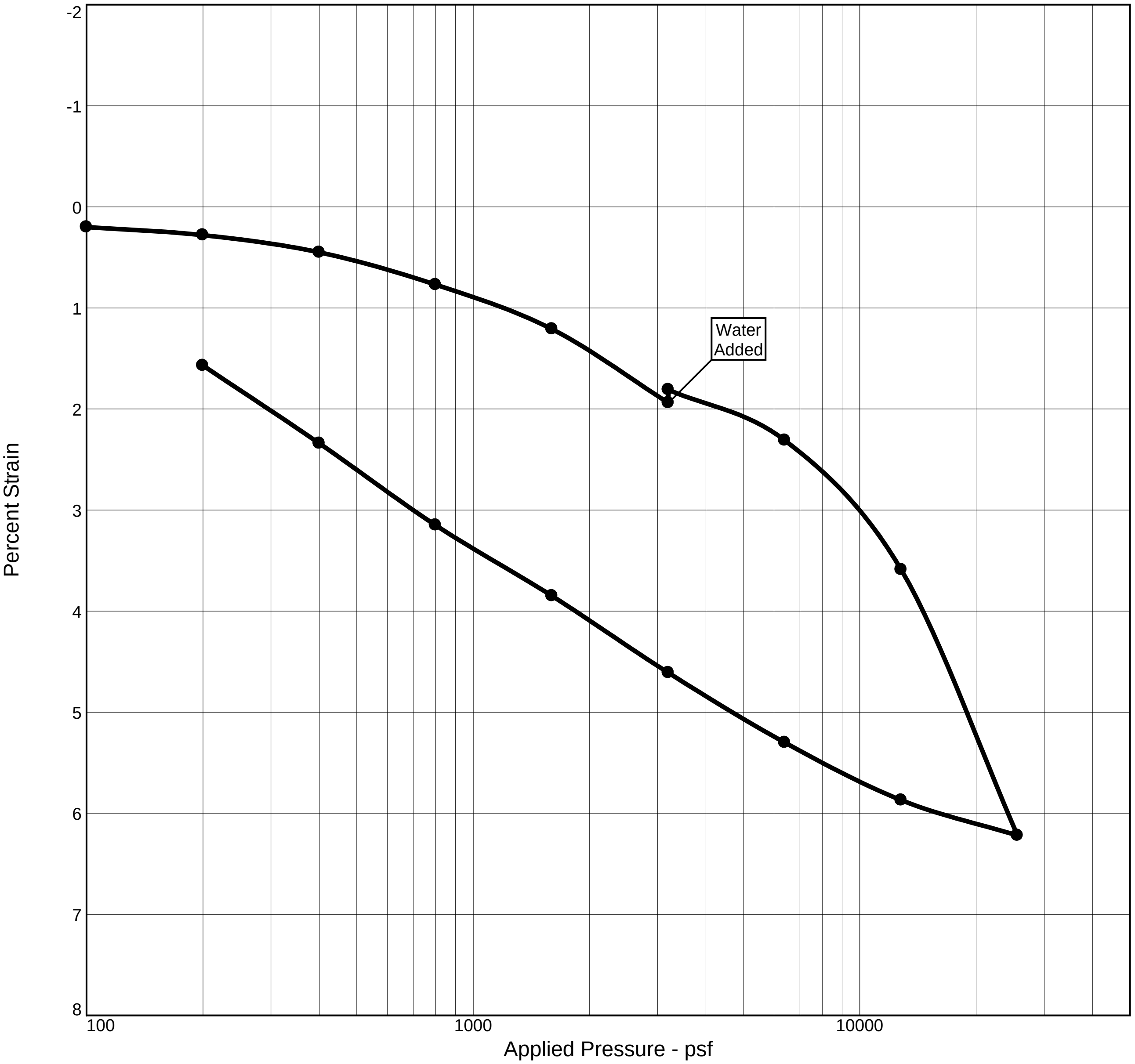
Koury Engineering & Testing, Inc.

Chino, CA

Remarks:

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_s	Swell Press. (psf)	Swell %	e_o
Sat.	Moist.											
101.4 %	15.7 %	117.3			2.65		10822	0.13	0.03	3973	0.1	0.411

MATERIAL DESCRIPTION	USCS	AASHTO
Sandy Lean Clay, trace gravel, dark brown		

Project No. 23-1859 **Client:**

Project: Capistrano Valley High School - Stadium

Location: B-5 @3' **Sample Number:** 1

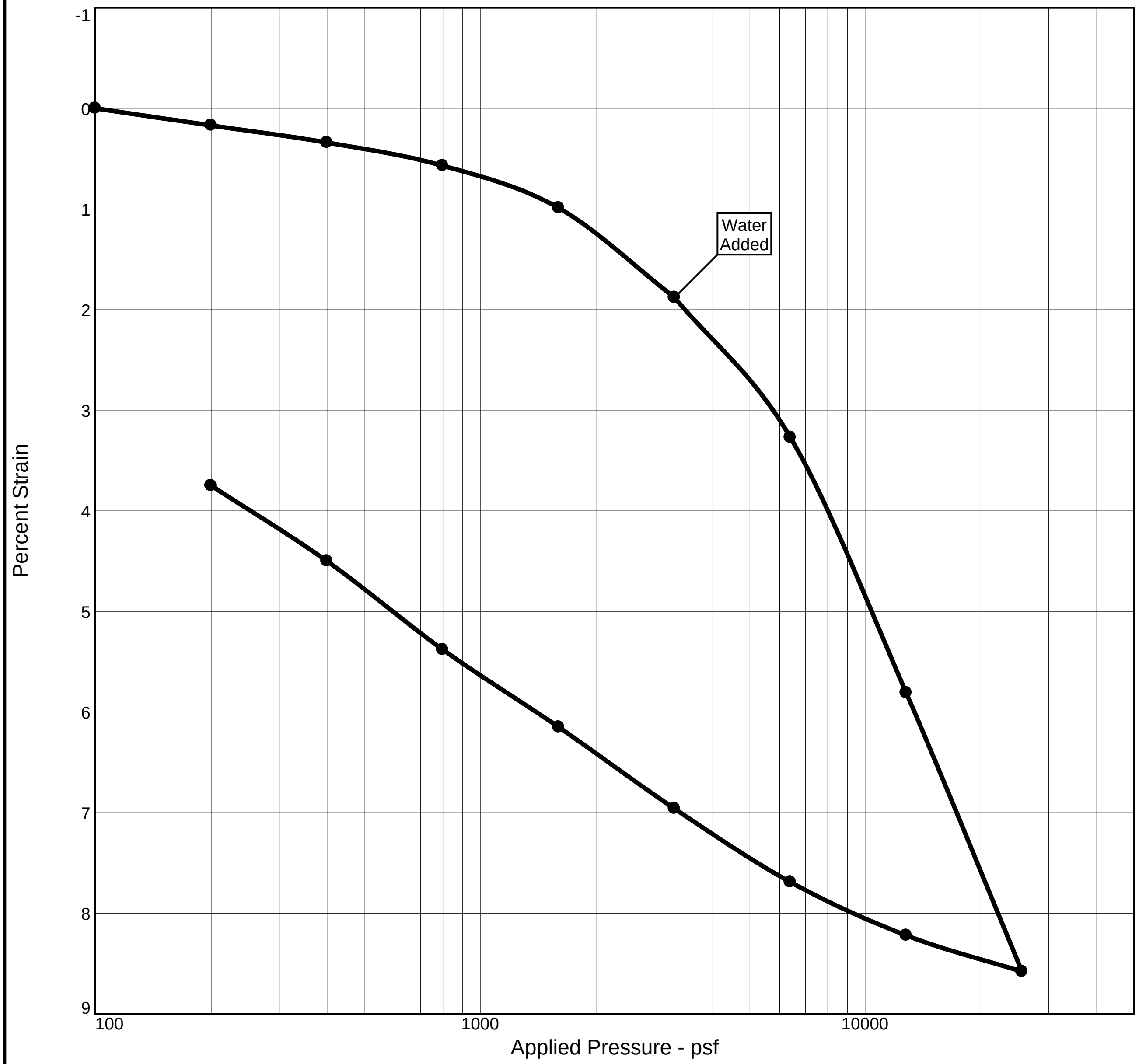
Remarks:

Koury Engineering & Testing, Inc.

Chino, CA

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_s	Swell Press. (psf)	Swell %	e_o
Sat.	Moist.											
98.6 %	20.7 %	106.3			2.65		6859	0.14	0.04		0.0	0.556

MATERIAL DESCRIPTION	USCS	AASHTO
Sandy Lean CLAY (CL)		

Project No. 23-1859 **Client:**

Project: Capistrano Valley High School - Stadium

Location: B-5 @8' **Sample Number:** 3

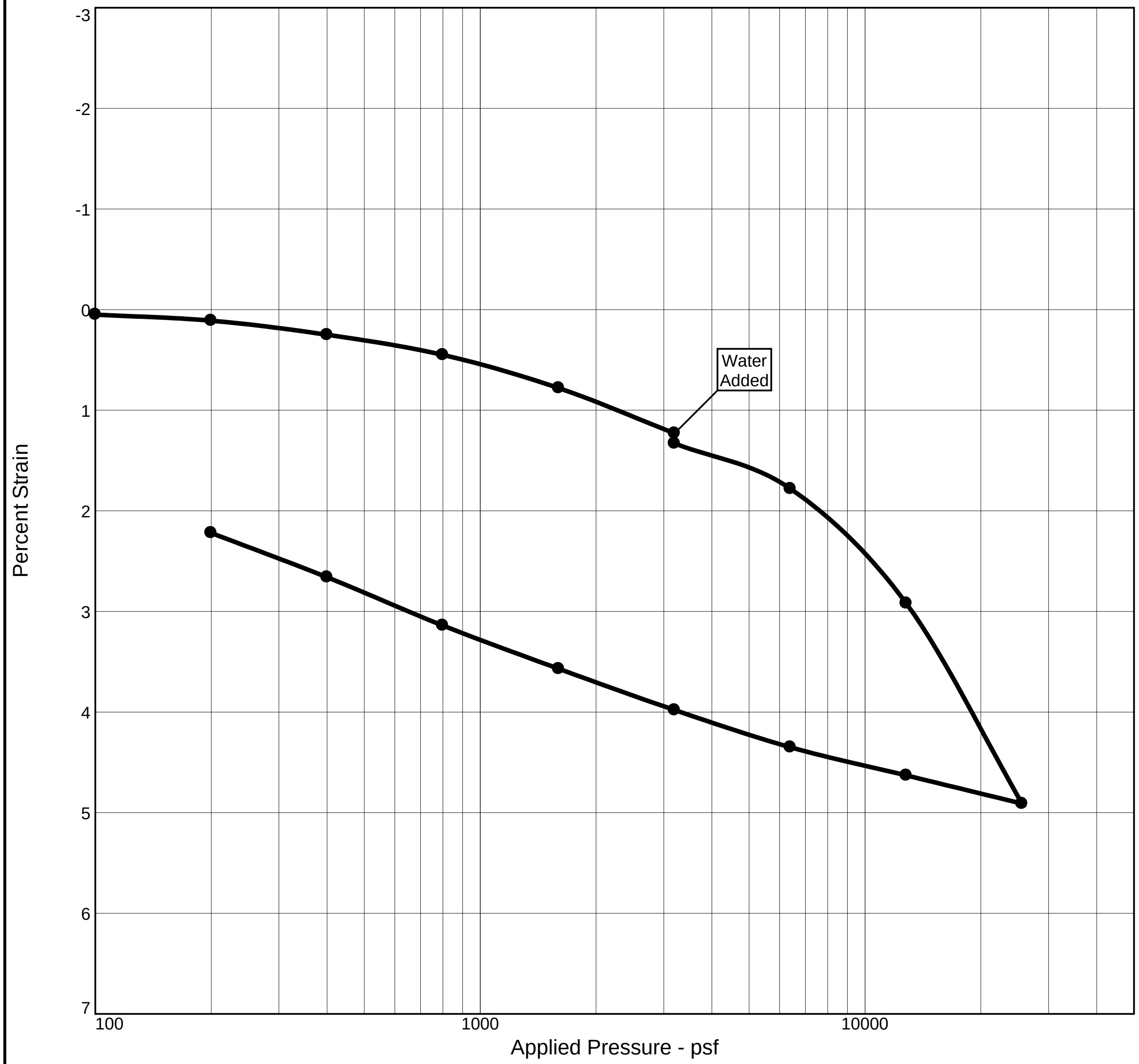
Remarks:

Koury Engineering & Testing, Inc.

Chino, CA

Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P_c (psf)	C_c	C_s	Swell Press. (psf)	Clpse. %	e_o
Sat.	Moist.											
84.0 %	13.3 %	116.5			2.65		9509	0.10	0.02		0.1	0.421

MATERIAL DESCRIPTION	USCS	AASHTO
Sandy Lean CLAY (CL)		

Project No. 23-1859 **Client:**

Project: Capistrano Valley High School - Stadium

Location: B-7 @3' **Sample Number:** 2

Koury Engineering & Testing, Inc.

Chino, CA

Remarks:

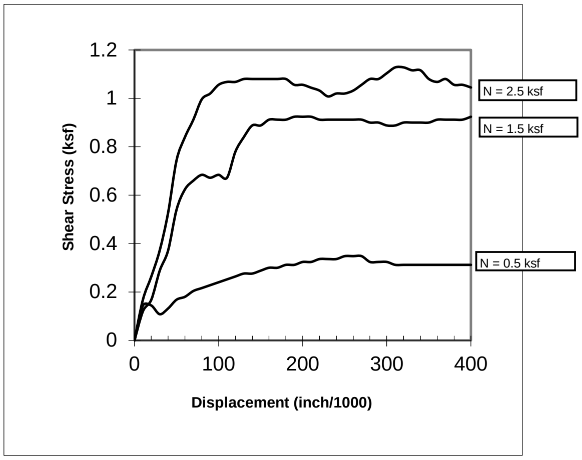
Figure

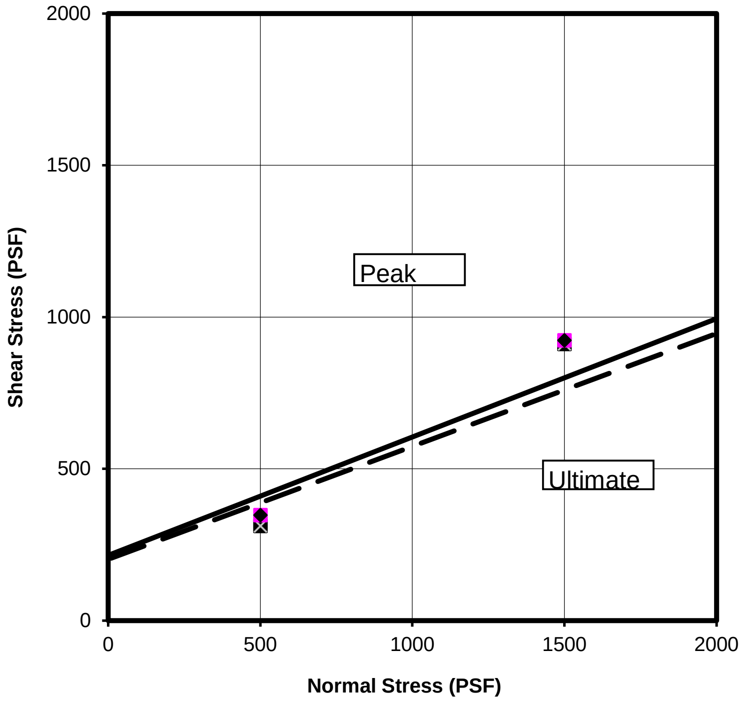
Direct Shear Test Report

Sample Identification	Sample Description	Sample Test State
B3 @ 3'	CL, trace gravel, mottled coloring	Saturated-Consolidated

Peak:	**Phi (Degrees)**	**21.3**	(Avg.Dry Dens. = 106.3 pcf) (Avg.Moist. =26.1 %)
	Cohesion (PSF)	**215.0**	
Ultimate:	**Phi (Degrees)**	**20.4**	
	Cohesion (PSF)	**202.0**	

☑ **Relatively Undisturbed**
☐ **Remolded**





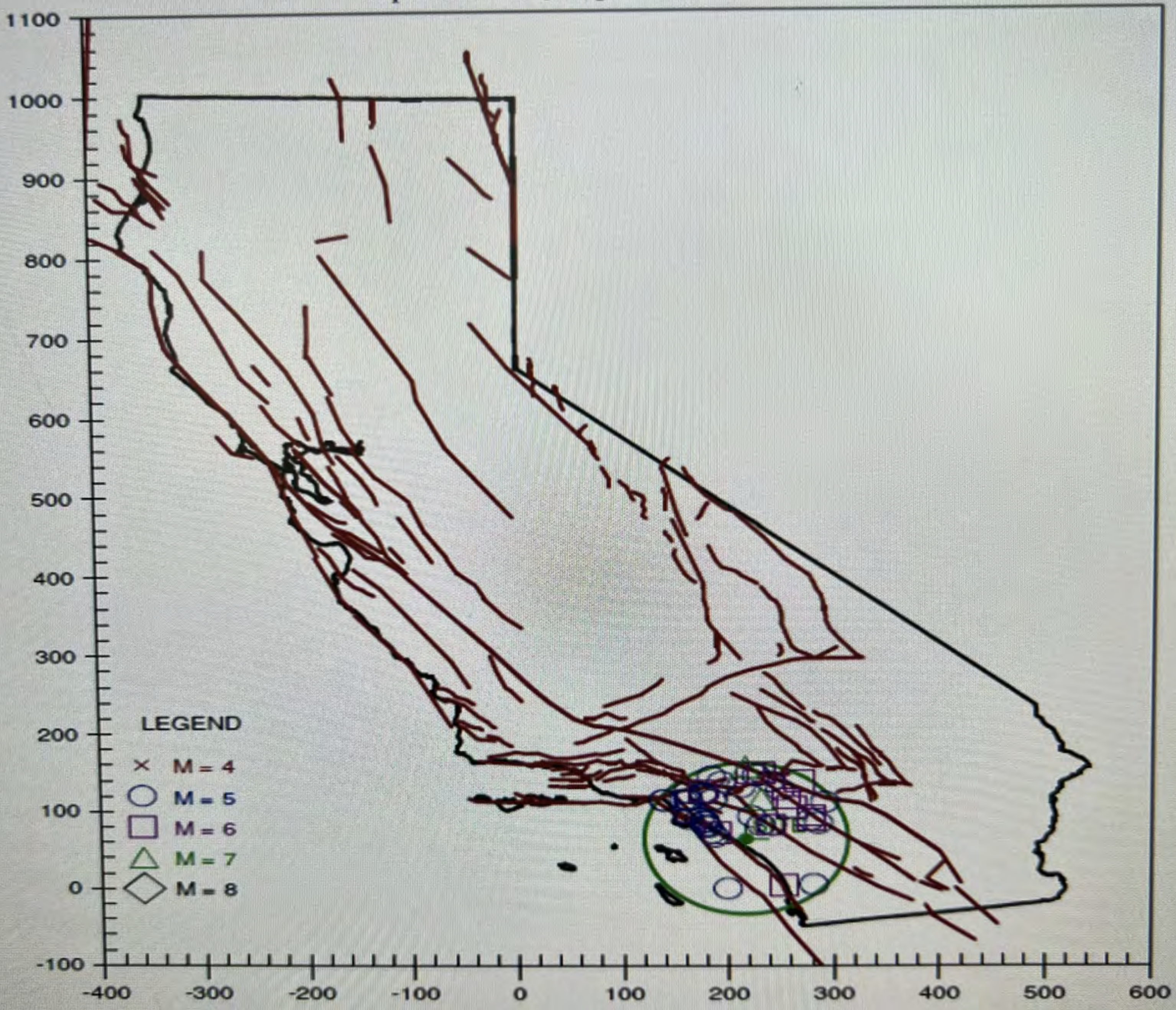
	Project Name: **Capistrano Valley HS**	**Project No.: 23-1859** **Date: 1/16/24**	**Lab #**

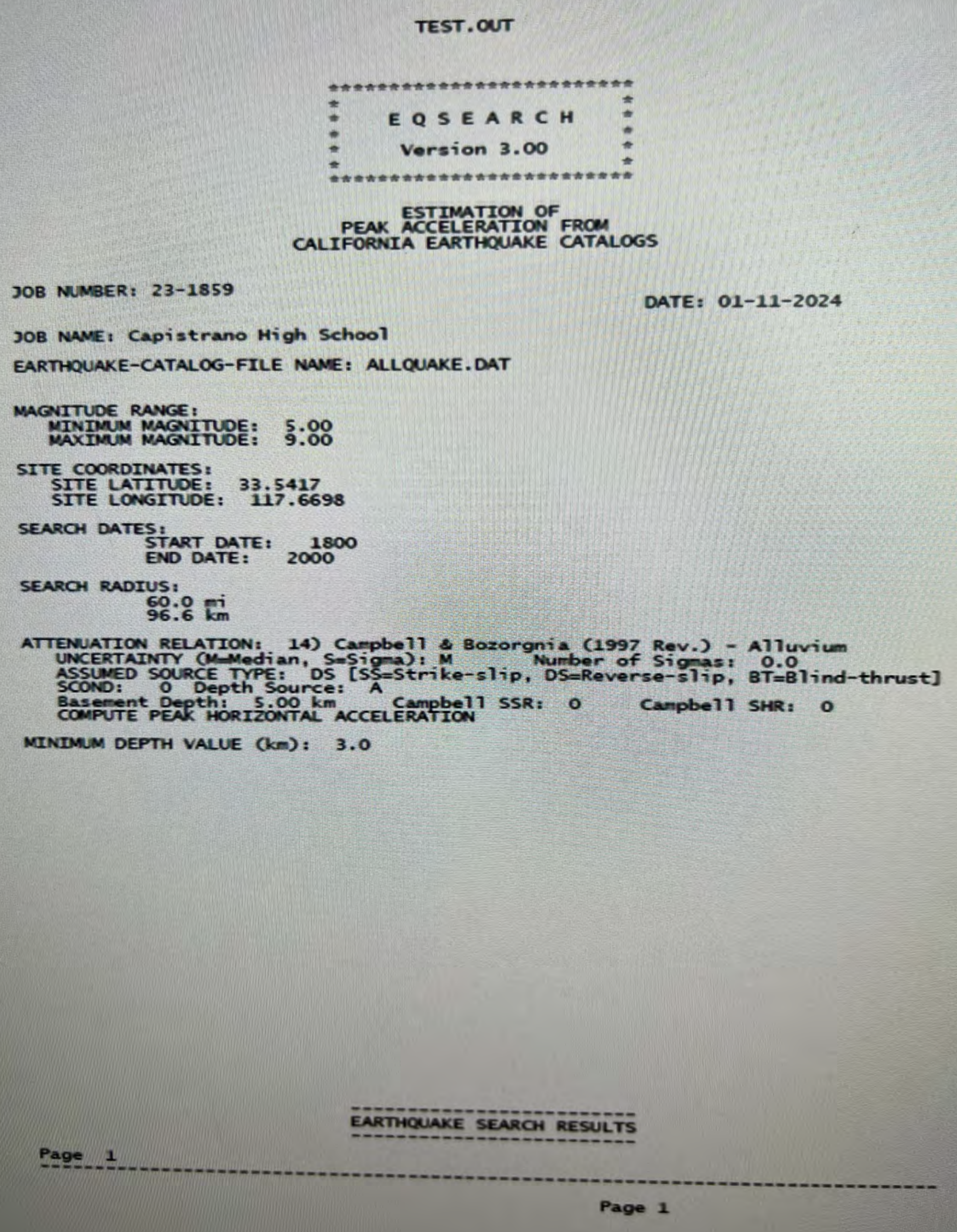
APPENDIX D

Historical Earthquake Data

EARTHQUAKE EPICENTER MAP

Capistrano Valley High School





```
                                TEST.OUT

                         ***********************
                         *                     *
                         *   E Q S E A R C H   *
                         *                     *
                         *    Version 3.00     *
                         *                     *
                         ***********************

                              ESTIMATION OF
                          PEAK ACCELERATION FROM
                      CALIFORNIA EARTHQUAKE CATALOGS

JOB NUMBER: 23-1859
                                                  DATE: 01-11-2024

JOB NAME: Capistrano High School

EARTHQUAKE-CATALOG-FILE NAME: ALLQUAKE.DAT

MAGNITUDE RANGE:
   MINIMUM MAGNITUDE:  5.00
   MAXIMUM MAGNITUDE:  9.00

SITE COORDINATES:
   SITE LATITUDE:  33.5417
   SITE LONGITUDE:  117.6698

SEARCH DATES:
          START DATE:   1800
          END DATE:   2000

SEARCH RADIUS:
          60.0 mi
          96.6 km

ATTENUATION RELATION:  14) Campbell & Bozorgnia (1997 Rev.) - Alluvium
   UNCERTAINTY (M=Median, S=Sigma): M       Number of Sigmas:  0.0
   ASSUMED SOURCE TYPE:  DS [SS=Strike-slip, DS=Reverse-slip, BT=Blind-thrust]
   SCOND:   0  Depth Source:  A
   Basement Depth:  5.00 km     Campbell SSR:  0     Campbell SHR:  0
   COMPUTE PEAK HORIZONTAL ACCELERATION

MINIMUM DEPTH VALUE (km):  3.0




                         -------------------------
                         EARTHQUAKE SEARCH RESULTS
                         -------------------------
Page  1
-------------------------------------------------------------------------------
                                               Page 1
```

```
                                                  TEST.OUT
    |           |           |            |     TIME     |     |     |  SITE  |SITE|   APPROX.
FILE|   LAT.    |   LONG.   |    DATE    |    (UTC)     |DEPTH|QUAKE|  ACC.  | MM |  DISTANCE
CODE|   NORTH   |   WEST    |            |   H M Sec    |(km) | MAG.|   g    |INT.|  mi   [km]
----+-----------+-----------+------------+--------------+-----+-----+--------+----+-------------
DMG |33.6990|117.5110|05/31/1938|  83455.4|  10.0| 5.50| 0.080 | VII | 14.2( 22.8)
DMG |33.6170|117.9670|03/11/1933|  154 7.8|   0.0| 6.30| 0.111 | VII | 17.9( 28.7)
DMG |33.5750|117.9830|03/11/1933|  518 4.0|   0.0| 5.20| 0.045 | VI  | 18.2( 29.2)
MGI |33.8000|117.6000|04/22/1918| 2115 0.0|   0.0| 5.00| 0.038 |  V  | 18.3( 29.4)
DMG |33.7000|117.4000|04/11/1910|  757 0.0|   0.0| 5.00| 0.036 |  V  | 19.0( 30.5)
DMG |33.7000|117.4000|05/15/1910| 1547 0.0|   0.0| 6.00| 0.082 | VII | 19.0( 30.5)
DMG |33.7000|117.4000|05/13/1910|  620 0.0|   0.0| 5.00| 0.036 |  V  | 19.0( 30.5)
DMG |33.6170|118.0170|03/14/1933|19 150.0|   0.0| 5.10| 0.035 |  V  | 20.6( 33.2)
DMG |33.6830|118.0500|03/11/1933|  658 3.0|   0.0| 5.50| 0.040 |  V  | 23.9( 38.5)
DMG |33.7000|118.0670|03/11/1933|  51022.0|   0.0| 5.10| 0.027 |  V  | 25.3( 40.7)
DMG |33.7000|118.0670|03/11/1933|  85457.0|   0.0| 5.10| 0.027 |  V  | 25.3( 40.7)
DMG |33.7500|118.0830|03/11/1933|  323 0.0|   0.0| 5.00| 0.021 | IV  | 27.8( 44.7)
DMG |33.7500|118.0830|03/11/1933|  230 0.0|   0.0| 5.10| 0.023 | IV  | 27.8( 44.7)
DMG |33.7500|118.0830|03/11/1933|  910 0.0|   0.0| 5.10| 0.023 | IV  | 27.8( 44.7)
DMG |33.7500|118.0830|03/13/1933| 131828.0|   0.0| 5.30| 0.027 |  V  | 27.8( 44.7)
DMG |33.7500|118.0830|03/11/1933|  2 9 0.0|   0.0| 5.00| 0.021 | IV  | 27.8( 44.7)
DMG |33.7830|118.1330|10/02/1933|  91017.6|   0.0| 5.40| 0.025 |  V  | 31.4( 50.5)
MGI |34.0000|117.5000|12/16/1858|10 0 0.0|   0.0| 7.00| 0.082 | VII | 33.1( 53.3)
DMG |33.9000|117.2000|12/19/1880|  0 0 0.0|   0.0| 6.00| 0.033 |  V  | 36.6( 58.9)
MGI |34.0000|118.0000|12/25/1903| 1745 0.0|   0.0| 5.00| 0.014 | IV  | 36.9( 59.3)
DMG |33.7830|118.2500|11/14/1941|  84136.3|   0.0| 5.40| 0.020 | IV  | 37.3( 60.0)
DMG |34.0000|117.2500|07/23/1923|  73026.0|   0.0| 6.25| 0.036 |  V  | 39.8( 64.0)
DMG |33.8500|118.2670|03/11/1933| 1425 0.0|   0.0| 5.00| 0.013 | III | 40.4( 65.0)
PAS |32.9710|117.8700|07/13/1986| 1347 8.2|   6.0| 5.30| 0.016 | IV  | 41.1( 66.1)
DMG |33.7500|117.0000|06/06/1918| 2232 0.0|   0.0| 5.00| 0.012 | III | 41.1( 66.1)
DMG |33.7500|117.0000|04/21/1918| 223225.0|   0.0| 6.80| 0.052 | VI  | 41.1( 66.1)
GSP |34.1400|117.7000|02/28/1990| 234336.6|   5.0| 5.20| 0.014 | IV  | 41.3( 66.5)
DMG |33.8000|117.0000|12/25/1899| 1225 0.0|   0.0| 6.40| 0.037 |  V  | 42.4( 68.3)
PAS |34.0610|118.0790|10/01/1987| 144220.0|   9.5| 5.90| 0.024 |  V  | 42.9( 69.0)
DMG |33.0000|117.3000|11/22/1800| 2130 0.0|   0.0| 6.50| 0.039 |  V  | 43.1( 69.3)
MGI |34.1000|117.3000|07/15/1905| 2041 0.0|   0.0| 5.30| 0.014 | IV  | 44.0( 70.8)
PAS |34.0730|118.0980|10/04/1987| 105938.2|   8.2| 5.30| 0.014 | IV  | 44.1( 71.0)
DMG |33.7100|116.9250|09/23/1963| 144152.6|  16.5| 5.00| 0.011 | III | 44.4( 71.4)
MGI |34.1000|118.1000|07/11/1855|  415 0.0|   0.0| 6.30| 0.030 |  V  | 45.8( 73.6)
T-A |34.0000|118.2500|09/23/1827|  0 0 0.0|   0.0| 5.00| 0.011 | III | 45.9( 73.9)
T-A |34.0000|118.2500|01/10/1856|  0 0 0.0|   0.0| 5.00| 0.011 | III | 45.9( 73.9)
T-A |34.0000|118.2500|03/26/1860|  0 0 0.0|   0.0| 5.00| 0.011 | III | 45.9( 73.9)
DMG |34.2000|117.9000|08/28/1889|  215 0.0|   0.0| 5.50| 0.015 | IV  | 47.3( 76.2)
DMG |34.2000|117.4000|07/22/1899|  046 0.0|   0.0| 5.50| 0.015 | IV  | 48.0( 77.3)
MGI |34.0000|118.3000|09/03/1905|  540 0.0|   0.0| 5.30| 0.013 | III | 48.1( 77.3)
MGI |34.0800|118.2600|07/16/1920|18 8 0.0 |   0.0| 5.00| 0.009 | III | 50.3( 80.9)
DMG |34.2700|117.5400|09/12/1970| 143053.0|   8.0| 5.40| 0.013 | III | 50.8( 81.8)
DMG |34.3000|117.6000|07/30/1894|  512 0.0|   0.0| 6.00| 0.020 | IV  | 52.5( 84.5)
GSP |34.2620|118.0020|06/28/1991| 144354.5|  11.0| 5.40| 0.012 | III | 53.2( 85.7)
DMG |34.3000|117.5000|07/22/1899| 2032 0.0|   0.0| 6.50| 0.029 |  V  | 53.2( 85.7)
MGI |33.0000|117.0000|09/21/1856|  730 0.0|   0.0| 5.00| 0.008 | III | 53.8( 86.6)
DMG |33.9500|116.8500|09/28/1946|  719 9.0|   0.0| 5.00| 0.008 | III | 54.9( 88.3)
DMG |34.2000|117.1000|09/20/1907|  154 0.0|   0.0| 6.00| 0.018 | IV  | 56.0( 90.1)
DMG |34.0000|118.5000|08/04/1927| 1224 0.0|   0.0| 5.00| 0.008 | II  | 57.2( 92.0)
MGI |34.0000|118.5000|11/19/1918| 2018 0.0|   0.0| 5.00| 0.008 | II  | 57.2( 92.0)
DMG |34.3700|117.6500|12/08/1812|15 0 0.0 |   0.0| 7.00| 0.039 |  V  | 57.2( 92.0)
******************************************************************************************

-END OF SEARCH-   51 EARTHQUAKES FOUND WITHIN THE SPECIFIED SEARCH AREA.

TIME PERIOD OF SEARCH:   1800  TO  2000

LENGTH OF SEARCH TIME:   201  years

THE EARTHQUAKE CLOSEST TO THE SITE IS ABOUT 14.2 MILES (22.8 km) AWAY.

LARGEST EARTHQUAKE MAGNITUDE FOUND IN THE SEARCH RADIUS: 7.0

LARGEST EARTHQUAKE SITE ACCELERATION FROM THIS SEARCH: 0.111 g

COEFFICIENTS FOR GUTENBERG & RICHTER RECURRENCE RELATION:
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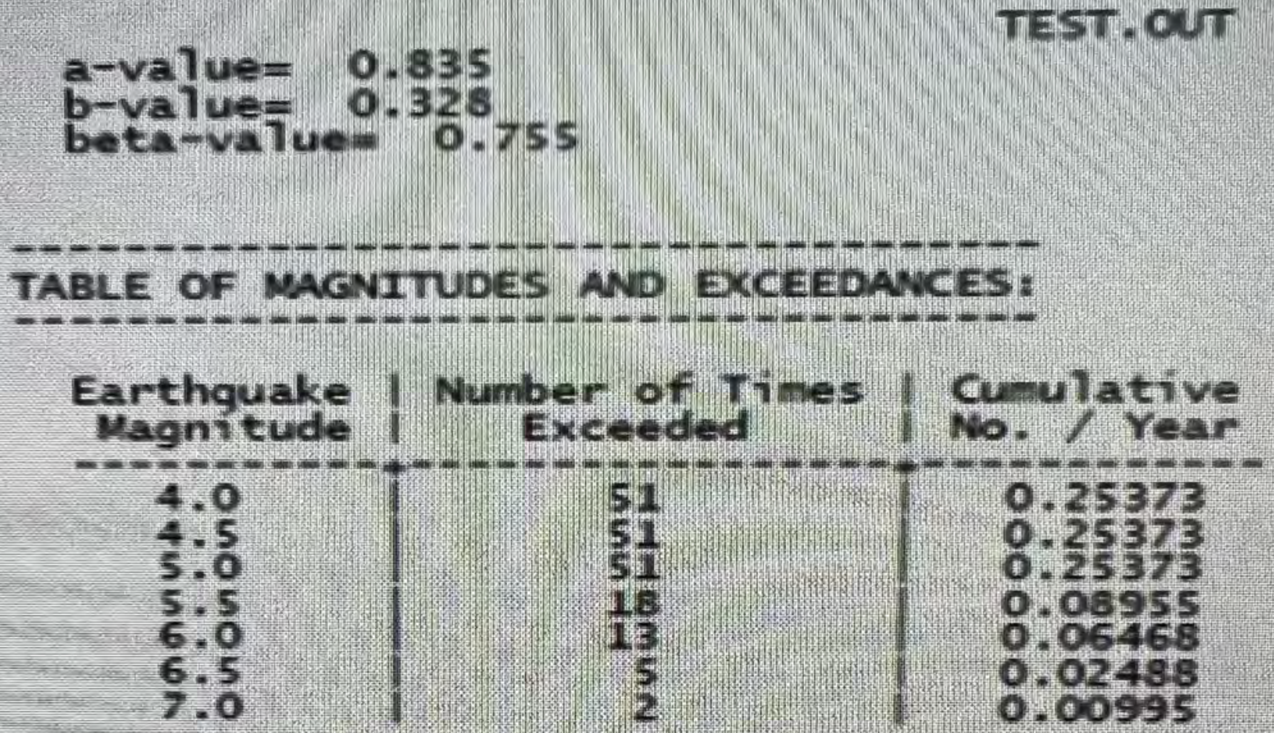

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                                              TEST.OUT
    a-value=  0.835
    b-value=  0.328
    beta-value=  0.755

  ----------------------------------------
  TABLE OF MAGNITUDES AND EXCEEDANCES:
  ----------------------------------------

    Earthquake | Number of Times | Cumulative
     Magnitude |    Exceeded     | No. / Year
    -----------+-----------------+-----------
       4.0     |        51       |  0.25373
       4.5     |        51       |  0.25373
       5.0     |        51       |  0.25373
       5.5     |        18       |  0.08955
       6.0     |        13       |  0.06468
       6.5     |         5       |  0.02488
       7.0     |         2       |  0.00995
```

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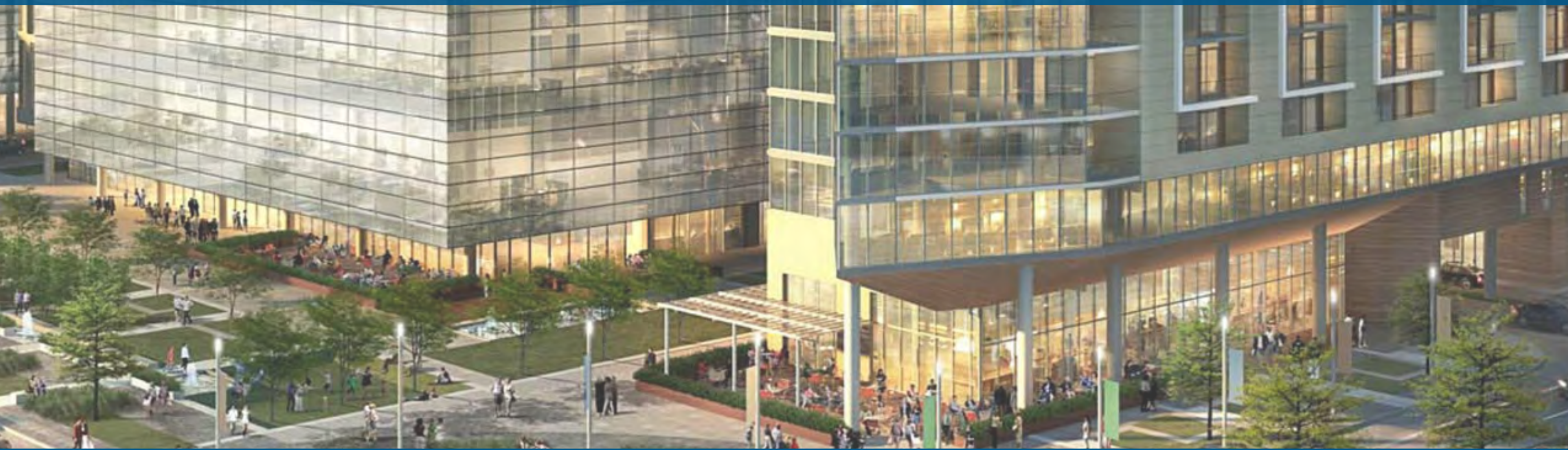
SUITE 302
GARDENA, CA 90248
PHONE 310-851-8685
FAX 310-851-8692



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