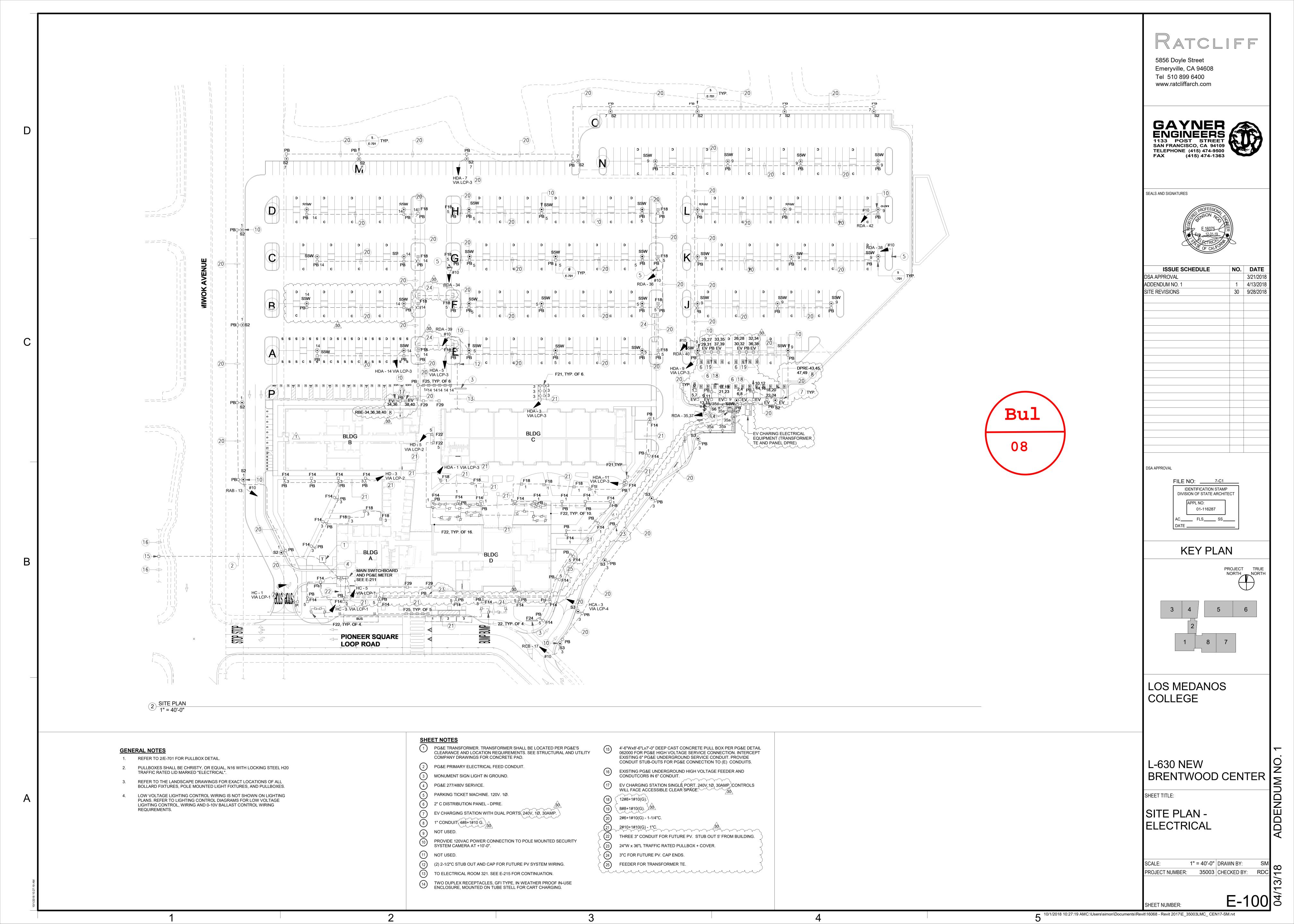
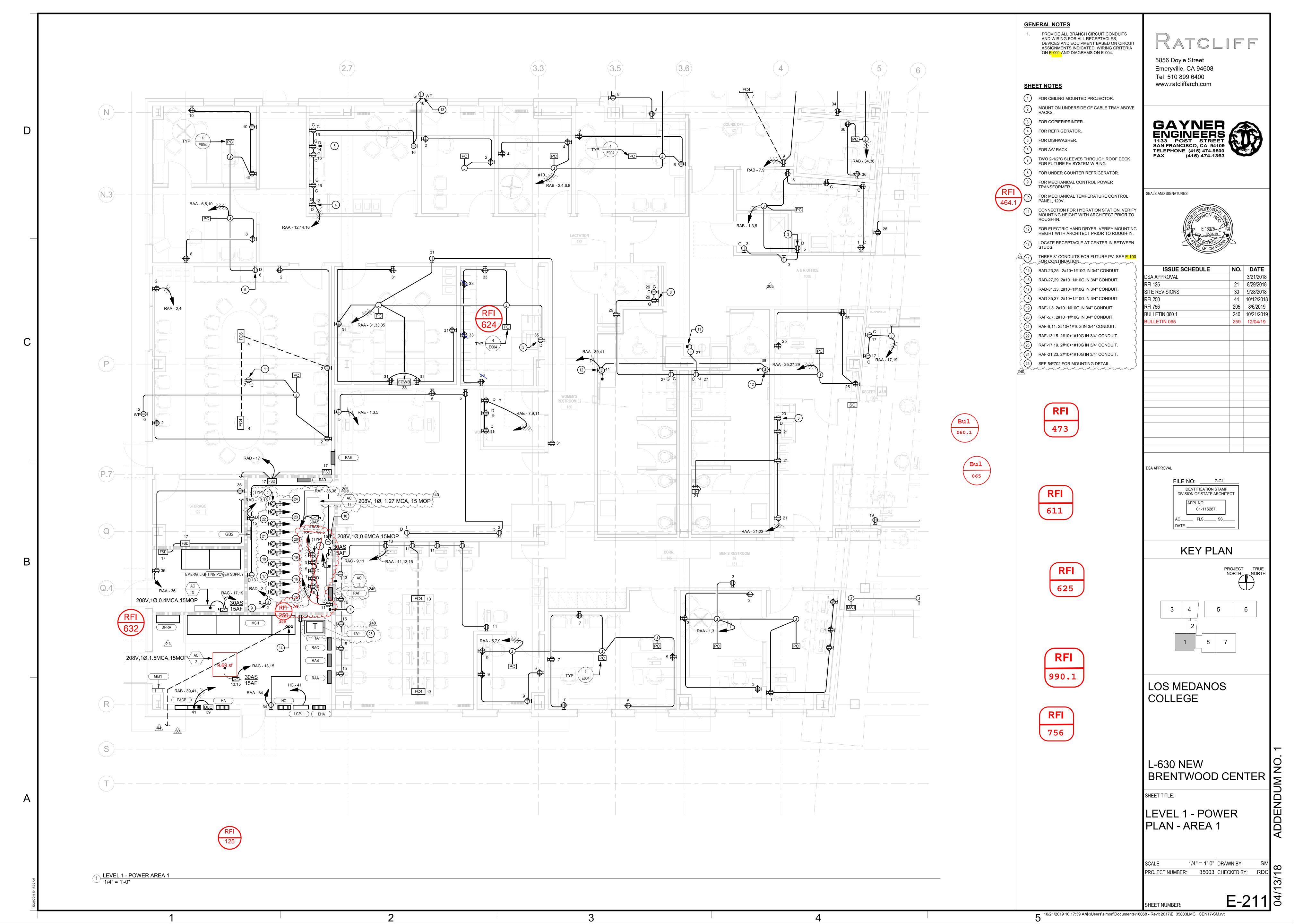
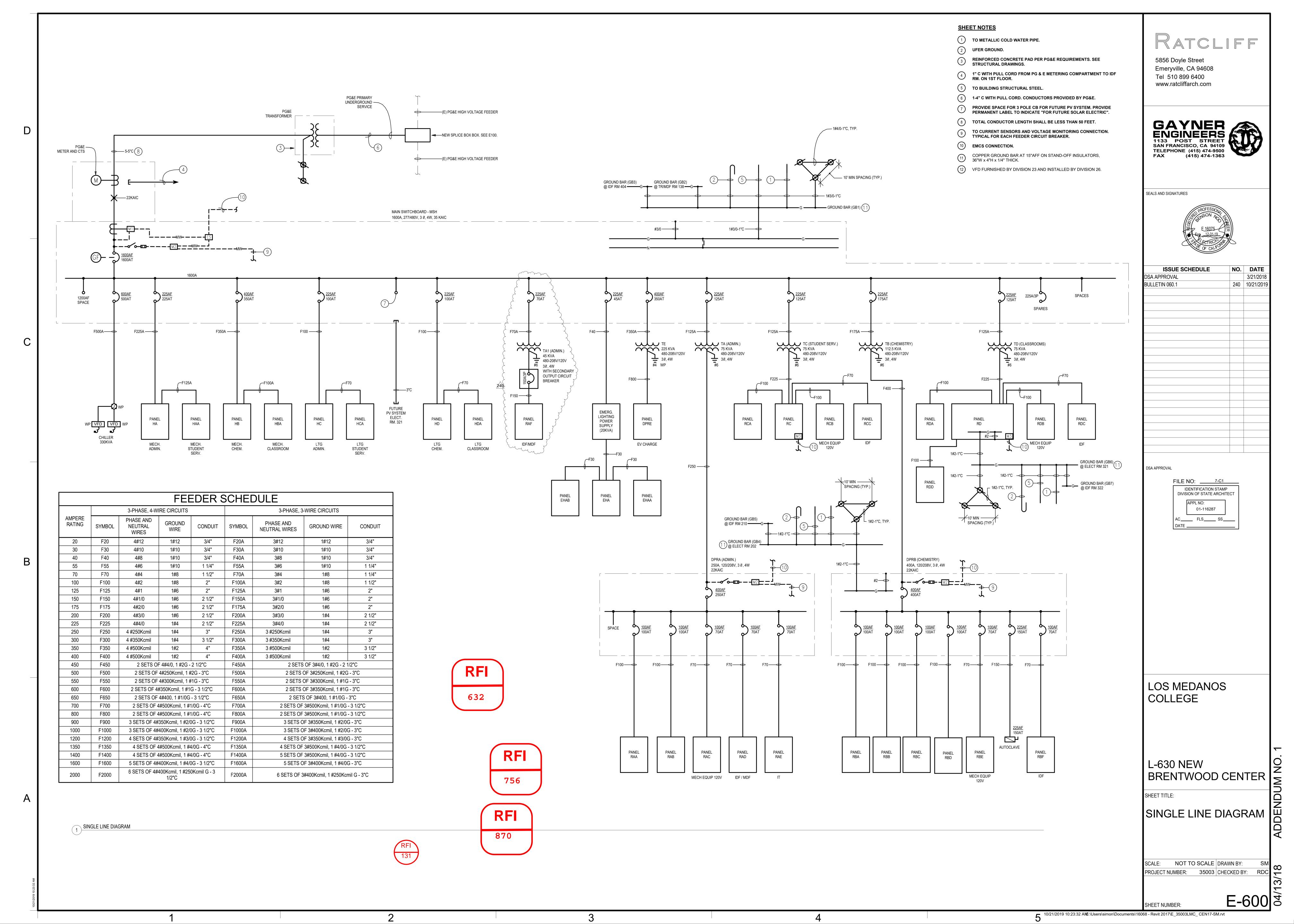


Attachment D2: As-Built Drawings

Request for Qualifications/Proposals for 4CD Brentwood PV and Resiliency Project



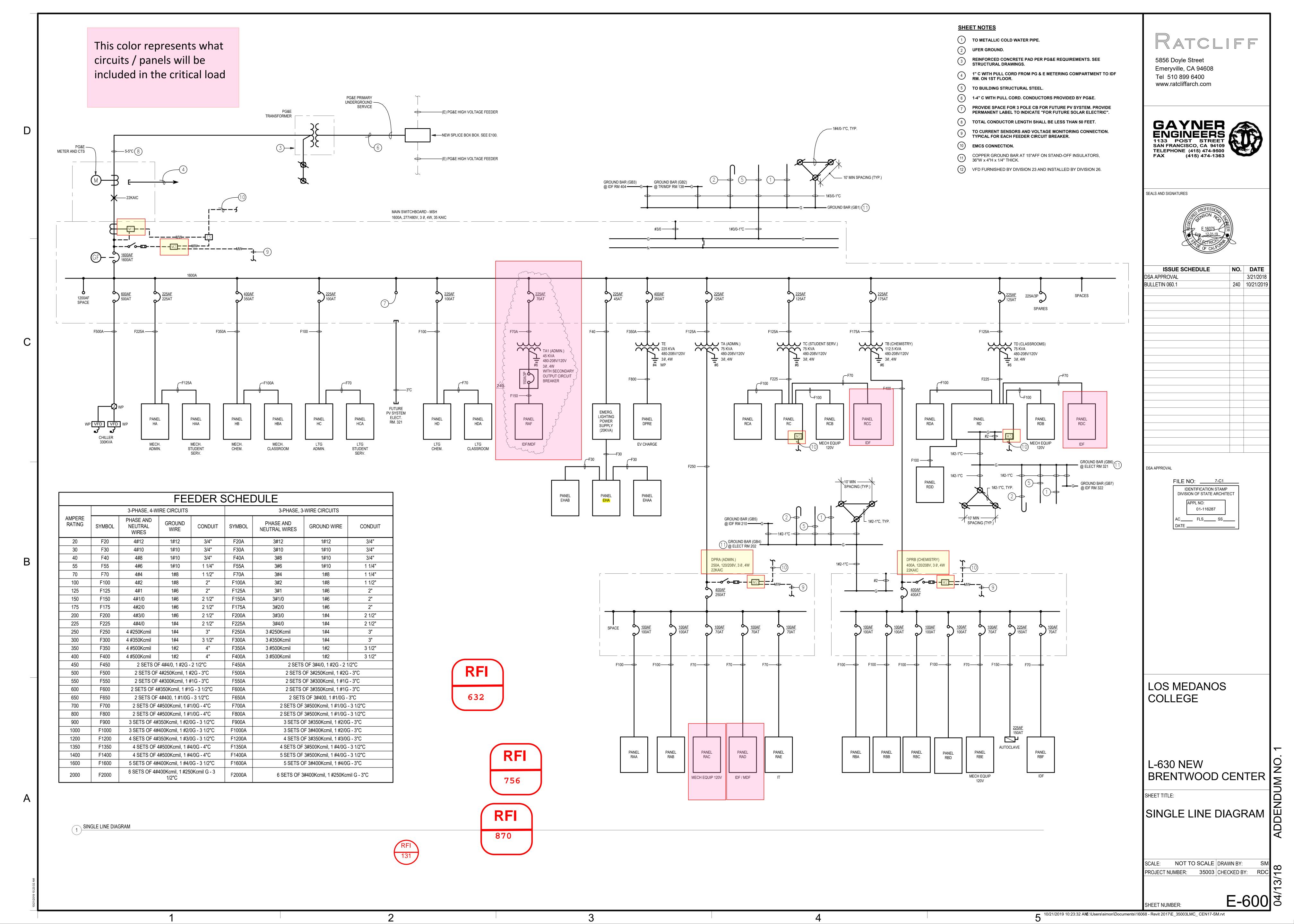






Attachment D3: Critical Load Information

Request for Qualifications/Proposals for 4CD Brentwood PV and Resiliency Project





Attachment D4: Existing Geotechnical Reports

Request for Qualifications/Proposals for 4CD Brentwood PV and Resiliency Project





ATTN: BEN AZARNOUSH CONTRA COSTA COMMUNITY COLLEGE DISTRICT 500 COURT STREET MARTINEZ, CA 94553



RMA Group 15-095-0 JUNE 23, 2016



June 23, 2016

Contra Costa Community College District 500 Court Street Martinez, CA 94553

Attention:

Mr. Ray Pyle

Subject:

Geotechnical Investigation for

Proposed New Brentwood Center (L-630)

Brentwood, CA

Dear Mr. Pyle:

In accordance with your request, a geotechnical investigation has been completed for the above-referenced project. The report addresses both engineering geologic and geotechnical conditions. The results of the investigation are presented in the accompanying report, which includes a description of site conditions, results of our field exploration and laboratory testing, conclusions, and recommendations.

We appreciate this opportunity to be of continued service to you. If you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

RMA Group

Josh Summers, PE
Project Engineer
PE 85240

Gary Wallace, PG | CEG
Vice President - Geology
CEG 1255

Ed Lyon, PE | GE
President
GE 2362



GEOTECHNICAL INVESTIGATION FOR PROPOSED NEW BRENTWOOD CENTER (L-630) LOS MEDANOS COMMUNITY COLLEGE MIWOK AVENUE AND PIONEER SQUARE BRENTWOOD, CA

for

Contra Costa Community College District 500 Court Street Martinez, CA 94553

June 23, 2016

15-095-0



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Brentwood Campus June 23, 2016
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1.00 Introduction

1.01 Purpose

A geotechnical investigation has been completed for the proposed New Brentwood Center extension campus of Los Medanos Community College in Brentwood, California. The purpose of the investigation was to summarize geotechnical and geologic conditions at the site, to assess their potential impact on the proposed development, and to develop geotechnical and engineering geologic design parameters.

1.02 Scope of the Investigation

The general scope of this investigation included the following:

- Review of published and unpublished geologic, seismic, groundwater and geotechnical literature.
- Examination of aerial photographs.
- Contacting of underground service alert to locate onsite utility lines.
- Contacting the Contra Costa County Department of Environmental Health and obtaining well permits for the drilling of exploratory borings.
- Logging, sampling and backfilling of 5 exploratory borings drilled with a CME-45c truck-mounted drill rig.
- Laboratory testing of representative soil samples.
- Geotechnical evaluation of the compiled data.
- Preparation of this report presenting our findings, conclusions and recommendations.

Our scope of work did not include a preliminary site assessment for the potential of hazardous materials onsite.

1.03 Site Location and Description

The proposed construction will be located in the northeast corner of the northern-most intersection of Miwok Avenue and Pioneer Square within the City of Brentwood, Contra Costa County, California.

The site is bounded by Miwok Avenue to west, a residential housing development to the north, Marsh Creek to the East, a drainage basin to the southeast, and Pioneer Square to the south (Figure 1). Its geographic position is at Latitude 37.89628° and Longitude -121.72112°.

The overall gradient of the property is about 2% upwards towards the northwest corner of the site. Elevation at the site is approximately 142 feet above mean sea level.

The drainage basin located southeast of the proposed structure is approximately 17 feet in depth. The roadways bounding the site to the south and west (Miwok Avenue and Pioneer Square) consist of asphalt concrete pavement with Portland cement concrete (PCC) curb and gutter. A PCC sidewalk currently lines the outside edge of Pioneer Square. Current development of the surrounding areas consist primarily of the construction of the single-family homes.



1.04 Current and Past Land Usage

The proposed building site is currently undeveloped and covered with seasonal grasses. Review of historical aerial photography provided by Google Earth indicates that prior to 2004, the site and surrounding areas were undeveloped. Mass grading activities associated with the construction of the adjacent residential development and construction of the drainage basin appears to begin between 2004 and 2006. Minor grading in the immediate vicinity of the proposed campus site are evident in a historical aerial photo from 2006. Residential development activities appear to be dormant from 2006 to 2014. Construction of Miwok Avenue and Pioneer Square appear to occur during 2014 and 2015.

1.05 Planned Usage

It is our understanding that the proposed construction will consist of the construction of single-story building structures to house classrooms, laboratories, student services facilities, and administrative offices. Currently, the school district is considering 3 separate building configurations for the proposed campus. Option 1 consists of a single structure with open courtyards within the interior portion of the facility. Option 2 consists of 3 independent structures separated by concrete walkways and courtyard areas. Option 3 consists of 2 adjacent structures joined by a roof. Exploratory boring locations were selected based on their compatibility with all 3 proposed building configuration options. Building footprint areas for the 3 proposed configurations is not expected to exceed 25,000 square feet.

The proposed construction also included construction of parking lot within the northern portion of the site and extending from northern edge of the building structure areas to northern property line in the north/south direction and from Miwok Avenue to eastern property line in the east/west direction. Two lane access roadways connecting the parking lot to entrances on Pioneer Square are planned to be located to east and west of the proposed building structures.

Our investigation was performed prior to the preparation of grading or foundation plans. To aid in preparation of this report, we utilized the following assumptions:

- Maximum foundation loads of 2 to 3 kips per linear foot for continuous footings and 60 kips for isolated spread footings.
- Cuts and fills will be less than 5 feet.

1.06 Investigation Methods

Our investigation consisted of office research, field exploration, laboratory testing, review of the compiled data, and preparation of this report. It has been performed in a manner consistent with generally accepted engineering and geologic principles and practices, and has incorporated requirements of California Geological Survey Note 48 and the California Buildings Code (CBC). Definitions of technical terms and symbols used in this report include those of the ASTM International, the California Building Code, and commonly used geologic nomenclature.

Technical supporting data are presented in the attached appendices. Appendix A presents a description of the methods and equipment used in performing the field exploration and logs of our subsurface exploration. Appendix B presents a description of our laboratory testing and the test results. Standard grading specifications and references are presented in Appendices C and D respectively.



2.00 FINDINGS

2.01 Geologic Setting

The site is located on the western fringe of the Great Valley geomorphic province where it abuts the Coast Ranges geomorphic province. Great Valley, which is commonly known at the California Central Valley, is an alluvial plain situated between the Coast Ranges and Sierra Nevada Mountains that is 50 miles wide and 400 miles long. The Coast Ranges consist of northwest trending mountain ranges and valleys sedimentary, volcanic and metamorphic rocks that extend from southern California to Oregon. Within the site, approximately 25 to 35 feet of valley alluvium overly Coast Ranges sedimentary bedrock.

The regional geologic setting of the site is presented on Figure 2.

2.02 Prior Geotechnical Reports

A previous Preliminary Geologic Hazard Evaluation Report prepared by ENGEO, Inc. dated January 29, 2010 (project No. 3229.001.001) has been reviewed as part of this investigation. The previous report was prepared for the new Brentwood Center Campus, however, the conceptual design utilized for preparation of the report included the construction of two 22,000 square foot structures as opposed to the three 25,000 square foot structure layout options currently under consideration.

Data contained within Boring 1-B1 presented in the previous report, has been considered for the preparation of this report. Soils encountered in the previous investigation appear to be consistent with soils encountered in borings perform during this investigation. The approximate location of ENGEO Boring 1B-1 has been shown on the Site Geologic Map (Figure 3) and the referenced boring log has been included in Appendix B of this report

2.03 Earth Materials

Our subsurface investigation encountered artificial fill, valley alluvium and sedimentary bedrock.

Artificial fill (af) was encountered in Borings B-1, B-2, and B-3 within the upper 3 feet. The fill consists of stiff clays and dense silty sands visually classified by the Unified Soils Classification System (USCS) as CL and SM.

Valley alluvial deposits (Qal) encountered in our exploratory borings consisted of clays, silts, clayey sands, and silty sands visually classified by the USCS as CL, ML, SC, and SM, respectively. Occasional layers of poorly graded sands classified as SP were also encountered. The consistency of clays and silts ranged from medium stiff to hard. Compactness of sands and clayey sands ranged from medium dense to very dense.

Beneath the valley alluvium, a dark gray claystone of the Tertiary age Meganos formation (Tm) was encountered in Borings B-2, B-3 and B-5 at depths of 25, 24 and 35 feet, respectively. The bedrock was observed to be massive, dense with little weathering and moderately spaced tight fractures. The fractures dip approximately 10 to 20 degrees below horizontal suggesting the fractures could be bedding. Regional geologic mapping by Dibble (Figure 2) indicates that bedding nearby hills dip approximately 17 to 37 degrees to the northeast. A boring previously drilled approximately 100 feet to the southeast of Boring B-2 in a previous geotechnical investigation by Engeo Inc. encountered claystone bedrock at the depth of 28.5 feet, which is generally consistent with our borings. A copy of the Engeo log is presented in Appendix B.

A Site Geologic Map showing the locations of our borings and cross sections is presented as Figure 3. Geologic cross sections are presented as Figures 4-1 and 4-2.

The subsurface conditions encountered in the exploratory borings drilled at the site are described in greater detail on the logs contained in Appendix A.



2.04 Expansive Soils

Expansion index testing indicates that near surface soils are expansive. Expansion testing performed in accordance with ASTM D4829 indicates that earth materials underlying the site have an expansion classification of low. Results of expansion test and other soil index tests are presented in Appendix B. Our recommendations to mitigate the effects of expansive soils in foundation design are presented in Section 3.11.

2.05 Surface and Groundwater Conditions

No areas of ponding or standing water were present at the time of our study. Further, no springs or areas of natural seepage were found. Groundwater was encountered in each exploratory boring at depths ranging from 16 to 18 feet below existing ground elevation. According the Department of Water Resources, no monitoring wells are located within 5 miles of the site.

2.06 Faults

The site is not located within the boundaries of an Earthquake Fault Zone for fault-rupture hazard as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no faults are known to pass through the property. The nearest earthquake fault zone is located about 6 miles to the southwest of the site along the Greenville-Marsh Creek fault.

The nearest fault zones are the Sherman Island, Davis, and Midland faults located approximately 1/3 mile to the west, ³/₄ miles to the west, and 5 miles to the east, respectively. According to the Fault Activity Map of California, the Davis and Midland faults displace late Quaternary age deposits and the Sherman Island fault (unlabeled) is concealed and shows no evidence of displacement in Quaternary time but is not necessarily inactive.

The accompanying Regional Fault Map (Figure 5) illustrates the location of the site with respect to major faults in the region. The distance to notable faults within 100 kilometers of the site is presented on Table 1.

2.07 Historic Seismicity

There have been 4 historic strong earthquakes have been epicentered within about 30 miles of the site. The magnitudes of the other earthquakes have been estimated to range from about 6.0 to 7.0 and were epicentered in San Jose, San Francisco Bay and San Joaquin Valley areas of California. These events occurred in the 1800s prior to the development of seismic monitoring networks, and thus their locations and magnitudes are only approximate.

Strong earthquakes that have occurred in this region in historic time and their approximate epicentral distances are summarized in Table 2.

Our research of regional geologic and seismic data did not reveal any known instances of ground failure within the site associated with regional seismic activity.

Seismic design parameters relative to the requirements of the 2013 California Building Code are presented in Section 3.09 and Appendix C.

2.08 Flooding Potential

According to Federal Emergency Management Agency (2015), the site is located within Flood Zone X, which is defined as an "Area of Minimal Flood Hazard" (an area determined to be outside the 0.2% annual chance floodplain).

Control of surface runoff originating from within and outside of the site should, of course, be included in design of the project.



2.09 Landslides

Due to the low gradient of the site and surrounding area, landsliding is not a hazard at this property.



2.10 Other Geologic Hazard Considerations

California Geological Survey Note 48 (2011) identifies a number of exceptional geologic hazards that can occur at individual sites, but do not occur statewide. Evaluation of these exceptional conditions is referred to as a conditional geologic assessment by Note 48. Specific assessment items listed in Note 48 are addressed in the table below.

CONDITIONAL GEOLOGIC ASSESSMENT

Hazard	Assessment	Reference	
Methane gas, hydrogen- sulfide gas, tar seeps	Not applicable, site is not located within an oil field.	California Division of Oil, Gas and Geothermal Resources Online Well Finder.	
Volcanic eruption	Not applicable, site is not in a known hazard area for volcanic eruptions.	Miller, 1989 (U.S.G.S. Bulletin 1847)	
Flooding	The proposed development area is not located within the boundaries of a 100-year flood zone.	See Section 2.07	
Tsunami and seiches inundation	Not applicable.	See Section 3.10	
Radon-222 gas	Radon gas levels are generally low in Contra Costa County (only 3% at or above 4 pCi/L). Radon gass typically a concern within portions of the California Coast Ranges underlain by bedrock. Since the site is underlain by 25 feet or more of alluvium, the potential for significant radon gas at the site appears to be low, however there is no site specific testing available to confirm these observations.	See Section 2.01 and Online Contra Costa County Radon Information	
Naturally occurring asbestos	Not applicable, site is not is an area more likely to contain naturally occurring asbestos and ultramafic rocks have not been mapped in the vicinity of the site.	Churchill and Hill, 2000 (DMG OFR 2000-19). Dibblee and Minch, 2006	
Hydrocollapse due to anthropic use of water	Drilling data indicate that soils underlying the site consist primarily of stiff to hard clay and thus are not prone to hydrocollapse due to anthropic use of water.	See Sections 2.01, 2.02 and 3.10. Appendices A, B and D.	
Regional land subsidence	Due to the shallow depth of bedrock, regional land subsidence is not expected to impact the site related to groundwater withdrawal is not expected to impact the site.	See Sections 2.01 and 2.02, and Appendix B	
Clays and cyclic softening	Cyclic softening of clay is unlikely due to the in situ density of the clay. Expansive properties will be addressed by foundation design.	Appendices A and B	



3.00 CONCLUSIONS AND RECOMMENDATIONS

3.01 General Conclusion

Based on specific data and information contained in this report, our understanding of the project and our general experience in engineering geology and geotechnical engineering, it is our professional judgment that the proposed development is geologically and geotechnically feasible. This is provided that the recommendations presented below are fully implemented during design, grading and construction.

3.02 General Earthwork and Grading

All grading should be performed in accordance with the General Earthwork and Grading Specifications outlined in Appendix C, unless specifically revised or amended below. Recommendations contained in Appendix C are general specifications for typical grading projects and may not be entirely applicable to this project.

It is also recommended that all earthwork and grading be performed in accordance with Appendix J of the 2010 California Building Code (CBC) and all applicable governmental agency requirements. In the event of conflicts between this report and CBC Appendix J, this report shall govern.

3.03 Earthwork Shrinkage and Subsidence

Shrinkage is the decrease in volume of soil upon removal and recompaction expressed as a percentage of the original in-place volume. Subsidence occurs as natural ground is densified to receive fill. These factors account for changes in earth volumes that will occur during grading. Our estimates are as follows:

- Shrinkage factor = 5%-10% for soil removed and replaced as compacted fill.
- Subsidence factor = 0.1 0.2 foot.

The degree to which fill soils are compacted and variations in the insitu density of existing soils will influence earth volume changes. Consequently, some adjustments in grades near the completion of grading could be required to balance the earthwork.

3.04 Removals and Overexcavation

All vegetation, trash and debris should be cleared from the grading area and removed from the site. Prior to placement of compacted fills, all non-engineered fills and loose, porous, or compressible soils will need to be removed down to competent ground. Removal and requirements will also apply to cut areas, if the depth of cut is not sufficient to reach competent ground. Removed and/or overexcavated soils may be moisture-conditioned and recomputed as engineered fill, except for soils containing detrimental amounts of organic material. Estimated depths of removals are as follows:

- It is expected that competent native soils will be encountered in cuts deeper than approximately 3 to 5 feet below existing grade or the base of existing non-engineered fill. Provided competent soils are exposed, these cut surfaces should be scarified to a minimum depth of 12 inches, moisture conditioned and compacted to at least 90 percent of the maximum dry density, provided that footing overexcavation requirements are met.
- Soils disturbed by demolition of existing structures will need to be over-excavated to competent native ground
 and then scarified to a minimum depth of 12 inches, moisture conditioned and compacted to at least 90
 percent of the maximum dry density.

New Brentwood Center (L-630) Contra Costa Community College District June 23, 2016 RMA Job No.: 15-095-0



In addition to the above requirements, overexcavation will also need to meet the following criteria for the building pads, concrete flatwork and pavement areas:

- All footing areas, both continuous and spread, shall be undercut, moistened, and compacted as necessary to produce soils compacted to a minimum of 90 percent relative compaction to a depth equal to the width of the footing below the bottom of the footing or to a depth of 3 feet below the bottom of the footing, whichever is less. Footing areas shall be defined as the area extending from the edge of the footing for a distance of 5 feet.
- All concrete flatwork and paved areas shall be underlain by a minimum of 12 inches of non-expansive engineered fill material compacted to a minimum of 90 percent relative compaction.
- Areas containing slabs on grade shall be undercut, moistened, and compacted as necessary to produce soils
 compacted to a minimum of 90 percent relative compaction to a depth of 3 feet below the bottom of the
 proposed slabs on grade. The upper 24 inches of the engineered fill zone below slabs on grade shall be
 composed of non-expansive material compacted to a minimum of 90 percent relative compaction

The exposed soils beneath all overexcavation should be scarified an additional 12 inches, moisture conditioned and compacted to a minimum of 90% relative compaction.

The above recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. Hence, overexcavation depths must be verified, and adjusted if necessary, at the time of grading. The overexcavated materials may be moisture-conditioned and re-compacted as engineered fill.

3.05 Rippability and Rock Disposal

Our exploratory trenches and borings were advanced without difficulty and no oversize materials were encountered in our subsurface investigation. Accordingly we expect that all earth materials will be rippable with conventional heavy duty grading equipment and oversized materials are not expected.

3.06 Subdrains

Since the depth to historic groundwater beneath the site is 51 feet or greater, installation of subdrains is not expected to be necessary.

3.07 Fill and Cut Slopes

Due to the low gradient of the property, it appears that construction of cut and fill slopes will not be required. If such slopes are proposed, they should be inclined no steeper than 2 to 1 (horizontal to vertical, H:V).

3.08 Faulting

Since the site is not located within the boundaries of an Earthquake Fault Zone and no faults are known to pass through the property, surface fault rupture within the site is considered unlikely.



3.09 Seismic Design Parameters

Seismic design parameters have been developed in accordance with Section 1613A of the 2013 California Building Code (CBC) using the online U.S. Geological Survey Seismic Design Maps Calculator (Version 3.1.0, ASCE 10 Standard) and a site location based on latitude and longitude. The calculator generates probabilistic and deterministic maximum considered earthquake spectral parameters represented by a 5-percent damped acceleration response spectrum having a 2-percent probability of exceedance in 50 years. The deterministic response accelerations are calculated as 150 percent of the largest median 5-percent damped spectral response acceleration computed on active faults within a region, where the deterministic values govern. The calculator does not, however, produce separate probabilistic and deterministic results. The parameters generated for the subject site are presented below:

	0
Parameter	Value
Site Location	Latitude = 37.89628 degrees
Site Location	Longitude = -121.72112 degrees
Site Class	Site Class = D
Site Class	Soil Profile Name = Stiff Soil profile
Mapped Spectral Accelerations	S_s (0.2- second period) = 1.500g
(Site Class B)	S_1 (1-second period) = 0.573g
Site Coefficients	$F_a = 1.000$
(Site Class D)	$F_{\rm v} = 1.500$
Maximum Considered Earthquake (MCE)	S_{MS} (short, 0.2- second period) = 1.500g
Spectral Accelerations (Site Class D)	S_{M1} (1-second period) = 0.859g
Design Earthquake (DE)	S_{DS} (short, 0.2- second period) = 1.000g
Spectral Accelerations (Site Class D)	S_{D1} (1-second period) = 0.573g

2013 California Building Code Seismic Parameters

The above table shows that the mapped spectral response acceleration parameter a 1-second period (S_1) < 0.75g. Therefore, for the Seismic Design Category is D for all Occupancy Categories (CBC Section 1613A.5.6). Consequently, as required for Seismic Design Categories D through F by CBC Section 1803A.5.12, lateral pressures for earthquake ground motions, liquefaction and soil strength loss have been evaluated (see Sections 3.10 and 3.16).

Peak earthquake ground acceleration adjusted for site class effects (PGA_M) has been determine in accordance with ASCE 7-10 Section 11.8.3 as follows: $PGA_{M} = F_{PGA} \times PGA = 1.000 \times 0.501 = 0.501g$.

3.10 Liquefaction and Secondary Earthquake Hazards

Potential secondary seismic hazards that can affect land development projects include liquefaction, tsunamis, seiches, seismically induced settlement, seismically induced flooding and seismically induced landsliding.

Liquefaction

Liquefaction is a phenomenon where earthquake- induced ground vibrations increase the pore pressure in saturated, granular soils until it is equal to the confining, overburden pressure. When this occurs, the soil can completely loose its shear strength and enter a liquefied state. The possibility of liquefaction is dependent upon grain size, relative density, confining pressure, saturation of the soils, and intensity and duration of ground shaking. In order for liquefaction to occur, three criteria must be met: underlying loose, coarse-grained (sandy) soils, a groundwater depth of less than about 50 feet, and a potential for seismic shaking from nearby large-magnitude earthquake.



Exploratory Boring B-4 encountered a 5-foot thick layer of poorly graded sand at a depth of 15 feet and a groundwater depth of 16 feet. Our analysis using data collected from this boring indicates that liquefaction is unlikely to occur.

It should be noted that the California Geological Survey has not yet prepared a Seismic Hazard Zone Map of potential liquefaction hazards for the quadrangle in which the site is located.

Tsunamis and Seiches

Tsunamis are sea waves that are generated in response to large-magnitude earthquakes. When these waves reach shorelines, they sometimes produce coastal flooding. Seiches are the oscillation of large bodies of standing water, such as lakes, that can occur in response to ground shaking. Tsunamis do not pose hazards due to the inland location of the site.

There is a stormwater basin a few hundred feet west of the site. Its outlet point is approximately 15 feet below the elevation of the site. Consequently, the site is not expected to be impacted by potential seiches generated at the basin.

Marsh Creek Reservoir is located approximately ½ mile to the south-southwest of the site. The overflow outlet for the reservoir is approximately 50 feet higher than the site elevation. The drainage path of Marsh Creek runs between the reservoir and the site and is located about 600 feet southeast of the site at its nearest point. At its nearest point, the elevation of Marsh Creek is about 10 feet lower than the elevation of the site. Consequently, it appears unlikely the seiches at the reservoir would impact the site. The potential for seismically induced flooding originating from Marsh Creek Reservoir is discussed below.

Seismically Induced Settlement

Seismically induced settlement occurs most frequently in areas underlain by loose, granular sediments. Damage as a result of seismically induced settlement is most dramatic when differential settlement occurs in areas with large variations in the thickness of underlying sediments. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

Seismically induced settlement calculations were performed using the software LiquefyPRO developed by CivilTech Software. SPT data, fines content test results, in-situ density, subsurface profile, groundwater level, and site-specific seismic information are utilized by the program to determine the magnitude of settlement resulting from un-saturated sand layers susceptible to dynamic settlement when subjected to Design Earthquake Event.

We estimate 0.01-inches of total seismically induced ground settlement may occur at the site when subjected to a Design Earthquake event (see calculations in Appendix D). In our opinion, differential seismic settlement may be taken as one-half of the computed total seismic settlement. Calculations of seismically induced settlements are presented in Appendix D.

Seismically Induced Flooding

According to the Contra Costa County Flood Control and Water Conservation District online Dam Failure Inundation Areas Map, the potential inundation area of the Marsh Creek Reservoir abuts the eastern side of the site. The potential impact of this potential inundation area should be further evaluated by the design civil engineer.

Seismically Induced Landsliding

Due to the low gradient of the site, the potential for seismically induced landsliding is nil. This assumes that any slopes created during development of the school site will be properly designed and constructed. It should be noted that the



California Geological Survey has not yet prepared a Seismic Hazard Zone Map of potential earthquake-induced landslide hazards for the quadrangle in which the site is located. However, according to the City of Brentwood General Plan Existing Conditions Report, dated April 9, 2013, and hazard maps provided by the Association of Bay Area Governments indicate that the site is not located within a potential landslide area.

3.11 Foundations

Our preliminary laboratory tests indicate that the onsite soils are expansive. It is anticipated that the primary mechanisms for differential movement of building foundations at the subject site will be shrinkage and swelling of expansive soils. Therefore, we recommend the use of reinforced foundations and slabs with internal grade beams at the subject site to mitigate the effects of expansive soils. Due to the preliminary nature of the expansion tests performed for this study, we recommend additional testing be performed near the completion of rough grading to verify the test results and recommended foundation design criteria.

It is recommended that the design provide for a stiff floor slab, which minimizes the amount of deflection imposed on the structure. The slab and foundation system should be designed in accordance with the recommendations contained in the WRI/CRSI Design of Slab-on-Ground Foundations (1981, updated in 1996) by a foundation design engineer experienced in the field of slab design. The slab designer should provide estimates of the anticipated deflection to the design architect and structural engineer for use in the design of the structure. If the anticipated design deflection exceeds that which the design architect and or structural engineer can accommodate then the slab should be re-designed by the slab designer to reduce the total deflection. If necessary, recommendations for alternative types of foundations may be developed by the geotechnical engineer.

In accordance with CBC Section 1808A.6.2, design of stiffened reinforced concrete slab-on-grade on expansive soils should follow the WRI/CRSI Design of Slab-on-Ground Foundations. We recommend an effective Plasticity Index (PI) value of 20 for design.

The slab should have a minimum thickness of 6 inches and be designed with concrete having a minimum compressive strength of 3,000 psi. Exterior foundations should extend a minimum of 24 inches below grade along the perimeter of the structure and should have a minimum width of 18 inches. Foundation embedment should be measured from the lowest adjacent grade within 5 feet of the structure.

Reinforcement of the exterior foundations, grade beams, and slab-on-grade should provide the minimum area of steel required per the WRI/CRSI Design of Slab-on-Ground Foundations. The slab should be continuously reinforced with a minimum of #3 reinforcing bars placed in both directions at a maximum spacing of 18 inches on center. The foundations and grade beams should be continuously reinforced with a minimum of two #4 bars at the top and two #4 bars at the bottom.

Provided the recommendations on grading given in this report are followed and footings are established in compacted fill materials, footings may be designed using the following allowable soil bearing values:

• Continuous Footings:

Continuous footings having a minimum width of 12 inches and a minimum depth of embedment of 24 inches below the lowest adjacent grade may have allowable bearing capacity of 2,000 pounds per square foot (psf). This value may be increased by 20% for each additional foot of width or depth to a maximum value of 3,300 psf.

<u>Isolated Spread Footings:</u>

Isolated footings having a minimum width of 18 inches and a minimum depth of embedment of 24 inches below the lowest adjacent grade may have allowable bearing capacity of 2,000 psf. This value may be increased by 20%



for each additional foot of width or depth to a maximum value of 3,300 psf.

The above bearing capacities represent an allowable net increase in soil pressure over existing soil pressure and may be increased by one-third for short-term wind or seismic loads. The maximum expected settlement of footings designed with the recommended allowable bearing capacity is expected to not exceed 1 inch with differential settlement less than 0.5 inches.

3.12 Foundation Setbacks from Slopes

Setbacks for footings adjacent to slopes should conform to the requirements of the California Building Code (CBC). Specifically, footings should maintain a horizontal distance or setback between any adjacent slope face and the bottom outer edge of the footing.

For slopes descending away from the foundation, the horizontal distance may be calculated by using h/3, where h is the height of the slope. The horizontal setback should not be less than 5 feet, nor need not be greater than 40 feet (per CBC). Where structures encroach within the zone of h/3 from the top of the slope the setback may be maintained by deepening the foundations. Flatwork and utilities within the zone of h/3 from the top of slope may be subject to lateral distortion caused by gradual downslope creep. Walls, fences and landscaping improvements constructed at the top of descending slopes should be designed with consideration of the potential for gradual downslope creep.

For ascending slopes, the horizontal setback required may be calculated by using h/2 where h is the height of the slope. The horizontal setback need not be greater than 15 feet (per CBC).

3.13 Slabs on Grade

Concrete floors with a minimum thickness of 6 inches are recommended for slabs on grade for the proposed structures, considering normal floor loading conditions. However, if heavy concentrated or moving loads are anticipated, slabs should be designed using a modulus of subgrade reaction (k) of 125 psi/in when soils are prepared in conformance with the grading recommendations contained within the report. Reinforcement of slabs with a minimum of #3 reinforcing steel bar spaced at 18 inches on center placed at mid-height within the slab is recommended.

Special care should be taken on floors slabs to be covered with thin-set tile or other inflexible coverings. These areas may be reinforced by a minimum of #3 reinforcing bar placed at 18 inches in both directions at mid-height of the slab, to mitigate drying shrinkage cracks. Alternatively, inflexible flooring may be installed with unbonded fabric or liners to prevent reflection of slab cracks through the flooring.

A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive equipment, products, or environments will exist. We recommend that design and construction of the moisture vapor retarder/barrier conform to Section 1805A of the 2013 California Building Code and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

The moisture vapor retarder/barrier should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the moisture vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

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The moisture vapor retarder/barrier may be placed directly beneath the floor slab with no intermediate granular fill layer. This method of construction will provide improved curing of the slab bottom and will eliminate potential problems caused by water being trapped in a granular fill layer. However, concrete slabs poured directly on a moisture vapor retarder/barrier can experience shrinkage cracking and curling due to differential rates of curing through the thickness of the slab. Therefore, for concrete placed directly on the moisture vapor retarder/barrier, we recommend a maximum water cement ratio of 0.45 and the use of water-reducing admixtures to increase workability and decrease bleeding.

Alternatively, the slabs may be constructed by placing a 4-inch layer of granular soil over the moisture vapor retarder/barrier in accordance with ACI 302.1R-04. Granular fill should consist of clean, fine-graded materials with 10% to 30% passing the No. 100 sieve and free from clay or silt. The granular layer should be uniformly compacted and trimmed to provide the full design thickness of the proposed slab. The granular fill layer should not be left exposed to rain or other sources of water such as wet-grinding, power washing, pipe leaks or other processes, and should be dry at the time of concrete placement. Granular fill layers that become saturated should be removed and replaced prior to concrete placement.

3.14 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may experience seasonal movement due to the expansive nature of soils at the site. Consequently, some cracking or vertical movement of conventional flatwork and walkways should be anticipated. Several construction methods may be utilized to mitigate such movements; however, some minor movements, cracking or distress may still occur.

Subgrade soils should be scarified and moisture conditioned to a minimum of 3% and a maximum of 6% over optimum moisture content for a depth of 12 inches prior to placing concrete. Moisture conditioning of dry soils should be accomplished by gradual wetting rather than flooding or excessive watering, which could result in a soft, unstable condition and possible construction delays while waiting for soils to dry out. Moisture conditioning of wet soils should be accomplished by air drying, lime treatment or other methods approved by the geotechnical engineer. Subgrade soils should be compacted for 87 to 92 percent relative compaction (ASTM D1557). The moisture content of subgrade soils should be verified by the geotechnical consultant a maximum of 24 hours prior to placing concrete and the geotechnical consultant should be verify compaction of the subgrade soils by field density testing.

Concrete flatwork and walkways that are not subject to vehicle loads should be at least 4 inches thick and underlain by at least 6 inches of non-expansive soil such as aggregate base, crushed rock or import soil with a Plastic Index of 15 or less. The non-expansive soil should be compacted to at least 90% relative compaction (ASTM D1557). Flatwork and walkways subject to vehicle loads should be design in accordance to the recommendations presented in Section 3.22.

Large slabs should be reinforced with a minimum of #3 reinforcing bar placed at 12 inches in both directions at midheight of the slab. Slabs should also have control joints constructed as squares or rectangles with spacing of about 2 feet in each direction for each inch of concrete thickness up to a maximum of 10 feet. Control joints for walkways should have a maximum spacing of 5 feet. Exterior slabs and walkways should be isolated from adjacent foundations with a construction joint and a felt strip or approved equivalent that extends the full depth of the exterior slab. This will help reduce the potential for permanent vertical offset between the slabs due to friction between the concrete edges.

Consideration should also be given to using reinforcing steel, such as No. 3 rebar space at 24 inches on center each direction to reduce the potential for vertical offset or widening of concrete cracks.



3.15 Footing Excavation and Slab Preparations

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed on slab or footing areas unless properly compacted.

Continuous and isolated spread footings as well as slabs-on-grade should be underlain by a minimum of 36 inches of engineered fill.

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that placement and compaction of non-expansive materials has been performed in substantial compliance to the above recommendations.

Footings may experience and overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of the trench.

Slabs on grade and walkways should be brought to a minimum of 2% and a maximum of 6% above their optimum moisture content for a depth of 18 inches prior to the placement of concrete. The geotechnical consultant should perform in-situ moisture tests to verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

3.16 Lateral Load Resistance

Lateral loads may be resisted by soil friction and the passive resistance of the soil. The following parameters are recommended.

- Passive Earth Pressure = 346 pcf (equivalent fluid weight).
- Coefficient of Friction (soil to footing) = 0.35
- Retaining structures should be designed to resist the following lateral active earth pressures:

Surface Slope of Retained Materials (Horizontal:Vertical)	Equivalent Fluid Weight (pcf)
Level	42
5:1	44
4:1	46
3:1	50
2:1	70

These active earth pressures are only applicable if the retained earth is allowed to strain sufficiently to achieve the active state. The required minimum horizontal strain to achieve the active state is approximately 0.0025H. Retaining structures should be designed to resist an at-rest lateral earth pressure if this horizontal strain cannot be achieved.



• At-rest Lateral Earth Pressure = 62 pcf (equivalent fluid weight)

The Mononobe-Okabe method is commonly utilized for determining seismically induced active and passive lateral earth pressures and is based on the limit equilibrium Coulomb theory for static stress conditions. This method entails three fundamental assumptions (e.g., Seed and Whitman, 1970): Wall movement is sufficient to ensure either active or passive conditions, the driving soil wedge inducing the lateral earth pressures is formed by a planar failure surface starting at the heel of the wall and extending to the free surface of the backfill, and the driving soil wedge and the retaining structure act as rigid bodies, and therefore, experiences uniform accelerations throughout the respective bodies (U.S. Army Corps of Engineers, 2003, Engineering and Design - Stability Analysis of Concrete Structures).

• Seismic Lateral Earth Pressure = 19 pcf (equivalent fluid weight).

The seismic lateral earth pressure given above is an inverted triangle, and the resultant of this pressure is an increment of force which should be applied to the back of the wall in the upper 1/3 of the wall height and also applied as a reduction of force to the front of the wall in the upper 1/3 of the footing depth.

3.17 Drainage and Moisture Proofing

Surface drainage should be directed away from the proposed structure into suitable drainage devices. Neither excess irrigation nor rainwater should be allowed to collect or pond against building foundations or within low-lying or level areas of the lot. Surface waters should be diverted away from the tops of slopes and prevented from draining over the top of slopes and down the slope face.

Walls and portions thereof that retain soil and enclose interior spaces and floors below grade should be waterproofed and dampproofed in accordance with CBC Section 1805A.

Retaining structures should be drained to prevent the accumulation of subsurface water behind the walls. Backdrains should be installed behind all retaining walls exceeding 3 feet in height. A typical detail for retaining wall back drains is presented in Appendix C. All backdrains should be outlet to suitable drainage devices. Retaining wall less than 3 feet in height should be provided with backdrains or weep holes. Dampproofing and/or waterproofing should also be provided on all retaining walls exceeding 3 feet in height.

3.18 Cement Type and Corrosion Potential

Soluble sulfate tests indicate that concrete at the subject site will have a moderate exposure to water-soluble sulfate in the soil. Our recommendations for concrete exposed to sulfate-containing soils are presented in the table below.

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Recommendations for Concrete exposed to Sulfate-containing Soils

Sulfate Exposure	Water Soluble Sulfate (SO ₄) in Soil (% by Weight)	Sulfate (SO ₄) in Water (ppm)	Cement Type (ASTM C150)	Maximum Water-Cement Ratio (by Weight)	Minimum Compressive Strength (psi)
Negligible	0.00 - 0.10	0-150			2,500
Moderate	0.10 - 0.20	150-1,500	II	0.50	4,000
Severe	0.20 - 2.00	1,500-10,000	V	0.45	4,500
Very Severe	Over 2.00	Over 10,000	V plus pozzolan or slag	0.45	4,500

Use of alternate combinations of cementitious materials may be permitted if the combinations meet design recommendations contained in American Concrete Institute guideline ACI 318-11.

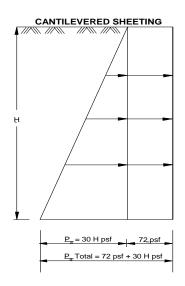
The soils were also tested for soil reactivity (pH) and electrical resistivity (ohm-cm) and chloride content. The test results indicate that the on-site soils have a soil reactivity of 8.17, an electrical resistivity of 540 ohm-cm, and chloride content of 58.3 ppm.. A neutral or non-corrosive soil has a value ranging from 5.5 to 8.4. Generally, soils that could be considered moderately corrosive to ferrous metals have resistivity values of about 3,000 ohm-cm to 10,000 ohm-cm. Soils with resistivity values less than 3,000 ohm-cm can be considered corrosive and soils with resistivity values less than 1,000 ohm-cm can be considered extremely corrosive. Soil with a chloride content of 500 ppm or greater are generally considered corrosive.

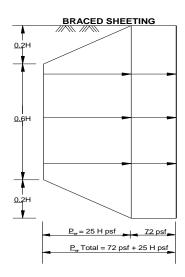
Based on our analysis, it appears that the underlying onsite soils are corrosive to ferrous metals. Protection of buried pipes utilizing coatings on all underground pipes; clean backfills and a cathodic protection system can be effective in controlling corrosion. A qualified corrosion engineer should be consulted to further assess the corrosive properties of the soil.

3.19 Temporary Slopes

Excavation of utility trenches will require either temporary sloped excavations or shoring. Temporary excavations in existing alluvial soils may be safely made at an inclination of 1:1 or flatter. If vertical sidewalls are required in excavations greater than 5 feet in depth, the use of cantilevered or braced shoring is recommended. Excavations less than 5 feet in depth may be constructed with vertical sidewalls without shoring or shielding. Our recommendations for lateral earth pressures to be used in the design of cantilevered and/or braced shoring are presented below. These values incorporate a uniform lateral pressure of 72 psf to provide for the normal construction loads imposed by vehicles, equipment, materials, and workmen on the surface adjacent to the trench excavation. However, if vehicles, equipment, materials, etc., are kept a minimum distance equal to the height of the excavation away from the edge of the excavation, this surcharge load need not be applied.

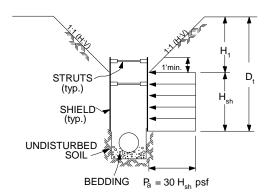






SHORING DESIGN: LATERAL SHORING PRESSURES

Design of the shield struts should be based on a value of 0.65 times the indicated pressure, Pa, for the approximate trench depth. The wales and sheeting can be designed for a value of 2/3 the design strut value.



HEIGHT OF SHIELD, $H_{\rm sh}~=$ DEPTH OF TRENCH, $D_{\rm t}$, MINUS DEPTH OF SLOPE, $H_{\rm 1}$ TYPICAL SHORING DETAIL

Placement of the shield may be made after the excavation is completed or driven down as the material is excavated from inside of the shield. If placed after the excavation, some overexcavation may be required to allow for the shield width and advancement of the shield. The shield may be placed at either the top or the bottom of the pipe zone. Due to the anticipated thinness of the shield walls, removal of the shield after construction should have negligible effects on the load factor of pipes. Shields may be successively placed with conventional trenching equipment.

Vehicles, equipment, materials, etc. should be set back away from the edge of temporary excavations a minimum distance of 15 feet from the top edge of the excavation. Surface waters should be diverted away from temporary excavations and prevented from draining over the top of the excavation and down the slope face. During periods of heavy rain, the slope face should be protected with sandbags to prevent drainage over the edge of the slope, and a visqueen liner placed on the slope face to prevent erosion of the slope face.



Periodic observations of the excavations should be made by the geotechnical consultant to verify that the soil conditions have not varied from those anticipated and to monitor the overall condition of the temporary excavations over time. If at any time during construction conditions are encountered which differ from those anticipated, the geotechnical consultant should be contacted and allowed to analyze the field conditions prior to commencing work within the excavation.

Cal/OSHA construction safety orders should be observed during all underground work.

3.20 Utility Trench Backfill

The onsite fill soils will not be suitable for use as pipe bedding for buried utilities. All pipes should be bedded in a sand, gravel or crushed aggregate imported material complying with the requirements of the Standard Specifications for Public Works Construction Section 306-1.2.1. Crushed rock products that do not contain appreciable fines should not be utilized as pipe bedding and/or backfill. Bedding materials should be densified to at least 90% relative compaction (ASTM D1557) by mechanical methods. The geotechnical consultant should review and approve of proposed bedding materials prior to use.

All utility trench backfill within street right of way, utility easements, under or adjacent to sidewalks, driveways, or building pads should be observed and tested by the geotechnical consultant to verify proper compaction. Trenches excavated adjacent to foundations should not extend within the footing influence zone defined as the area within a line projected at a 1:1 drawn from the bottom edge of the footing. Trenches crossing perpendicular to foundations should be excavated and backfilled prior to the construction of the foundations. The excavations should be backfilled in the presence of the geotechnical engineer and tested to verify adequate compaction beneath the proposed footing.

Cal/OSHA construction safety orders should be observed during all underground work.

3.22 Pavement Sections

R-value tests were performed on anticipated subgrade soils at the site in order to provide information on their soil properties for design of pavement structural sections. Structural sections were designed using the procedures outlined in Chapter 630 of the California Highway Design Manual (Caltrans, 2008). This procedure uses the principle that the pavement structural section must be of adequate thickness to distribute the load from the design traffic index (TI) to the subgrade soils in such a manner that the stresses from the applied loads do not exceed the strength of the soil (R-value).

Development of the design traffic indexes on the basis of a traffic study is beyond the scope of this report. However, based on our experience, traffic indices for parking lots typically range from 5.0 to 7.0. We have provided alternate structural sections for each traffic index with this range. Selection of the final pavement structural section should be based on economic considerations which are beyond the scope of this investigation. Recommended structural sections are as follows:

Parking Lots (TI=5.0, R-Value=7):

3.0 inches of asphaltic concrete over

9.5 inches of crushed aggregate base

Parking Lots (TI=6.0, R-Value=7):

3.5 inches of asphaltic concrete over 12.5 inches of crushed aggregate base

Parking Lots (TI=5.5, R-Value=7):

3.0 inches of asphaltic concrete over 11.5 inches of crushed aggregate base

Parking Lots (TI=6.5, R-Value=7):

4.0 inches of asphaltic concrete over 13.0 inches of crushed aggregate base



Parking Lots (TI=7.0, R-Value=7):
4.0 inches of asphaltic concrete over
15.0 inches of crushed aggregate base

Portland cement concrete (PCC) pavements for areas which are not subject to traffic loads may be designed with a minimum thickness of 4.0inches of Portland cement concrete on compacted native soils. If traffic loads are anticipated, PCC pavements should be designed for a minimum thickness of <6.0> inches of Portland cement concrete on <4.0> inches of crushed aggregate base.

Prior to paving, the subgrade soils should be scarified and the moisture adjusted to within 2% of the optimum moisture content. The subgrade soils should be compacted to a minimum of 90% relative compaction. All aggregate base courses should be compacted to a minimum of 95% relative compaction.

3.21 Plan Review

Once a formal grading and foundation plans are prepared for the subject property, this office should review the plans from a geotechnical viewpoint, comment on changes from the plan used during preparation of this report and revise the recommendations of this report where necessary.

3.22 Geotechnical Observation and Testing During Rough Grading

The geotechnical engineer should be contacted to provide observation and testing during the following stages of grading:

- During the clearing and grubbing of the site.
- During the demolition of any existing structures, buried utilities or other existing improvements.
- During excavation and overexcavation of compressible soils.
- During all phases of grading including ground preparation and filling operations.
- When any unusual conditions are encountered during grading.

A final geotechnical report summarizing conditions encountered during grading should be submitted upon completion of the rough grading operations.

3.23 Post-Grading Geotechnical Observation and Testing

After the completion of grading the geotechnical engineer should be contacted to provide additional observation and testing during the following construction activities:

- During trenching and backfilling operations of buried improvements and utilities to verify proper backfill and compaction of the utility trenches.
- After excavation and prior to placement of reinforcing steel or concrete within footing trenches to verify that footings are properly founded in competent materials.
- During fine or precise grading involving the placement of any fills underlying driveways, sidewalks, walkways, or
 other miscellaneous concrete flatwork to verify proper placement, mixing and compaction of fills.
- When any unusual conditions are encountered during construction.

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4.00 CLOSURE

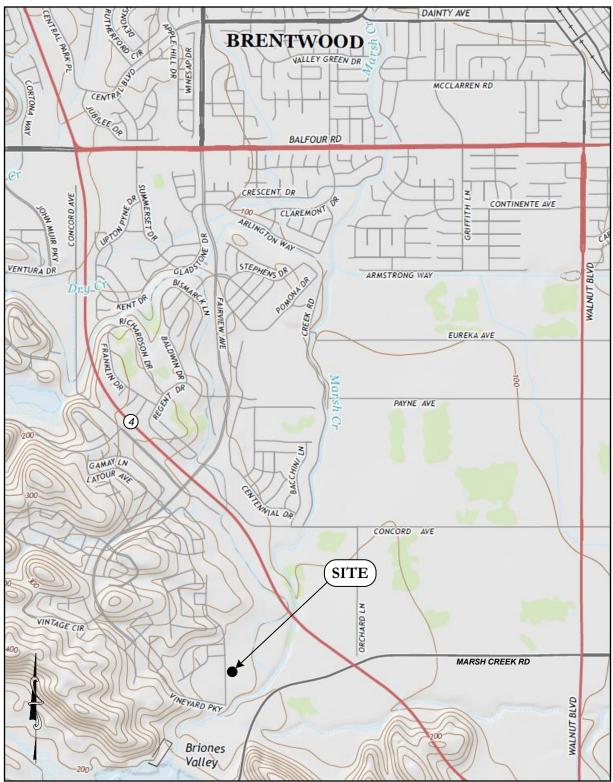
The findings, conclusions and recommendations in this report were prepared in accordance with generally accepted engineering and geologic principles and practices. No other warranty, either expressed or implied, is made. This report has been prepared for Contra Costa Community College District to be used solely for design purposes. Anyone using this report for any other purpose must draw their own conclusions regarding required construction procedures and subsurface conditions.

The geotechnical and geologic consultant should be retained during the earthwork and foundation phases of construction to monitor compliance with the design concepts and recommendations and to provide additional recommendations as needed. Should subsurface conditions be encountered during construction that are different from those described in this report, this office should be notified immediately so that our recommendations may be re-evaluated.



FIGURES AND TABLES

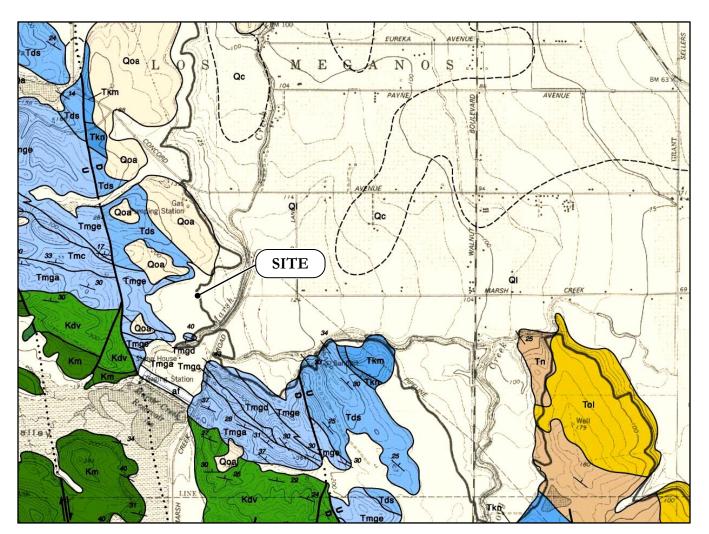




SITE LOCATION MAP

Scale: 1 inch = 2,000 feet





REGIONAL GEOLOGIC MAP

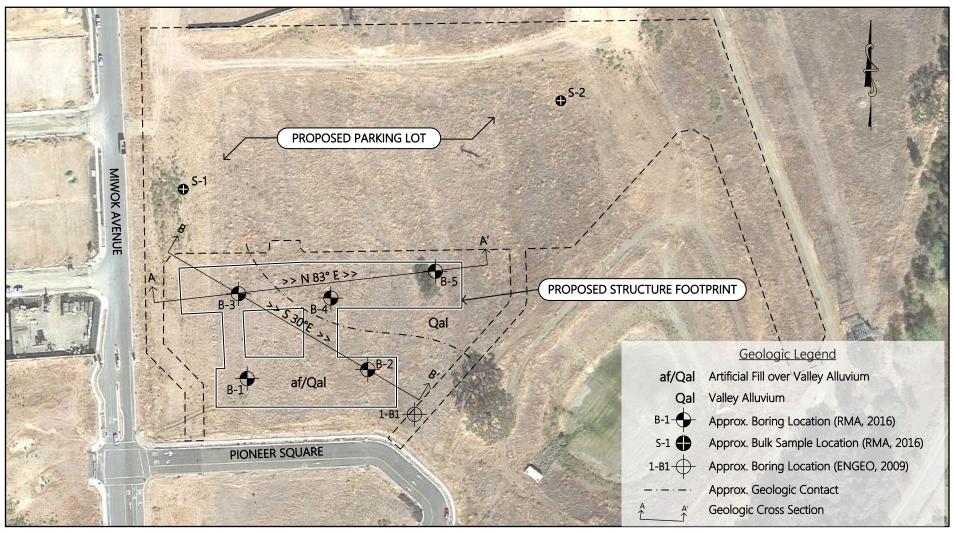
Scale: 1 in = 2,500 ft

Partial Legend

Ql, Qc – Holocene Alluvial Deposits Qoa – Pleistocene Older Alluvium Tmge, Tmc, Tds, Tmgd – Tertiary Sedimentary Bedrock Tkm – Tertiary and Cretaceous Sedimentary Bedrock Kdv, Km – Cretaceous Sedimentary Bedrock

Source: Dibblee and Minch, 2006, Map of Antioch South and Brentwood Quadrangles, Dibblee Geologic Foundation Map DF-193.



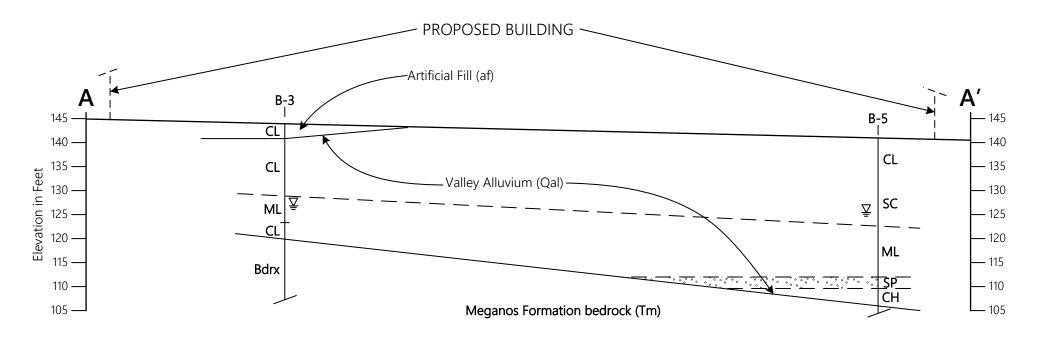


SITE GEOLOGIC MAP Scale: 1 inch ≈ 150 feet

Basemap: Google Earth, Imagery date 10/30/2015

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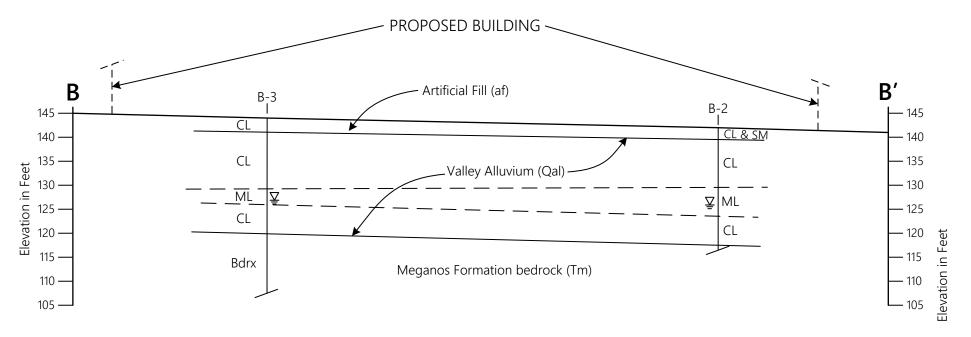




GEOLOGIC CROSS SECTION A-A'

Horizontal Scale: 1 inch ≈ 50 feet Vertical Scale: 1 inch ≈ 20 feet

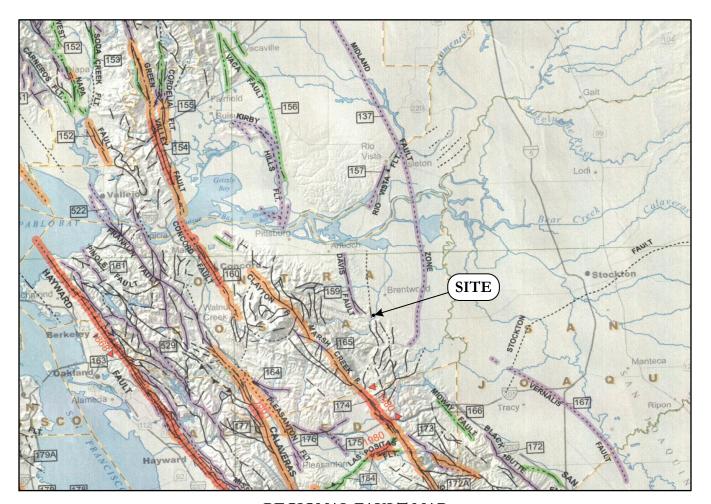




GEOLOGIC CROSS SECTION B-B'

Horizontal Scale: 1 inch ≈ 50 feet Vertical Scale: 1 inch ≈ 20 feet





REGIONAL FAULT MAP

Scale: 1 inch ≈ 10 miles

Partial Legend

Red – Historic Fault Displacement

Orange – Holocene Fault Displacment

Green – Late Quaternary Fault Displacement

Purple – Quaternary Fault

Black - Pre-Quaternary Fault

Basemap: California Geological Survey Fault Activity Map, 2010



NOTABLE FAULTS WITHIN 100 KILOMETERS AND SEISMIC DATA

Fault Zone & geometry	Distance (km)	Distance (mi.)	Maximum Moment Magnitude	Slip Rate (mm/yr)
Calaveras - North (rl-ss)	26	16	6.8	6.0
Concord - Green Valley (rl-ss)	24	15	6.2	4.0
Foothills Fault System (n-rl-o)	84	52	6.5	0.1
Great Valley - Segment 3 (r)	90	56	6.9	1.5
Great Valley - Segment 4 (r)	47	29	6.6	1.5
Great Valley - Segment 5 (r)	21	13	6.5	1.5
Great Valley - Segment 7 (r)	25	16	6.7	1.5
Great Valley - Segment 8 (r)	71	44	6.6	1.5
Greenville - Marsh Creek (rl-ss)	9	6	6.6	2.0
Hayward (rl-ss)	40	25	6.4	9.0
Hunting Creek - Berryessa	75	47	7.1	6.0
Monte Vista - Shannon (r)	69	43	6.7	0.4
Mount Diablo (r)	19	12	6.6	2.0
Ortigalita (rl-ss)	80	50	7.1	1.0
Point Reyes (r)	98	61	7.0	0.3
San Andreas (rl-ss)	69	43	7.1	17.0
San Gregorio - North (rl-ss)	79	49	7.2	7.0
West Napa (rl-ss)	55	34	6.5	1.0
Zayante - Vergeles (rl-r)	93	58	7.0	0.1

Notes:

Fault geometry - (ss) strike slip, (r) reverse, (n) normal, (rl) right lateral, (ll) left lateral, (o) oblique Fault and Seismic Data - California Geological Survey (Cao), 2003



HISTORIC STRONG EARTHQUAKES SINCE 1836 SAN FRANCISCO BAY REGION

			Epicentral Distance
Date	Event	Magnitude	(miles)
June 10, 1836	Near San Juan Bautista	6.4	70
June, 1938	San Juan Bautista - San Francisco	7.4	49
November 26, 1858	San Jose Region	6.2	28
February 26, 1964	Southeast of San Jose	6.1	49
March 5, 1864	East of San Francisco Bay	6.0	25
October 8, 1865	Santa Cruz Mountains	6.5	50
July 15, 1866	Western San Joaquin Valley	6.0	19
October 21, 1868	Bay Area - Hayward fault	7.0	26
April 19, 1892	Vacaville	6.6	39
March 31, 1998	Mara Island	6.4	51
June 11, 1903	San Jose	6.1	49
August 3, 1903	San Jose	6.2	42
April 18, 1906	Great San Francisco Earthqauke	7.8	48
July 1, 1911	Morgan Hill area	6.4	45
April 24, 1984	Morgan Hill	6.2	41
Oct. 17, 1989	Loma Prieta	6.9	60
August 24, 2014	American Canyon	6.0	42

Notes:

Earthquake data: California Geological Survey online historic earthquake database, $\rm M \geq 6.0$

Magnitudes prior to 1932 are estimated from intensity.

Magnitudes after 1932 are moment, local or surface wave magnitudes.

Site Location:

Longitude: - 121.721 Latitude: 37.896



APPENDIX A

FIELD INVESTIGATION



APPENDIX A

FIELD INVESTIGATION

A-1.00 FIELD EXPLORATION

A-1.01 Number of Borings

Our subsurface investigation consisted of 5 borings drilled with a CME-45B drill rig.

A-1.02 Location of Borings

A Site Geologic Map showing the approximate locations of the borings is presented as Figure 3.

A-1.03 Boring Logging

Logs of borings were prepared by one of our staff and are attached in this appendix. The logs contain factual information and interpretation of subsurface conditions between samples. The strata indicated on these logs represent the approximate boundary between earth units and the transition may be gradual. The logs show subsurface conditions at the dates and locations indicated, and may not be representative of subsurface conditions at other locations and times.

Identification of the soils encountered during the subsurface exploration was made using the field identification procedure of the Unified Soils Classification System (ASTM D2488). A legend indicating the symbols and definitions used in this classification system and a legend defining the terms used in describing the relative compaction, consistency or firmness of the soil are attached in this appendix. Bag samples of the major earth units were obtained for laboratory inspection and testing, and the in-place density of the various strata encountered in the exploration was determined



				MAJO	R DIVISIONS		GROU SYMBC		TYPICAL NAMES
						CLEAN		GW	Well graded gravel, gravel-sand mixtures. little or no fines.
	BOULDERS				GRAVELS	GRAVELS (Little or no fines)	o d	GP	Poorly graded gravel or gravel-sand mixtures, little or no fines.
			12 in.		(More than 50% of coarse fraction is LARGER than the No. 4 sieve size.	GRAVELS		GM	Silty gravels, gravel-sand-silt mixtures.
	COBBLES		1	COARSE GRAINED		WITH FINES (Appreciable amt. of fines)		GC	Clayey gravels, gravel-sand-clay mixtures.
S_	Ö		3 in.	SOILS (More than 50% of material is LARGER		CLEAN		SW	Well graded sands, gravelly sands, little or no fines.
I N I	GRAVEL	COARSE	3/4 in.	than No. 200 sieve size)	SANDS	SANDS (Little or no fines)	• • •	SP	Poorly graded sands or gravelly sands, little or no fines.
SIZE	GF	FINE	No. 4		(More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures.
ПЕ		COARSE	No. 10 N. SIEVE SIZE					SC	Clayey sands, sand-clay mixtures.
RTIC	QI	MEDIUM	DARD				ML	Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity	
РА	SAND	FINE	No.40 U.S. S⊤AN		SILTS AND CLAYS (Liquid limit LESS than 50)			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			No. 200	FINE GRAINED				OL	Organic silts and organic silty clays of low plasticity.
	CLAY	:		SOILS (More than 50% of material is SMALLER				МН	Inorganic silts, micaceous or diatamaceous fine sandy or silty soils, elastic silts.
	SILT OR CLAY			than No. 200 sieve size)	SILTS AND (Liquid limit GREATER th	-		СН	Inorganic clays of high plasticity, fat clays.
									Organic clays of medium to high plasticity, organic silts.
				Н	IGHLY ORGANI	C SOILS		Pt	Peat and other highly organic soils.

 $\underline{ \texttt{BOUNDARY CLASSIFICATIONS:}} \ \ \textbf{Soils possessing characteristics of two groups are designated by combinations of group symbols.}$

UNIFIED SOIL CLASSIFICATION SYSTEM



I. SOIL STRENGTH/DENSITY

BASED ON STANDARD PENETRATION TESTS

Compactness o	r sand	Consistency of clay				
Penetration Resistance N (blows/Ft)	Compactness	Penetration Resistance N (blows/ft)	Consistency			
0-4	Very Loose	<2	Very Soft			
4-10	Loose	2-4	Soft			
10-30	Medium Dense	4-8	Medium Stiff			
30-50	Dense	8-15	Stiff			
>50	Very Dense	15-30	Very Stiff			
	•	>30	Hard			

N = Number of blows of 140 lb. weight falling 30 in. to drive 2-in OD sampler 1 ft.

BASED ON RELATIVE COMPACTION

Compactness	of sand	Consistency of clay				
% Compaction	Compactness	% Compaction	ion Consistency			
<75	Loose	<80	Soft			
75-83	Medium Dense	80-85	Medium Stiff			
83-90	Dense	85-90	Stiff			
>90	Very Dense	>90	Very Stiff			

II. SOIL MOISTURE

Moisture of	sands	Moisture o	f clays
% Moisture	Description	% Moisture	Description
<5%	Dry	<12%	Dry
5-12%	Moist	12-20%	Moist
>12%	Very Moist	>20%	Very Moist, wet

SOIL DESCRIPTION LEGEND

June 23, 2016 RMA Job No.: 15-095-0



May 23, 2016

Date Drilled:

GEOTECHNICAL CONSULTANTS

Exploratory Boring Log

Boring No. B-1

Sheet 1 of 1

Drilling Equipment: CME 45C, SF Auger, Auto Hammer

Logged By: B. Wilson Borehole Diameter: 4.5 inches Location: See Site Geologic Map Drive Weights: 140 lbs.

Surface Elev: 144 ft (approx.) Drop Height:

Surface Ele	ev.: 1	44 ft (a	ipprox.)				Drop Height: 30"
		Sample	s	e t	ity		o	Material Description
Depth (ft)	Sample Type	Blows (blows/ft)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	USCS	Graphic Symbol	This log contains factual information and interpretation of the subsurface conditions between the samples. The stratum indicated on this log represent the approximate boundary between earth units and the transition may be gradual. The log show subsurface conditions at the date and location indicated, and may not be representative of subsurface conditions at other locations and times.
_						CL		Artificial Fill (af): Dark brown lean clay interbedded with layers of light brown silt and silty sand, moist, low plasticity
_	Т	28		8.9	107.0	CL		Valley Alluvium (Qal): Dark brown lean clay with sand, little fine to medium sand, low plasticity, moist, very stiff
5 —	Т	39		12.0	115.5			Trace fine sand, increase in plasticity
-								Becomes yellowish brown, decrease in plasticity
10 —	Т	22		17.0	109.1		/,,,,	
-						SC		Dark yellowish brown clayey sand, trace fine gravel, mostly fine sand, low plasticity, moist, medium dense
15 —	S	17						
20						- <u>C</u> L		Olive brown lean clay, trace fine gravel, trace fine sand, low plasticity, moist,
20 —	S	44						hard Boring terminated at 21.5 feet
								Groundwater encountered at 18 feet Hole backfilled with grout
25 —								
-								
30 —								
_								
35 —								
-								
			1	1	1		1	

*Note

All blow counts associated with Modified California Sample are uncorrected. The sampler dimensions are as follows:

ID = 2.5"

OD = 3"

Sample Types:

S - SPT Sample

- Bulk Sample

T - Modified California Tube Sample

Symbols:

- Groundwater

R - Ring Sample

Page A - 4



Surface Elev.: 142 ft (approx.)

GEOTECHNICAL CONSULTANTS

Exploratory Boring Log

Drop Height:

30"

Boring No. B-2

Sheet 1 of 1

Date Drilled: May 23, 2016 Drilling Equipment: CME 45C, SF Auger, Auto Hammer

Logged By:B. WilsonBorehole Diameter:4.5 inchesLocation:See Site Geologic MapDrive Weights:140 lbs.

	S	Sample	s	e t	ity		0 -	Material Description
Depth (ft)	Sample Type	Blows (blows/ft)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	OSCS	Graphic Symbol	This log contains factual information and interpretation of the subsurface conditions between the samples. The stratum indicated on this log represent the approximate boundary between earth units and the transition may be gradual. The log show subsurface conditions at the date and location indicated, and may not be representative of subsurface conditions at other locations and times.
_			П			CL	///	Artificial Fill (af): brown lean clay with sand, low plasticity, moist
_	Т	38		10.0	119.7	SM \	 	Light yellowish brown silty sand, mostly fine sand, non-plastic
_						CL		Valley Alluvium (Qal): Dark brown lean clay with sand, little fine to medium sand, medium plasticity, moist, very stiff
5 —	Т	30		12.4	108.5			Becomes dark reddish brown
_								
10 —								
-	Т	15		23.9	100.1			
_						- <u></u> -	Knít	Dark olive brown silt, trace fine sand, stiff
15 —		0						
_	S	8						
- 1								
20 —	S	93/11"				CL		Olive brown lean clay, moist, hard, some reddish brown mottle
_		73/11						
_								
25 —	S	50/1"						Meganos Formation bedrock (Tm): Dark gray claystone
_								Boring terminated at 25.5 feet due to drilling refusal Groundwater encountered at 17 feet
_								Hole backfilled with grout
30 —								
_								
_								
35 —								
_								
_								

*Note

All blow counts associated with Modified California Sample are uncorrected. The sampler dimensions are as follows:

ID = 2.5"

OD = 3"

Sample Types:

S - SPT Sample

R - Ring Sample

- Bulk Sample

T - Modified California Tube Sample

e

- Groundwater

Symbols:

- End of Boring



Surface Elev.: 144 ft (approx.)

GEOTECHNICAL CONSULTANTS

Exploratory Boring Log

Drop Height:

30"

Boring No. B-3

Sheet 1 of 1

Date Drilled: May 23, 2016 Drilling Equipment: CME 45C, SF Auger, Auto Hammer

Logged By: B. Wilson Borehole Diameter: 4.5 inches Drive Weights: Location: See Site Geologic Map 140 lbs.

Surface Ex	1			1				Diop Height.
1 _		Sample	s	e t	sity		ء -	Material Description
Depth (ft)	Sample Type	Blows (blows/ft)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	USCS	Graphic Symbol	This log contains factual information and interpretation of the subsurface conditions between the samples. The stratum indicated on this log represent the approximate boundary between earth units and the transition may be gradual. The log show subsurface conditions at the date and location indicated, and may not be representative of subsurface conditions at other locations and times.
						CL		Artificial Fill (af): Dark brown lean clay interbedded with layers of light
_	l							brown silt and silty sand, moist, low plasticity
_	Т	35		11.2	107.7	OT.		
_	'			11.2	107.7	CL		Valley Alluvium (Qal): Dark reddish brown lean clay, medium plasticity, moist, very stiff
5 —			П	110				moist, very suit
_	Т	36		14.8	112.2			
-	1							
_	1							
10 —	l							
_	Т	41		12.7	119.4			Becomes sandy
_	↓ □							
-	1							
-	1							
15 —	S	15				ML	ťnítl	Reddish brown sandy silt, fine to medium sand, moist, stiff
_		13					\forall	Reddish brown sandy sht, thie to meatum sand, moist, sun
							青川川	
								Becomes gravelly
20 —	l							becomes graveny
_	S	40				CL	7'// /	Olive brown lean clay, low plasticity, moist, hard
_	_							
_	1							
	1						 	Meganos formation bedrock (Tm): Dark gray claystone
25 —	s	89/10"						
] 🖺	0,, 0					ĖŒĖ	
							面盖面	
_	-						ЕШЕ	
30 —	 							
-	S	50/5"						
-	1						Ëmëi	
-	1						回三回	
35 —	1						臣山三川	
35 —	S	50/6"						
	∸							Boring terminated at 36.5 feet
_	1							Groundwater encountered at 17 feet
-	1							Hole backfilled with grout

*Note

All blow counts associated with Modified California Sample are uncorrected. The sampler dimensions are as follows:

ID = 2.5"

OD = 3"

Sample Types:

S - SPT Sample

R - Ring Sample

- Bulk Sample T - Modified California Tube Sample

Symbols:

- Groundwater

End of Boring



Surface Elev.: 143 ft (approx.)

GEOTECHNICAL CONSULTANTS

Exploratory Boring Log

Drop Height:

30"

Boring No. B-4

Sheet 1 of 1

Date Drilled: May 23, 2016 Drilling Equipment: CME 45C, SF Auger, Auto Hammer

Logged By:B. WilsonBorehole Diameter:4.5 inchesLocation:See Site Geologic MapDrive Weights:140 lbs.

	S	Sample	s	e t	ity		0 =	Material Description
Depth (ft)	Sample Type	Blows (blows/ft)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	OSCS	Graphic Symbol	This log contains factual information and interpretation of the subsurface conditions between the samples. The stratum indicated on this log represent the approximate boundary between earth units and the transition may be gradual. The log show subsurface conditions at the date and location indicated, and may not be representative of subsurface conditions at other locations and times.
- - -	Т	18				CL		Valley Alluvium (Qal): Dark brown lean clay, medium plasticity, moist, stiff
5—	Т	23		11.1	120.4			Becomes reddish brown lean clay with sand, medium to coarse sand, medium plastic clayey fines, moist, stiff
10 —	Т	35		17.7	107.3			Becomes yellowish brown
15 —	s	22		11.3		SP		Brown poorly graded sand, mostly medium to coarse, trace clayey fines, wet, medium dense
20 —	s	77				- C H		Light grayish brown fat clay, trace fine sand, moist, high plasticity, hard
25 —								Boring terminated at 21.5 feet Groundwater encountered at 16 feet Hole backfilled with grout
30 —								
35—	-							
- - -	-							

*Note

All blow counts associated with Modified California Sample are uncorrected. The sampler dimensions are as follows:

$$ID = 2.5$$
"

$$OD = 3"$$

Sample Types:

S - SPT Sample

- Bulk Sample

<u>=</u>

Symbols:

- Groundwater

T - Modified California Tube Sample

R - Ring Sample

- End of Boring



Surface Elev.: 141 ft (approx.)

GEOTECHNICAL CONSULTANTS

Exploratory Boring Log

Drop Height:

30"

Boring No. B-5

Sheet 1 of 1

Date Drilled: May 23, 2016 Drilling Equipment: CME 45C, SF Auger, Auto Hammer

Logged By:B. WilsonBorehole Diameter:4.5 inchesLocation:See Site Geologic MapDrive Weights:140 lbs.

	5	Sample	s	t e	ity		0 -	Material Description
Depth (ft)	Sample Type	Blows (blows/ft)	Bulk Sample	Moisture Content (%)	Dry Density (pcf)	USCS	Graphic Symbol	This log contains factual information and interpretation of the subsurface conditions between the samples. The stratum indicated on this log represent the approximate boundary between earth units and the transition may be gradual. The log show subsurface conditions at the date and location indicated, and may not be representative of subsurface conditions at other locations and times.
	Т	18				CL		Valley Alluvium (Qal): Dark reddish brown lean clay, trace fine sand, medium plasticity, moist, very stiff
5 —	Т	44		15.0	114.4			
10 —	Т	29		9.0	119.3	SC		Dark reddish brown clayey sand with gravel, some subangular gravel (I" max diameter), mostly fine to medium sand, little medium plastic clayey fines, moist, medium dense
15 —	s	52						Becomes very dense
20 —	s	50/4"				ML	<u> </u>	Yellowish brown sandy silt, fine to medium sand, low to medium plasticity, moist, hard, horizontal seams of gray, red, and brown approximately 1 mm thick
25 —	S	50/5"						
30 —	s	67				SP CH		Yellowish brown poorly graded sand, medium to coarse, trace clayey fines, wet, very dense Grayish brown fat clay, high plasticity, moist, hard
35 —	S	71/11"						Meganos formation bedrock (Tm): Dark gray claystone
_ _ _								Boring terminated at 36.5 feet due to drilling refusal Groundwater encountered at 15.5 feet Hole backfilled with grout

*Note

All blow counts associated with Modified California Sample are uncorrected. The sampler dimensions are as follows:

ID = 2.5"

OD = 3"

Sample Types:

S - SPT Sample

e

Bulk Sample

pie

- Groundwater

T - Modified California Tube Sample

R - Ring Sample

Symbols:

- End of Boring



APPENDIX B

REFERENCED BORING LOGS

KEY TO SOIL LOGS

	MAJOR	R TYPES		DESCRIPTION
RE THAN N #200	GRAVELS MORE THAN HALF COARSE FRACTION	CLEAN GRAVELS WITH LESS THAN 5% FINES		GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
SOILS MOF	IS LARGER THAN NO. 4 SIEVE SIZE	GRAVELS WITH OVER 12 % FINES		GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
-GRAINED F MAT'L LA SIE	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN	CLEAN SANDS WITH LESS THAN 5% FINES	****	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
COARSE HALF O	NO. 4 SIEVE SIZE	SANDS WITH OVER 12 % FINES		SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
SOILS MORE AT'L SMALLER SIEVE	SILTS AND CLAYS LIQ	JID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
FINE-GRAINED: HAN HALF OF M THAN #200	SILTS AND CLAYS LIQUID	LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
Ē	HIGHLY ORG	GANIC SOILS		PT - Peat and other highly organic soils
FINE-GRAINED SOILS MORE COARSE-GRAINED SOILS MORE THAN THAN HALF OF MAT'L SMALLER HALF OF MAT'L LARGER THAN #200 THAN #200 SIEVE SIEVE	SILTS AND CLAYS LIQUID	SANDS WITH OVER 12 % FINES JID LIMIT 50 % OR LESS LIMIT GREATER THAN 50 % GANIC SOILS	and or	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays

	GRAIN SIZES									
U.S. STANDARD SERIES SIEVE SIZE				C	LEAR SQUARE SIEV	E OPENING	S			
2	.00	40	10	4 3.	/4 " 3	" 12	2"			
SILTS		SAND		GRA	AVEL					
AND CLAYS	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	BOULDERS			

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

RELATIVE DENSITY

SILTS AND CLAYS STRENGTH* **BLOWS/FOOT** SANDS AND GRAVELS (S.P.T.) **VERY SOFT** 0-1/4 VERY LOOSE 0-4 SOFT 1/4-1/2 LOOSE MEDIUM DENSE 4-10 10-30 30-50 MEDIUM STIFF 1/2-1 STIFF 1-2 2-4 DENSE **VERY STIFF** VERY DENSE OVER 50 HARD OVER 4

	MOISTURE CONDITION					
_	SAMPLER SYMBOLS	DRY	Dusty, dry to touch			
	Modified California (3" O.D.) sampler	MOIST WET	Damp but no visible water Visible freewater			
	California (2.5" O.D.) sampler	LINE TYPE				
		LINE TYPES	5			
	S.P.T Split spoon sampler		Calid Lavar Brack			
	Shelby Tube		Solid - Layer Break			
	Continuous Core		Dashed - Gradational or approximate layer break			
X	Bag Samples	GROUND-WATER SYMBOLS				
en,	Grab Samples	$\bar{\Sigma}$	Groundwater level during drilling			
NR	No Recovery	Ā	Stabilized groundwater level			

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

^{*} Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer



CONSISTENCY



LOG OF BORING 1-B1

Field Exploration L630 New Brentwood Center Brentwood, CA 3229.001.001

DATE DRILLED: 12/29/2009 HOLE DEPTH: Approx. 51 ft. HOLE DIAMETER: 8.0 in. SURF ELEV (msl): Approx. 140 ft. LOGGED / REVIEWED BY: M. Turner / SH
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

								Atter	berg Li	mits	(_
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTIC	N	Log Symbol	Water Level	Blow Count/Foot	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			CLAYEY SAND (SC/CL), olive brown, rapproximately 50% fines, fine-grained s	noist, medium plasticity, and, [FILL]										
_	- - - -		SANDY CLAY (CL), olive brown mottle hard, moist, medium plasticity, approxir sand, [FILL]	d with reddish brown, nately 30% fine-grained			22							+4.5* +4.5*
	_ 1		SILT WITH SAND (ML), brown, hard, m 20% fine-grained sand				31	49	13	36				+4.5*
5 —	_		SILTY CLAY (CL-CH), brown, hard, mo approximately 20% fine-grained sand	ist, high plasticity,				49	13	30				+4.5
-	- - - 2		LEAN CLAY (CL), brown, hard, moist, rapproximately 5% fine-grained sand	nedium plasticity,			30							
							30							
_			SILT WITH SAND (ML), brown, hard, m approximately 25% fine-grained sand	noist, low plasticity,										
10 —	3 3		approximately 20% line grained surfa				40							
	_ _ _						18							4.5*
_	- - - 4		SILTY SAND (SM), reddish brown, med	lium dense, moist fine-										
_	_		to medium-grained sand, approximately	7 30% fines										
15 —							22							
_	5 													
_	_			: :										
20 —	_ 6													
	- - -		At 20 feet, grading with approximately gravel				15							
_	_		SANDY LEAN CLAY (CL), olive brown, plasticity, approximately 30% fine-grain 5% fine subrounded gravel											
	— 7 - -		SILTY CLAY (CL), olive brown, hard, m	oist, low plasticity, trace										
25 —	_		fine-grained sand											
-	8						72							+4.5*
_														
			CLAYSTONE, dark gray, very weak (R											
30 —	- 9	Ш	moderately weathered (WM), damp, be approximately 40 degrees	uumg appears to dip		1								



LOG OF BORING 1-B1

Field Exploration L630 New Brentwood Center Brentwood, CA 3229.001.001

DATE DRILLED: 12/29/2009 HOLE DEPTH: Approx. 51 ft. HOLE DIAMETER: 8.0 in. SURF ELEV (msl): Approx. 140 ft. LOGGED / REVIEWED BY: M. Turner / SH
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

		1	9.001.001			Ι		Λtto	rberg Li	imita				
								Alle	berg L	IIIIIS	(G			‡
Depth in Feet	Depth in Meters	Sample Type		SCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength
			CLAYSTONE, dark gray, v	ery weak (R1), laminated, //), damp, bedding appears to dip	11111		50/4"							+4.5
_	<u> </u>		approximately 40 degrees	ny, damp, bodding appears to dip	/////									
	10				/////									
_	Ē				1////									
35 —	Ē				/////									
	<u> </u>				/////		86/11"							+4.5
_	11				11111									74.0
_	E				/////									
_	E				11111									
40 —	12				/////									
-	Ė				/////		92/11"							+4.5
_	Ė				11111									
_	13				/////									
_	F				/////									
45 —	E				/////									
_	14				/////		50/6"							+4.5
-	-				11111									
-	Ė				/////									
-	<u>-</u> - 15				/////									
50 —	ŧ				1////		=0/0"							
-	F		Boring terminated at appro	ximately 51 feet. No Groundwater	/////		50/6"							
			encountered.											



APPENDIX C LABORATORY TESTS



APPENDIX C

LABORATORY TESTS

C-1.00 LABORATORY TESTS

C-1.01 Maximum Density

Maximum density - optimum moisture relationships for the major soil types encountered during the field exploration were performed in the laboratory using the standard procedures of ASTM D1557.

C-1.02 Atterberg Limits

The liquid limit, plastic limit, and the plasticity index of the major soil types encountered in the test holes were determined using the standard test methods of ASTM D4318.

C-1.03 Expansion Tests

Expansion index tests were performed on representative samples of the major soil types encountered by the test methods outlined in ASTM D4829.

C-1.04 Soluble Sulfates and Chlorides

Tests were performed on representative samples encountered during the investigation in accordance with California Test Methods 417 and 422. These tests were performed by Sunland Analytical located in Rancho Cordova, California.

C-1.05 Soil Reactivity (pH) and Electrical Conductivity (Ec)

Representative soil samples were tested for soil reactivity (pH) and minimum electrical resistivity using California Test Method 643. The pH measurement determines the degree of acidity or alkalinity in the soils. The minimum electrical resistivity is used as an indicator of how corrosive the soil is relative to buried metallic items. These tests were performed by Sunland Analytical located in Rancho Cordova, California.

C-1.06 Particle Size Analysis

Particle size analysis was performed on representative samples of the major soils types in accordance to the standard test methods of the ASTM D422. The hydrometer portion of the standard procedure was not performed and the material retained on the #200 screen was washed.

C-1.07 Direct Shear

Direct shear tests were performed on representative samples of the major soil types encountered in the test holes using the standard test method of ASTM D3080 (consolidated and drained). Tests were performed on remolded samples. Remolded samples were tested at 90 percent relative compaction.

Shear tests were performed on a direct shear machine of the strain-controlled type. To simulate possible adverse field conditions, the samples were saturated prior to shearing. Several samples were sheared at varying normal loads and the results plotted to establish the angle of the internal friction and cohesion of the tested samples.

C-1.08 Resistance Value (R-Value)

Resistance Value tests were performed on representative samples of the major soil types encountered by the test methods outlined in ASTM D2844.

C-1.09 Moisture Determination

Moisture content of the soil samples was performed in accordance to standard method for determination of water content of soil by drying oven, ASTM D2216. The mass of material remaining after oven drying is used as the mass of the solid particles.



C-1.10 Density of Split-Barrel Samples

Soil samples were obtained by using a split-barrel sampler in accordance to standard method of ASTM D1586

C-1.11 Test Results

Test results for all laboratory tests performed on the subject project are presented in this appendix.



SAMPLE INFORMATION

Sample	Sample	Sample I	ocation
Number	Description	Boring No.	Depth (ft)
1	Dark brown lean clay with sand (CL)	S-1	0-4
2	Dark brown lean clay with sand (CL)	B-1	5
3	Dark yellowish brown clayey sand (SC)	B-1	15
4	Brown lean clay (CL)	B-3	10
5	Brown sandy lean clay (CL)	B-3	5-10
6	Reddish brown lean clay (CL)	B-4	10
7	Light grayish brown fat clay with sand (CH)	B-4	20
8	Dark reddish brown lean clay (CL)	B-5	1-10

MAXIMUM DENSITY - OPTIMUM MOISTURE

(Test Method: ASTM D1557)

Sample Number	Optimum Moisture (Percent)	Maximum Density (lbs/ft³)
5	12.9	120.9

ATTERBERG LIMITS

(Test Method: ASTM D4318)

Sample Location	Liquid Limit	Plastic Index	Soil Classification
2	34	20	CL
5	35	20	CL
6	32	16	CL
7	51	32	CH



EXPANSION INDEX

Test Method: ASTM D4829

	Molding	Final	Initial		
	Moisture	Moisture	Dry		
Sample	Content	Content	Density	Expansion	Expansion
Number	(Percent)	(Percent)	(lbs/ft^3)	Index	Classification
5	10.5	21.2	108.9	50	Low
8	10.0	19.7	110.6	50	Low

SOLUBLE SULFATES

Test Method: CTM 417

Sample	Soluble Sulfate
Number	(ppm)
5	156.4

SOLUBLE CHLORIDE

Test Method: CTM 422

Sample	Soluble Chloride
Number	(ppm)
5	58.3

SOIL REACTIVITY (pH) AND ELECTRICAL CONDUCTIVITY

Test Method: CTM 643

Sample		Resistivity	
Number	рН	(Ohm-cm)	
 5	8.17	540	

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PERCENT PASSING #200 SIEVE (Test Method: ASTM D422)

Sa Lo	ample cation	Percent Passing #200 Sieve
	3	41.5
	5	76.5
	4	56.7
	7	74.0



Displacement Rate: 0.04 in/min

Volume: 0.002608 cf

GEOTECHNICAL CONSULTANTS

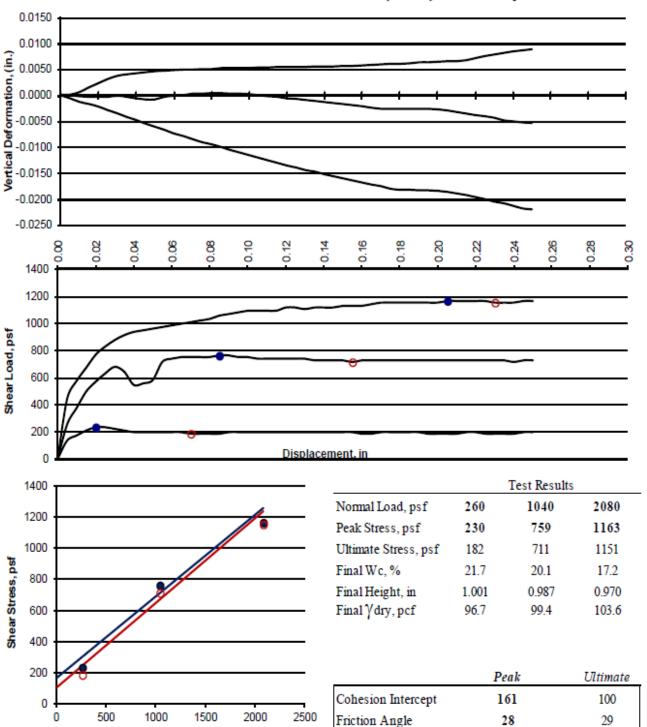
Direct Shear

ASTM D3080: Remolded

Sample: 5

Initial Water Content: 8%

Initial dry density: 90% of 120.9 pcf



Normal Stress, psf



ASTM D2844 - Determination of Resistance "R" Value of Treated and Untreated Bases, Subbases and Basement Soils by Stabilometer

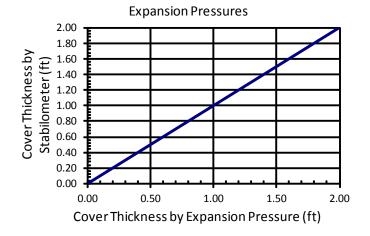
n/a

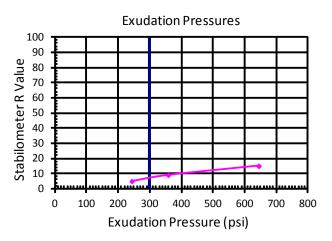
Sample No. 1			
Specimen No	Α	В	С
Moisture Content (%)	13.7	16.2	18.7
Dry Density (pcf)	121.9	115.8	113.4
Exudation Pressure (psi)	644	358	243
Stabilometer R Value	15	9	5
Expansion Pressure Dial	0	0	0
Thickness by Expansion (ft) Thickness by Stabilometer (ft)	0.84	0.90	0.94
Equilibrium Thick (ft)		-	

, ,

Equilibrium Pressure R Value Exudation Pressure R Value @ 300 psi

Use Exudation R Value





June 23, 2016

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APPENDIX D

GENERAL EARTHWORK AND GRADING SPECIFICATIONS



APPENDIX C

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

D-1.00 GENERAL DESCRIPTION

D-1.01 Introduction

These specifications present our general recommendations for earthwork and grading as shown on the approved grading plans for the subject project. These specifications shall cover all clearing and grubbing, removal of existing structures, preparation of land to be filled, filling of the land, spreading, compaction and control of the fill, and all subsidiary work necessary to complete the grading of the filled areas to conform with the lines, grades and slopes as shown on the approved plans.

The recommendations contained in the geotechnical report of which these general specifications are a part of shall supersede the provisions contained hereinafter in case of conflict.

D-1.02 Laboratory Standard and Field Test Methods

The laboratory standard used to establish the maximum density and optimum moisture shall be ASTM D1557.

The insitu density of earth materials (field compaction tests) shall be determined by the sand cone method (ASTM D1556), direct transmission nuclear method (ASTM D2922) or other test methods as considered appropriate by the geotechnical consultant.

Relative compaction is defined, for purposes of these specifications, as the ratio of the in-place density to the maximum density as determined in the previously mentioned laboratory standard.

D-2.00 CLEARING

D-2.01 Surface Clearing

All structures marked for removal, timber, logs, trees, brush and other rubbish shall be removed and disposed of off the site. Any trees to be removed shall be pulled in such a manner so as to remove as much of the root system as possible.

D-2.02 Subsurface Removals

A thorough search should be made for possible underground storage tanks and/or septic tanks and cesspools. If found, tanks should be removed and cesspools pumped dry.

Any concrete irrigation lines shall be crushed in place and all metal underground lines shall be removed from the site.

D-2.03 Backfill of Cavities

All cavities created or exposed during clearing and grubbing operations or by previous use of the site shall be cleared of deleterious material and backfilled with native soils or other materials approved by the soil engineer. Said backfill shall be compacted to a minimum of 90% relative compaction.



D-3.00 ORIGINAL GROUND PREPARATION

D-3.01 Stripping of Vegetation

After the site has been properly cleared, all vegetation and topsoil containing the root systems of former vegetation shall be stripped from areas to be graded. Materials removed in this stripping process may be used as fill in areas designated by the soil engineer, provided the vegetation is mixed with a sufficient amount of soil to assure that no appreciable settlement or other detriment will occur due to decaying of the organic matter. Soil materials containing more than 3% organics shall not be used as structural fill.

D-3.02 Removals of Non-Engineered Fills

Any non-engineered fills encountered during grading shall be completely removed and the underlying ground shall be prepared in accordance to the recommendations for original ground preparation contained in this section. After cleansing of any organic matter the fill material may be used for engineered fill.

D-3.03 Overexcavation of Fill Areas

The existing ground in all areas determined to be satisfactory for the support of fills shall be scarified to a minimum depth of 6 inches. Scarification shall continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to within 2% of optimum moisture. The scarified zone shall then be uniformly compacted to 90% relative compaction.

Where fill material is to be placed on ground with slopes steeper than 5:1 (H:V) the sloping ground shall be benched. The lowermost bench shall be a minimum of 15 feet wide, shall be a minimum of 2 feet deep, and shall expose firm material as determined by the geotechnical consultant. Other benches shall be excavated to firm material as determined by the geotechnical consultant and shall have a minimum width of 4 feet.

Existing ground that is determined to be unsatisfactory for the support of fills shall be overexcavated in accordance to the recommendations contained in the geotechnical report of which these general specifications are a part.

D-4.00 FILL MATERIALS

D-4.01 General

Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant. Soils of poor gradation, expansion, or strength properties shall be placed in areas designated by the geotechnical consultant or shall be mixed with other soils providing satisfactory fill material.

D-4.02 Oversize Material

Oversize material, rock or other irreducible material with a maximum dimension greater than 12 inches, shall not be placed in fills, unless the location, materials, and disposal methods are specifically approved by the geotechnical consultant. Oversize material shall be placed in such a manner that nesting of oversize material does not occur and in such a manner that the oversize material is completely surrounded by fill material compacted to a minimum of 90% relative compaction. Oversize material shall not be placed within 10 feet of finished grade without the approval of the geotechnical consultant.



D-4.03 Import

Material imported to the site shall conform to the requirements of Section 4.01 of these specifications. Potential import material shall be approved by the geotechnical consultant prior to importation to the subject site.

D-5.00 PLACING AND SPREADING OF FILL

D-5.01 Fill Lifts

The selected fill material shall be placed in nearly horizontal layers which when compacted will not exceed approximately 6 inches in thickness. Thicker lifts may be placed if testing indicates the compaction procedures are such that the required compaction is being achieved and the geotechnical consultant approves their use.

Each layer shall be spread evenly and shall be thoroughly blade mixed during the spreading to insure uniformity of material in each layer.

D-5.02 Fill Moisture

When the moisture content of the fill material is below that recommended by the soils engineer, water shall then be added until he moisture content is as specified to assure thorough bonding during the compacting process.

When the moisture content of the fill material is above that recommended by the soils engineer, the fill material shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

D-5.03 Fill Compaction

After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted to not less than 90% relative compaction. Compaction shall be by sheeps foot rollers, multiple-wheel pneumatic tired rollers, or other types approved by the soil engineer.

Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to insure that the desired density has been obtained.

D-5.04 Fill Slopes

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compacting of the slopes may be done progressively in increments of 3 to 4 feet in fill height. At the completion of grading, the slope face shall be compacted to a minimum of 90% relative compaction. This may require track rolling or rolling with a grid roller attached to a tractor mounted side-boom.

Slopes may be over filled and cut back in such a manner that the exposed slope faces are compacted to a minimum of 90% relative compaction.

The fill operation shall be continued in six inch (6") compacted layers, or as specified above, until the fill has been brought to the finished slopes and grades as shown on the accepted plans.

D-5.05 Compaction Testing

Field density tests shall be made by the geotechnical consultant of the compaction of each layer of fill. Density tests shall be made at locations selected by the geotechnical consultant.



Frequency of field density tests shall be not less than one test for each 2.0 feet of fill height and at least every one thousand cubic yards of fill. Where fill slopes exceed four feet in height their finished faces shall be tested at a frequency of one test for each 1000 square feet of slope face.

Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density reading shall be taken in the compacted material below the disturbed surface. When these readings indicate that the density of any layer of fill or portion thereof is below the required density, the particular layer or portion shall be reworked until the required density has been obtained.

D-6.00 SUBDRAINS

D-6.01 Subdrain Material

Subdrains shall be constructed of a minimum 4-inch diameter pipe encased in a suitable filter material. The subdrain pipe shall be Schedule 40 Acrylonitrile Butadiene Styrene (ABS) or Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe or approved equivalent. Subdrain pipe shall be installed with perforations down. Filter material shall consist of 3/4" to 1 1/2" clean gravel wrapped in an envelope of filter fabric consisting of Mirafi 140N or approved equivalent.

D-6.02 Subdrain Installation

Subdrain systems, if required, shall be installed in approved ground to conform the approximate alignment and details shown on the plans or herein. The subdrain locations shall not be changed or modified without the approval of the geotechnical consultant. The geotechnical consultant may recommend and direct changes in the subdrain line, grade or material upon approval by the design civil engineer and the appropriate governmental agencies.

D-7.00 EXCAVATIONS

D-7.01 General

Excavations and cut slopes shall be examined by the geotechnical consultant. If determined necessary by the geotechnical consultant, further excavation or overexcavation and refilling of overexcavated areas shall be performed, and/or remedial grading of cut slopes shall be performed.

D-7.02 Fill-Over-Cut Slopes

Where fill-over-cut slopes are to be graded the cut portion of the slope shall be made and approved by the geotechnical consultant prior to placement of materials for construction of the fill portion of the slope.

D-8.00 TRENCH BACKFILL

D-8.01 General

Trench backfill within street right of ways shall be compacted to 90% relative compaction as determined by the ASTM D1557 test method. Backfill may be jetted as a means of initial compaction; however, mechanical compaction will be required to obtain the required percentage of relative compaction. If trenches are jetted, there must be a suitable delay for drainage of excess water before mechanical compaction is applied.



D-9.00 SEASONAL LIMITS

D-9.01 General

No fill material shall be placed, spread or rolled while it is frozen or thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until field tests by the soils engineer indicate that the moisture content and density of the fill are as previously specified.

D-10.00 SUPERVISION

D-10.01 Prior to Grading

The site shall be observed by the geotechnical consultant upon completion of clearing and grubbing, prior to the preparation of any original ground for preparation of fill.

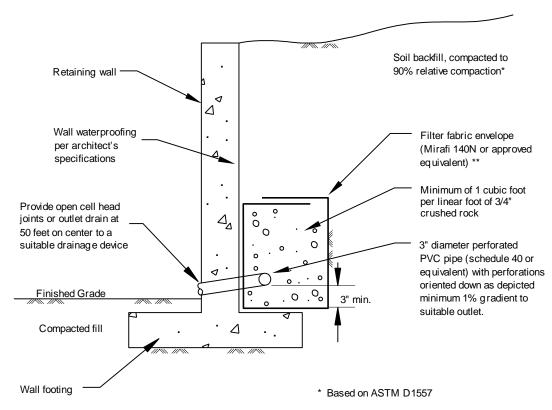
The supervisor of the grading contractor and the field representative of the geotechnical consultant shall have a meeting and discuss the geotechnical aspects of the earthwork prior to commencement of grading.

D-10.02 During Grading

Site preparation of all areas to receive fill shall be tested and approved by the geotechnical consultant prior to the placement of any fill.

The geotechnical consultant or his representative shall observe the fill and compaction operations so that he can provide an opinion regarding the conformance of the work to the recommendations contained in this report.





SPECIFICATIONS FOR CLASS 2 PERMEABLE MATERIAL (CAL TRANS SPECIFICATIONS)

Sieve Size	% Passing		
•	100		
3/4"	90-100		
3/8"	40-100		
No.4	25-40		
No.8	18-33		
No.30	5-15		
No.50	0-7		
No.200	0-3		

** If class 2 permeable material (See gradation to left) is used in place of 3/4" - 1 1/2" gravel. Filter fabric may be deleted. Class 2 permeable material compacted to 90% relative compaction. *

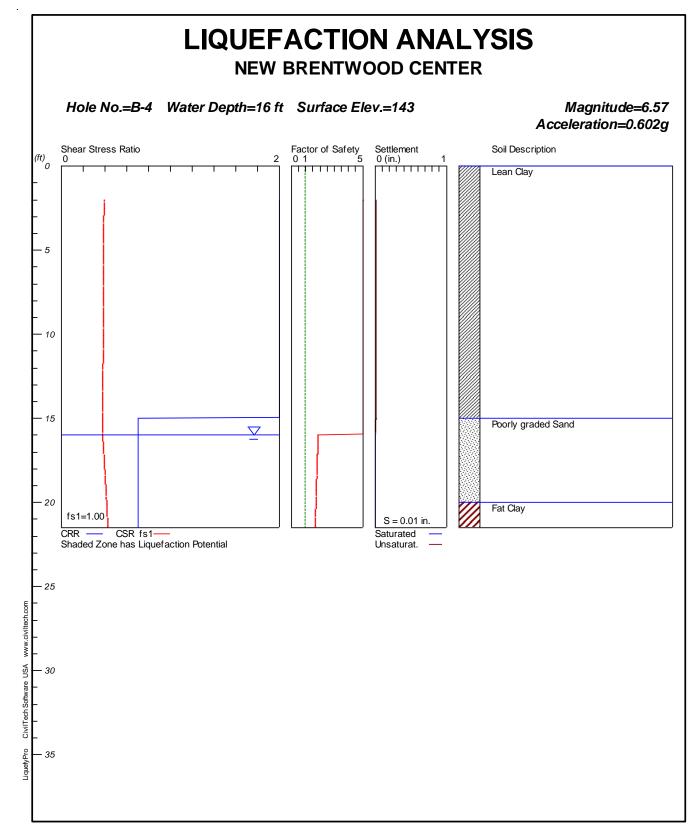
RETAINING WALL DRAINAGE DETAIL



APPENDIX E

SEISMICALLY INDUCED SETTTLMENT CALCULATIONS







LIQUEFACTION ANALYSIS SUMMARY COPYRIGHT BY CIVILTECH SOFTWARE WWW.CIVILTECH.COM

FONT: COURIER NEW, REGULAR, SIZE 8 IS RECOMMENDED FOR THIS REPORT.

LICENSED TO , 6/22/2016 10:10:48 AM

INPUT FILE NAME: C:\USERS\JSUMMERS.RMA\BOX SYNC\RMA WORKING DOCUMENTS_PROJECTS\BRENTWOOD CAMPUS\GEOTECH REPORT\LIQUIFACTION AND SEISMIC INDUCED SETTLEMENT\B-4.LIQ

TITLE: NEW BRENTWOOD CENTER

SUBTITLE:

SURFACE ELEV.=143

HOLE NO.=B-4

DEPTH OF HOLE= 21.50 FT

WATER TABLE DURING EARTHQUAKE= 16.00 FT

WATER TABLE DURING IN-SITU TESTING= 16.00 FT

MAX. ACCELERATION= 0.6 G

EARTHQUAKE MAGNITUDE= 6.57

INPUT DATA:

SURFACE ELEV.=143

HOLE NO.=B-4

DEPTH OF HOLE=21.50 FT

WATER TABLE DURING EARTHQUAKE= 16.00 FT

WATER TABLE DURING IN-SITU TESTING= 16.00 FT

MAX. ACCELERATION=0.6 G

EARTHQUAKE MAGNITUDE=6.57

NO-LIQUEFIABLE SOILS: CL, OL ARE NON-LIQ. SOIL

- 1. SPT OR BPT CALCULATION.
- 2. SETTLEMENT ANALYSIS METHOD: TOKIMATSU, M-CORRECTION
- 3. FINES CORRECTION FOR LIQUEFACTION: IDRISS/SEED
- 4. FINE CORRECTION FOR SETTLEMENT: DURING LIQUEFACTION*
- 5. SETTLEMENT CALCULATION IN: ALL ZONES*
- 6. HAMMER ENERGY RATIO,

CE = 1.25 CB= 1.15

CB=1. CS=1

BOREHOLE DIAMETER,
 SAMPLING METHOD,

9. USER REQUEST FACTOR OF SAFETY (APPLY TO CSR) , USER= 1 PLOT ONE CSR CURVE (FS1=USER)

10. USE CURVE SMOOTHING: YES*

* RECOMMENDED OPTIONS

IN-SITU TEST DATA:

DEPTH FT	SPT	GAMMA PCF	FINES %
2.00	11.00	133.00	NOLIQ
5.00	14.00	133.00	NOLIQ
10.00	21.00	126.00	NOLIQ
15.00	22.00	125.00	0.00
20.00	77.00	120.00	0.00

OUTPUT RESULTS:

SETTLEMENT OF SATURATED SANDS=0.00 IN.

SETTLEMENT OF UNSATURATED SANDS=0.01 IN.

TOTAL SETTLEMENT OF SATURATED AND UNSATURATED SANDS=0.01 IN. DIFFERENTIAL SETTLEMENT=0.003 TO 0.004 IN.

DEPTH FT	CRRM	CSRFS	F.S.	S_SAT. IN.	S_DRY IN.	S_ALL IN.
2.00	2.00	0.39	5.00	0.00	0.01	0.01
3.00	2.00	0.39	5.00	0.00	0.01	0.01
4.00	2.00	0.39	5.00	0.00	0.01	0.01
5.00	2.00	0.39	5.00	0.00	0.01	0.01

June 23, 2016

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6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00	0.39 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38	5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.00 0.00 0.00
17.00	0.70	0.39	1.81	0.00	0.00	0.00
19.00 20.00	0.70	0.41	1.73 1.70	0.00	0.00	0.00
21.00	0.70	0.42	1.66	0.00	0.00	0.00

* F.S.<1, LIQUEFACTION POTENTIAL ZONE (F.S. IS LIMITED TO 5, CRR IS LIMITED TO 2, CSR IS LIMITED TO 2)

UNITS: UNIT: QC, FS, STRESS OR PRESSURE = ATM (1.0581TSF); UNIT WEIGHT = PCF; DEPTH = FT; SETTLEMENT = IN.

	1 ATM (ATMOSPHE	RE) = 1 TSF (TON/FT2)
	CRRM	CYCLIC RESISTANCE RATIO FROM SOILS
	CSRSF	CYCLIC STRESS RATIO INDUCED BY A GIVEN EARTHQUAKE (WITH USER REQUEST FACTOR OF
SAFETY)		
	F.S.	FACTOR OF SAFETY AGAINST LIQUEFACTION, F.S.=CRRM/CSRSF
	S SAT	SETTLEMENT FROM SATURATED SANDS
	S DRY	SETTLEMENT FROM UNSATURATED SANDS
	S ALL	TOTAL SETTLEMENT FROM SATURATED AND UNSATURATED SANDS
	NOLIQ	NO-LIQUEFY SOILS



APPENDIX F

REFERENCES



APPENDIX F

REFERENCES

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New Brentwood Center (L-630) Contra Costa Community College District June 23, 2016 RMA Job No.: 15-095-0





CORPORATE

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6976 Convoy Court | San Diego, CA 92111 858.609.7168 | 858.598.6102

130 Archer Street | San Jose, CA 95112 408.362.4920 | 408.362.4926

16525 Sherman Way, Unit C-4 | Van Nuys, CA 91406 818.392.8778 | 818.988.9873

824 E. Douglas Avenue | Visalia, CA 93292 559.732.3039 | 559.732.8141





Attachment D5: 4CD Project Stabilization Agreement

Request for Qualifications/Proposals

for

4CD Brentwood PV and Resiliency Project

PROJECT STABILIZATION AGREEMENT

for the

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

PREAMBLE

This Project Stabilization Agreement is entered into this day of October, 2012 by and between the Contra Costa Community College District (hereinafter, the "District"), together with contractors and/or subcontractors, who shall become signatory to this Agreement by signing the "Agreement To Be Bound" (Exhibit A) (all of whom are referred to herein as "Contractors/Employers"), and the Contra Costa County Building & Construction Trades Council ("Council") and its affiliated local unions that have executed this Agreement (all of whom are referred to collectively as "Unions").

Recitals

WHEREAS, the purpose of this Agreement is to promote efficiency of construction operations during the construction of District Projects and provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thereby promoting the District's interest and the public's interest in assuring the timely and economical completion of the District's construction Projects; and

WHEREAS, the successful and efficient completion of the District's construction Projects is of the utmost importance to the District and its educational programs and mission; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work, including those to be represented by the Unions affiliated with the Council; and

WHEREAS, it is recognized that District construction Projects require multiple contractors and bargaining units on the job site at the same time over an extended period of time, and that the potential for work disruption is substantial in the absence of a binding commitment to maintain continuity of work; and

WHEREAS, the interests of the general public, the District, the Unions and Contractors/Employers would be best served if the construction work proceeded in an orderly manner without disruption because of strikes, sympathy strikes, work stoppages, picketing, lockouts, slowdowns or other interferences with work; and

WHEREAS, the Contractors/Employers and the Unions desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on District Projects by

the Contractors/Employers and the Unions to the end that a satisfactory, continuous and harmonious relationship will exist among the parties to this Agreement; and

WHEREAS, this Agreement is not intended to replace, interfere, abrogate, diminish or modify existing local or national collective bargaining agreements in effect during the duration of the Program, insofar as a legally binding agreement exists between the Contractor(s)/Employer(s) and the affected Union(s) except to the extent that the provisions of this Agreement are inconsistent with said collective bargaining agreements, in which event, the provisions of this Agreement shall prevail; and

WHEREAS, the contracts for the construction of District Projects will be awarded in accordance with the applicable provisions of the California Public Contract Code; and

WHEREAS, the parties signatory to this Agreement pledge their full good faith and trust to work towards mutually satisfactory completion of all District construction Projects subject to the Agreement.

NOW, THEREFORE, the parties, in consideration of the mutual promises and covenants herein contained, do mutually agree as follows:

ARTICLE 1

DEFINITIONS

- 1.1 "Agreement" means this Project Stabilization Agreement, plus Exhibit A and Exhibit B.
- 1.2. "District" means the Contra Costa Community College District and the administrative staff under its Chancellor.
- 1.3. "Contractor(s)/Employer(s)" means any individual, firm, partnership, corporation or other entity, or any combination thereof, including joint ventures, which is an independent business enterprise and has entered into a contract with the District or any of its contractors or subcontractors of any tier, with respect to construction work on any District Project covered by this Agreement.
- 1.4. "Master Agreement" means the Master Collective Bargaining Agreement of each craft union signatory hereto, copies of which have been made available by the Council to the District and are on file with the Council and which are incorporated herein by reference and designated the "Schedule A(s)," and are listed in Exhibit B.
- 1.5. "Project Manager" or "Construction Manager" means any employee or business entity(ies) designated by the District to oversee District Projects subject to this Agreement.
- 1.6. "Project" means any District construction project that has a total minimum estimated construction cost of two million dollars (\$2,000,000) or more. The District may, at its discretion,

(11/9/2017: See Amendment 1)

designate other project(s) or contract(s) with a total estimated construction cost of less than two million dollars (\$2,000,000) to be covered by this Agreement if the District believes it is in the best interest of the District to do so. Routine maintenance of District properties are not covered by the scope of this Agreement.

1.7. "Union" or "Unions" means the Contra Costa Building and Construction Trades Council, AFL-CIO and its affiliated local unions that have executed this Agreement.

ARTICLE 2

SCOPE OF AGREEMENT AND TERM

- 2.1. This Agreement shall apply to all on-site demolition, construction, alteration, painting or repair of buildings, structures and other works and related activities on any Project covered by this Agreement that is within the craft jurisdiction of one of the Unions and that is directly or indirectly part of the Project, including, without limitation, pipelines (including those in linear corridors built to serve the Project), pumps, pump stations, start-up, site preparation, on-site survey work, soils and material inspection and testing, including x-ray technicians, and all on-site fabrication work provided such work is within the fabrication provision of a local Master Agreement or national agreement of one of the Unions. On-site fabrication work includes work done for the Project in temporary yards or areas near the Project, and at the site of any batch plant constructed solely to supply materials to the Project. This Agreement also covers all off site work, including fabrication, that is traditionally performed by any of the Unions that are directly or indirectly part of the Project, provided such work is covered by a provision of a local Master Agreement or a local addendum to a national agreement of the applicable Union(s) including delivery and off-haul work to the full extent of the law.
- 2.2. This Agreement shall govern the award of all construction contracts on all District Projects covered by this Agreement. The District has the absolute right to combine, consolidate, add, or cancel covered Project(s) or portions of covered Project(s). Once a construction Project is completed, it is no longer covered by this Agreement. For the purposes of this Agreement, a construction Project shall be considered completed upon filing of a Notice of Completion.
- 2.3. All labor disputes involving the application or interpretation of the collective bargaining agreement to which a signatory Contractor/Employer and a signatory Union are parties shall be resolved pursuant to the resolution procedures of the collective bargaining agreement. All disputes relating to the interpretation or application of this Agreement shall be subject to resolution pursuant to the grievance arbitration procedure set forth herein.

2.4. Exclusions:

2.4.1. This Agreement shall be limited to construction work on covered Projects and is not intended to, and shall not, govern any construction work performed at the District at any time prior to the effective date, or after the expiration or termination, of this Agreement.

- 2.4.2. This Agreement is not intended to, and shall not affect or govern the award of public works contracts by the District which are outside the approved scope of the Projects.
- 2.4.3. This Agreement is not intended to, and shall not affect the operation or maintenance of the District.
- 2.4.4. This Agreement shall not apply to a Contractor's/Employer's executives, managerial employees, engineering employees, supervisors (except those covered by existing building and construction trades collective bargaining agreements), and office and clerical employees.
- 2.4.5. This Agreement shall not apply to employees of the District.
- 2.4.6. This Agreement shall not apply to contracts awarded pursuant to any emergency public works project(s).
- 2.4.7 The District shall retain the right at all times to perform and/or subcontract small, incidental portions of related work on the Project site not contracted by the construction contract documents to the signatory Contractor(s) bound to this Agreement.
- 2.4.8. No provisions negotiated in any Master Agreement solely to apply to work covered by this Project Stabilization Agreement shall apply if such provisions are less favorable to the Contractor for work covered by this Project Stabilization Agreement than those provisions uniformly required of contractors for construction work normally covered by those Master Labor Agreements.
- 2.4.9 It is the legal obligation of the District to obtain the most competitive bids while maintaining the conditions of the Agreement. To ensure that a competitive bid is received from a range of general contractors, the Contra Costa Building and Construction Trades Council shall assist the District in soliciting interested parties in bidding on the Project(s). Additionally, the District recognizes that multiple subcontractor quotations of bids ensure the most competitive overall bid. The Contra Costa Building and Construction Trades Council shall assist the District in encouraging and soliciting local and other subcontractors in bidding to interested general contractors. In the event the Project bids over the estimated construction cost of the Project, the District reserves the right to request a list of all subcontractors which bid to the two lowest general contractors to verify that adequate competitive bidding was conducted. Additionally, if the project bids are over the estimated construction cost and fewer than three (3) general contractors bid on the Project(s), the District reserves the right, without reservation, to reject all bids and re-bid the Project.
- 2.4.10 This Agreement shall become effective on the day it is signed by the District, the Contra Costa Building and Construction Trades Council, AFL-CIO, and its affiliated local Unions and shall continue in full force and effect for a period of five (5) years, at which time this Agreement will be reviewed and considered for extension or renewal, with modifications, if appropriate. The terms of this Agreement shall continue to apply to

(11/9/2017: Amendment 1 adds the new paragraph 2.11 for the extension/renewal of the Agreement.)

those Projects subject to this Agreement until construction is completed. The District and the Contra Costa Building and Construction Trades Council may mutually agree in writing to amend, extend or terminate this Agreement at any time. Should either the District or the Contra Costa Building and Construction Trades Council, AFL-CIO, wish to unilaterally terminate this Agreement prior to its expiration, that party must provide written notice to the other party and, if a mutually acceptable resolution cannot be reached, shall submit the request to a neutral arbitrator selected from the following list of arbitrators, through a striking procedure, with a coin toss determining the order of striking, for a final and binding determination whether just cause exists for early termination of the Agreement because it is no longer serving the Purposes, as set forth in the Recitals, herein:

Thomas Angelo William Riker Barry Winograd Jerilou Cossack William Engler

ARTICLE 3

EFFECT OF AGREEMENT

- 3.1. By executing this Agreement, the Unions and the District agree to be bound by each and all of the provisions of the Agreement.
- 3.2. By accepting the award of a construction contract for a Project, whether as contractor or subcontractor, the Contractor/Employer agrees to be bound by each and every provision of the Agreement and agrees that it will evidence its acceptance prior to the commencement of work by executing the Agreement to be Bound in the form attached hereto as Exhibit A.
- 3.3. At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of a Construction Contract, the Contractor/Employer shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor as a part of accepting an award of a construction subcontract to agree in writing to be bound by each and every provision of this Agreement prior to the commencement of work. If a Contractor/Employer requires a subcontractor to agree in writing to comply with the terms of this Agreement as a condition of awarding work to the subcontractor, the Contractor/Employer shall not be liable in any way for the subcontractor's failure to pay the wages and benefits required by this Agreement except as required by the provisions of the California Labor Code.
- 3.4. Except as enumerated in this Agreement, all other terms and conditions of employment described in the Master Agreement of the Union having traditional and customary jurisdiction over the work shall apply. The provisions of this Agreement shall take precedence over conflicting provisions of any applicable Master Agreement, or any other national, area or local collective bargaining agreement, except that all work performed under the NTL Articles of

Agreement, the National Stack/Chimney Agreement and the National Cooling Tower Agreement; all instrument calibration work and loop checking Covered Work shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and work within the craft jurisdiction of the Elevator Constructors will be performed under the terms of the National Agreements of the International Union of Elevator Constructors; provided that Articles 4 and 13 of this Agreement shall apply to all Covered Work. In the absence of a conflict, the provisions of the applicable Master Agreements shall govern.

- 3.5. This Agreement shall only be binding on the signatory parties hereto and shall not apply to the parents, affiliates, subsidiaries or other ventures of any such party.
- 3.6. This Agreement shall not be effective unless and until the District, the Contra Costa Building and Construction Trades Council AFL-CIO and all the Unions listed on the signature page have signed and dated this Agreement.

ARTICLE 4

WORK STOPPAGES. STRIKES, SYMPATHY STRIKES AND LOCKOUTS

- 4.1. The Unions, District and Contractor(s)/Employer(s) agree that for the duration of the Program:
 - 4.1.1. There shall be no strikes, sympathy strikes, work stoppages, picketing, handbilling or otherwise advising the public that a labor dispute exists, or slowdowns of any kind, for any reason, by the Unions or employees employed on a covered Project, at the job site of the Project or at any other facility of the District because of a dispute on a covered Project or with a Contactor/Employer on the Project. It shall not be considered a violation of this provision for a Union to withhold labor (but not picket) from any Contractor/Employer who fails to make its timely payment of Trust Fund contributions or fails to meet its weekly payroll. The affected Union shall give 72-hour written notice to the District prior to withholding labor due to a Contractor's failure to make timely payment of Trust Fund contributions or payroll. Although disputes arising between the Unions and Contractor(s)/Employer(s) on other projects are not governed by this Agreement, a Union may not take any action against Contractor(s)/Employer(s) on District property and/or on a District Project because of a dispute between the Unions and Contractor(s)/Employer(s) on other projects.
 - 4.1.1.1 If the arbitrator determines, in accordance with this Article, a work stoppage has occurred, the respondent Union(s) shall, within eight (8) hours of receipt of the decision, direct all of the employees they represent on the Project to immediately return to work. If the craft(s) involved do not return to work by the beginning of the next regularly scheduled shift following such eight (8) hour period after receipt of the arbitrator's decision, and the respondent Union(s) have not complied with their obligations to immediately instruct, order and use their best efforts to cause a cessation of the violation and return the employees they

represent to work, then the non-complying respondent Union(s) shall each pay a sum as liquidated damages to the District, and each will pay an additional sum per shift, as set forth in 4.1.1.3 below, for each shift thereafter on which the craft(s) have not returned to work.

- 4.1.1.2 If the arbitrator determines in accordance with this Article that a lock-out has occurred, the respondent Contractor(s) shall, within eight (8) hours after receipt of the decision, return all the affected employees to work on the Project, or otherwise correct the violation found by the arbitrator. If the respondent Contractor(s) do not take such action by the beginning of the next regularly scheduled shift following the eight (8) hour period, each non- complying respondent Contractor shall pay or give as liquidated damages, to the affected Union(s) (to be apportioned among the affected employees and the benefit funds to which contributions are made on their behalf, as designated by the arbitrator) and each shall pay an additional sum per shift, as set forth in 4.1.1.3 below, for each shift thereafter in which compliance by the respondent Contractor(s) have not been completed.
- 4.1.1.3 The arbitrator shall retain jurisdiction to determine compliance with this Section and to establish the appropriate sum of liquidated damages, which shall be not less than One Thousand Dollars (\$1,000.00), nor more than Five Thousand Dollars (\$5,000.00) per shift for each non-complying entity.
- 4.1.2. As to employees employed on a covered Project, there shall be no lockout of any kind by a Contactor/Employer subject to the Agreement.
- 4.1.3. If a Master Agreement between a Contractor/Employer and the Union expires before the Contractor/Employer completes the performance of a Construction Contract and the Union or Contractor/Employer gives notice of demands for a new or modified Master Agreement, the Union agrees that it will not strike the Contractor/Employer on said contract for work covered under this Agreement, and the Union and the Contractor/Employer agree that the expired Master Agreement shall continue in full force and effect for work covered under this Agreement until a new or modified Master Agreement is reached between the Union and Contractor/Employer.
- 4.2. When a remedy is sought for an alleged breach of this Article, any party to this Agreement shall institute the following procedure, prior to any other action at law or equity.
 - 4.2.1. A party invoking this procedure shall notify Thomas Angelo, as the permanent arbitrator, or Robert Hirsch, as the alternate, under this procedure. In the event that the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is available, then a selection shall be made from the list of arbitrators in Article 12, Section 12.2. Notice to the arbitrator shall be by the most expeditious means available, with notices by facsimile or telephone to the party alleged to be in violation and to the Contra Costa Building and Construction Trades Council and involved Union if a Union is alleged to be in violation.

- 4.2.2. Upon receipt of said notice, the District will contact the designated arbitrator named above or his alternate who will attempt to convene a hearing within twenty-four (24) hours if it is contended that the violation still exists.
- 4.2.3. The arbitrator shall notify the parties by facsimile or telephone of the place and time for the hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all parties. A failure of any party to attend said hearings shall not delay the hearing of evidence or the issuance of any award by the arbitrator.

Thomas Angelo's postal address, phone number, fax number and e-mail address are:

Thomas Angelo PO Box 1937 Mill Valley CA 94943 Phone: (415) 381-1701 Fax: (415) 380-9792

tangelomv@gmail.com

Robert Hirsch postal address, phone number, and e-mail address are:

Robert Hirsch PO Box 170428 San Francisco, CA 94117 Phone: 415-362-9999

Rmhirsch@gmail.com

- 4.2.4. The sole issue at the hearing shall be whether or not a violation of Article 4, Section 4.1 of the Agreement has occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation or to award damages, which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without a written opinion. If any party desires a written opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with, or enforcement of, the award. The arbitrator may order cessation of the violation of this Article and other appropriate relief and such award shall be served on all parties by hand or registered mail upon issuance.
- 4.2.5. Such award may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the arbitrator's award as issued under Section 4.2.4 of this Article, all parties waive the right

to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order or enforcement. The Court's order or orders enforcing the arbitrator's award shall be served on all parties by hand or delivered by certified mail.

- 4.2.6. Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance are waived by the parties.
- 4.2.7. The fees and expenses of the arbitrator shall be divided equally between the parties to the arbitration.
- 4.2.8. The parties to this Agreement agree that the labor organizations have not waived their legal rights to undertake otherwise lawful activity with regard to any dispute or disputes which they may have regarding non-Project construction work and operations; provided, however, that any such activities by the signatory Unions shall not disrupt or interfere in any way with any work done at any District site. Recognizing the above and, in order to carry out the principles of this Agreement, the parties agree that should a signatory Union have a dispute with regard to non-covered work on or adjacent to any District site, the signatory Union will notify the Contra Costa Building and Construction Trades Council and shall not undertake on or adjacent to the property, any public activity regarding the dispute. Representatives of the involved Union and the Council shall meet with the representatives of the District to discuss and review the valid, legal manner and means by which the signatory Union may undertake its activities with regard to this dispute (giving due consideration in such discussions and review to the traditional concerns for the ongoing operations of the Project and to the importance of the continuity of the work covered by the Master Agreement), and develop a program which allows the signatory Union to exercise its legal rights but at the same time eliminates any possible disruptive effect on the ongoing Project construction work.
- 4.2.9. Should any Union or the District (or its Project Manager/Project Contractors/Employers) become aware of a possible or actual labor dispute involving non-Project construction work or operations and involving non-signatory unions which may result in public activity on or about any District site by such non-signatory unions, the representative of each will jointly meet to discuss such activity and to work together, using their best efforts, to avoid having such activity adversely impact or otherwise delay or interfere with ongoing Project construction work.
- 4.2.10. To the extent any provision in this Article 4 conflicts with the dispute resolution provisions of Public Contract Code section 20104, et seq, this Article 4 shall be null and void.

PRECONSTRUCTION CONFERENCE

5.1. A preconstruction conference shall be held prior to the commencement of each construction Project. Such conference shall be attended by a representative each from the participating Contractor(s)/Employer(s) and Union(s) and the Project Manager.

ARTICLE 6

NO DISCRIMINATION

6.1. The Contractor(s)/Employer(s) and Unions agree not to engage in any form of discrimination on the ground or because of; race, color, creed, national origin, ancestry, age, sex, sexual orientation, disability or Acquired Immune Deficiency Syndrome or AIDS Related Condition (AIDS/ARC), or union status against any employee, or applicant for employment, on the Program.

ARTICLE 7

UNION SECURITY

- 7.1. The Contractor(s)/Employer(s) recognize the Union(s) as the sole bargaining representative of all craft employees working within the scope of this Agreement.
- 7.2. No employee covered by this Agreement is required to join any Union as a condition of being first employed on the Project.
- 7.3. All employees working on the Project shall be governed by the applicable Union security clause of the applicable craft's "Schedule A" Agreement. Employees hired by the Contractor(s)/Employer(s) shall, as a condition of employment, be responsible for the payment of the applicable monthly working dues and any associated fees uniformly required for union membership in the local Union which is signatory to this Agreement. Further, there is nothing in this Agreement that would prevent non-union employees from joining the local Union.
- 7.4. Authorized representatives of the Unions shall have access to the Projects whenever work covered by this Agreement is being, has been, or will be performed on the Projects, provided it is not disruptive to the work on the Projects or the operation of the District.

REFERRAL

- 8.1. Contractor(s)/Employer(s) performing construction work on covered Projects shall, in filling craft job requirements be bound by and utilize the registration facilities and referral systems established or authorized by the signatory Unions when such procedures are not in violation of Federal law. The Contractor(s)/Employer(s) shall have the right to reject any applicant referred by the Union(s), in accordance with the applicable Master Agreement.
- 8.2. The Contractor(s)/Employer(s) shall have the unqualified right to select and hire directly all supervisors above the level of General Foreman it considers necessary and desirable, without such persons being referred by the Union(s). The selection of craft foremen and general foremen shall be entirely the responsibility of the Contractor(s). Foremen and general foremen shall take orders from the designated Contractor(s) representatives.
- 8.3. In the event that referral facilities maintained by the Unions are unable to fill the requisition of a Contractor/Employer for employees within a forty-eight (48) hour period (Saturday, Sundays and holidays excluded) after such requisition is made by the Contractor/Employer, the Contractor/Employer shall be free to obtain work persons from any source.
- 8.4. Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the Contractor(s)/Employer(s). The parties to this Agreement support the development of increased numbers of skilled construction workers from graduates of District schools and residents of Contra Costa County and the surrounding East Bay Area to meet the needs of District Projects and the requirements of the industry generally. Toward that end, the Unions agree to encourage the referral and utilization, to the extent permitted by law and the hiring hall procedures, of qualified graduates of District schools, Contra Costa residents and residents of the East Bay Area as journeymen and apprentices to covered Projects and entrance into such apprenticeship and training programs as may be operated by the Unions.
- 8.5. Recognizing the special needs of District Projects, the Unions shall consider a Contractor(s)/Employer(s) request to transfer key employees to work on a covered Project in a manner consistent with the Union's referral procedures.

ARTICLE 9

BENEFITS

9.1. All Contractor/Employers agree to pay contributions to the vacation, pension and other form of deferred compensation plan, apprenticeship, and health benefit funds established in the applicable Schedule A for each hour worked on the Project in amounts no less than those designated in the Department of Industrial Relations Wage Determination of the applicable craft.

- 9.2. The Contractor(s)/Employer(s) shall not be required to pay contributions to any other trust funds that are not contained in the published prevailing wage determination to satisfy their obligation under this Article except those Contractor(s)/Employer(s) who are signatory to the Master Agreements with the respective trades shall continue to pay all trust fund contributions as outlined in such Master Agreements.
- 9.3. By signing this Agreement, the Contractor(s)/Employer(s) adopt and agree to be bound by the written terms of the legally established Trust Agreements as described in Section 9.1 above specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds.
- 9.4. Wages, Hours, Terms and Conditions of Employment: The wages, hours and other terms and conditions of employment on a Project shall be governed by the Master Agreement of the respective crafts, copies of which shall be on file with the District, to the extent such Master Agreement is not inconsistent with the applicable Department of Industrial Relations Prevailing Wage Determinations which shall establish minimum wages. Where a subject is covered by the Master Agreement and not covered by a Wage Determination or this Agreement, the Master Agreement will prevail. When a subject is covered by both the Master Agreement and this Agreement, to the extent there is any inconsistency, this Agreement will prevail.

LOCAL HIRE

10.1. It is an objective of the parties that not less than 25 percent (25%) of all hours worked by journeyman and apprentices on the Project, on a craft by craft basis, be worked by residents of the area served by the Contra Costa Community College District. The Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the Contractor(s)/Employer(s). The parties to this Agreement support the development of increased numbers of skilled construction workers from the area served by the District. To the extent allowed by law, and consistent with the local Union's hiring hall provisions, and as long as they possess the requisite skills and qualifications, residents of the area served by the District, including journeyman and apprentices, shall be referred for Project work covered by this Agreement.

ARTICLE 11

COMPLIANCE

11.1. It shall be the responsibility of the Contractor(s)/Employer(s) and Unions to investigate and monitor compliance with the provisions of the Agreement contained in Article 9. Nothing in this agreement shall be construed to interfere with or supersede the usual and customary legal remedies available to the Unions and/or employee benefit Trust Funds to collect delinquent Trust Fund contributions from Employers on the Project. The District shall monitor and enforce compliance with the prevailing wage requirements of the State and Contractor'(s)/Employer'(s) compliance with this Agreement if the District operates a labor compliance program ("LCP") on the Covered Project and if that LCP requires the District to monitor and enforce this compliance.

GRIEVANCE ARBITRATION PROCEDURE

- 12.1. The parties understand and agree that questions between or among parties signatory to a Master Agreement arising out of or involving the interpretation of a Master Agreement shall be resolved under the grievance procedure provided in that Master Agreement. The parties further understand and agree that in the event any dispute arises out of the meaning, interpretation or application of the provisions of this Agreement, such dispute shall be settled by means of the procedures set out herein. No grievance filed under this Grievance Arbitration Procedure shall be recognized unless the grieving party (Union on its own behalf, or on behalf of an employee whom it represents, or a Contractor/Employer on its own behalf) provides notice in writing to the signatory party with whom it has a dispute within five (5) days after becoming aware of the dispute but in no event more than thirty (30) days after it reasonably should have become aware of the event giving rise to the dispute. The time limits in this Section 12.1 may be extended by mutual written agreement of the parties.
- 12.2. Grievances shall be settled according to the following procedures:
 - Step 1: Within five (5) business days after the receipt of the written notice of the grievance, the Business Representative of the involved local Union or his/her designee, or the representative of the employee, and the representative of the involved Contractor/Employer shall confer and attempt to resolve the grievance.
 - Step 2: In the event that the representatives are unable to resolve the dispute within the five (5) business days after its referral to Step 1, the International Union Representative and the Contractor involved shall meet within seven (7) working days of the referral of the dispute to this second step to arrive at a satisfactory settlement thereof. Meeting minutes shall be kept by the Contractor. In the event that these representatives are unable to resolve the dispute after its referral to Step 2, either involved party may submit it within three (3) business days to the Grievance Committee, which shall meet within five (5) business days after such referral (or such longer time as is mutually agreed upon by all representatives on the Grievance Committee), to confer in an attempt to resolve the grievance. The Grievance Committee shall be comprised of
 - two (2) representatives of the District; and
 - two (2) representatives of the Contra Costa Building & Construction Trades Council.

If the dispute is not resolved within such time (five (5) business days after its referral or such longer time as mutually agreed upon) it may be referred within five (5) business days by either party to Step 3.

Step 3: Within five (5) business days after referral of a dispute to Step 3, the representatives shall choose a mutually agreed upon arbitrator for final and binding

arbitration. The parties agree that if the permanent arbitrator or his alternate is not available, an arbitrator shall be selected by the alternate striking method from the list of five (5) below:

- 1. Barry Winograd
- 2. Thomas Angelo
- 3. Robert Hirsch
- 4. William Riker
- 5. Joseph Grodin

The decision of the Arbitrator shall be binding on all parties. The Arbitrator shall have no authority to change, amend, add to, or detract from, any of the provisions of the Agreement. The expense of the Arbitrator shall be divided equally between the parties to the arbitration.

The Arbitrator shall arrange for a hearing on the earliest available date from the date of his/her selection. A decision shall be given to the parties within five (5) calendar days after completion of the hearing unless such time is extended by mutual agreement. A written opinion may be requested by a party from the presiding Arbitrator.

The time limits specified in any step of the Grievance Procedure set forth in Section 12.2 may be extended by mutual agreement of the parties initiated by the written request of one party to the other, at the appropriate step of the Grievance Procedure. However, failure to process a grievance, or failure to respond in writing within the time limits provided above, without an agreed upon extension of time, shall be deemed a waiver of such grievance without prejudice, or without precedent to the processing of and/or resolution of like or similar grievances or disputes.

In order to encourage the resolution of disputes and grievances at Steps 1 and 2 of this Grievance Procedure, the parties agree that such settlements shall not be precedent setting.

ARTICLE 13

JURISDICTIONAL DISPUTES

- 13.1. The assignment of Covered Work will be solely the responsibility of the Employer performing the work involved; and such work assignments will be in accordance with the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.
- 13.2. All jurisdictional disputes on this Project between or among the Building and Construction Trades Unions and their employers, parties to this Agreement, shall be settled and

adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted in the future by the Building and Construction Trades Department. Decisions rendered shall be final, binding and conclusive on the Employers and Unions parties to this Agreement.

- 13.2.1. For the convenience of the parties, and in recognition of the expense of travel between Northern California and Washington, DC, at the request of any party to a jurisdictional dispute under this Agreement an Arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of John Kagel, Thomas Angelo, Robert Hirsch, and Thomas Pagan, and the Arbitrator's hearing on the dispute shall be held at the offices of the applicable Building and Construction Trades Council. All other procedures shall be as specified in the Plan.
- 13.3. All jurisdictional disputes shall be resolved without the occurrence of any strike, work stoppage, or slow-down of any nature, and the Employer's assignment shall be adhered to until the dispute is resolved. Individuals violating this Section shall be subject to immediate discharge.
- 13.4. Each Employer will conduct a pre-job conference with the Local Council prior to commencing work. Primary Employer will be advised in advance of all such conferences and may participate if they wish. Pre-job conferences for different Employers may be held together.

ARTICLE 14

APPRENTICES

- 14.1. Recognizing the need to maintain continuing support of programs designed to develop adequate numbers of competent workers in the construction industry, the Contractor(s)/Employer(s) shall employ apprentices of a State-approved Apprenticeship Program in the respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured.
- 14.2. The apprentice ratios will be in compliance with the applicable provisions of the California Labor Code and Prevailing Wage Rate Determination.
- 14.3. There shall be no restrictions on the utilization of apprentices in performing the work of their craft provided they are properly supervised.

ARTICLE 15

HELMETS TO HARDHATS

15.1. The Contractors/Employers and Unions recognize a desire to facilitate the entry into the building and construction trades of veterans and members of the National Guard and Reserves who are interested in careers in the building and construction industry. The

Contractors/Employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center"), a joint Labor-Management Cooperation Trust Fund, established under the authority of Section 6(b) of the Labor-Management Cooperation Act of 1978, 29 U.S.C. Section 175(a), and Section 302(c)(9) of the Labor-Management Relations Act, 29 U.S.C. Section 186(c)(9), and a charitable tax exempt organization under Section 501(c)(3) of the Internal Revenue Code, and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

- 15.2. The Unions and Contactors/Employers agree to coordinate with the Center to create and maintain an integrated database of veterans and members of the National Guard and Reserves interested in working on this Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Contractors/Employers and Unions will give credit to such veterans and members of the National Guard and Reserves for bona fide, provable past experience.
- 15.3. In recognition of the work of the Center and the value it offers to the Project, Contractors/Employers performing work on the Project, on a voluntary basis, may elect to contribute to the Center the amount of one cent (\$0.01) per hour for each hour worked by each individual employee covered by this Agreement. Any such payments shall be forwarded monthly to the Center in a form and manner to be determined by the Center's Trustees.
- 15.4. The Center shall function in accordance with, and as provided in the Agreement and Declaration of Trust creating the fund, and any amendments thereto, and any other of its governing documents. Each Contractor(s)/Employer(s) electing to contribute to the Center approves and consents to the appointment of the Trustees designated pursuant to the Trust Agreement establishing the Center and hereby adopts and agrees to be bound by the terms and provisions of the Trust Agreement.

ARTICLE 16

MANAGEMENT RIGHTS

- 16.1. The Contractor(s)/Employer(s) shall retain full and exclusive authority for the management of their operations, including the right to direct their work force in their sole discretion. No rules, customs or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of employees except that lawful manning provisions in the Master Agreement shall be recognized.
- 16.2. Except as provided in Section 2.1, there shall be no limitation or restriction upon the choice of materials or upon the full use and installation of equipment, machinery, package units, factory pre-cast prefabricated or preassembled materials, tools or other labor saving devices. The on-site installation or application of all items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that installation of specialty items which may be furnished by the owner of the Project or a Contractor shall be performed by

construction persons employed under this Agreement who may be directed by other personnel in a supervisory role, provided, however, in limited circumstances requiring special knowledge of the particular item(s), may be performed by construction persons of the vendor or other companies where necessary to protect a manufacturer's warranty. In such instances all provisions of this Agreement shall apply. The issue of whether it is necessary to use construction persons of the vendor or other companies to protect the manufacturer's warranty shall be subject to the grievance and arbitration clause of this Agreement.

ARTICLE 17

SAVINGS CLAUSE

17.1 The parties agree that in the event any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void as being in contravention of any applicable law, by a court of competent jurisdiction such as the Department of Industrial Relations, the Division of Apprenticeship Standards, and other applicable labor related governmental agencies the remainder of the Agreement shall remain in full force and effect. The parties further agree that if any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void, by a court of competent jurisdiction or other labor related governmental authorities, the parties shall substitute, by mutual agreement, in its place and stead, an article, provision, clause, sentence or word which will meet the objections to its validity and which will be in accordance with the intent and purpose of the article, provision, clause, sentence or word in question.

ARTICLE 18

MISCELLANEOUS PROVISIONS

- 18.1 Counterparts: This Agreement may be executed in counterparts, such that original signatures may appear on separate pages, and when bound together all necessary signatures shall constitute an original. Facsimile signature pages transmitted to other parties to this Agreement shall be deemed equivalent to original signature.
- 18.2 Warranty of Authority: Each of the persons signing this Agreement represents and warrants that such person has been duly authorized to sign this Agreement on behalf of the party indicated, and each of the parties by signing this Agreement warrants and represents that such party is legally authorized and entitled to enter into this Agreement.
- 18.3 Ratification by Governing Board: This Agreement shall not be binding on the District until it is approved by the Contra Costa Community College District Governing Board.
- 18.4 The Agreement shall be included as a condition of the award of all Construction Contracts that are a part of the PSA Program.
- 18.5 The parties shall establish and implement reasonable substance abuse testing procedures and regulations, which may include prehire, reasonable cause, random and post-

accident testing, to the extent permitted and/or required by Federal and State Law. Should the District administrator for the PSA approve an established program to which signatory Unions are currently a party, such program may become the Project-wide substance abuse testing program, after consultation with the Unions. Until there is such a Project-site substance abuse testing procedure negotiated by the District administrator and the Unions for the PSA, such substance abuse testing procedures as are contained in the Schedule A's shall be applicable to work on the Project, pursuant to their terms.

Contra Costa Community College District

Chancellor

Contra Costa Building & Construction Trades

Council AFL-CIØ (Council)

Secretary-Treasurer

Business Manager

Exhibit A Agreement to Be Bound

Project Stabilization Agreement

The undersigned, as a Contractor on the Contra Costa Community College Project Stabilization Agreement "Project", subject to the Project Stabilization Agreement "Agreement", for and in consideration of the award to it of a contract to perform work on said Project, and in further consideration of the promises made in the Agreement and all attachments, a copy of which was received and is acknowledged, hereby:

- 1. Accepts and agrees to be bound by the terms and conditions of the Agreement together with any and all amendments and supplements now existing or which are later made thereto only for the duration and scope of the Contractor's work on the Project.
- 2. The Contractor agrees to be bound by the legally established trust agreements designated in local master collective bargaining agreements. The Contractor authorizes the parties to such local trust agreements to appoint trustees and successor trustee to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor.
- 3. Certifies that it has no commitments or agreements which would preclude its full and complete compliance with the terms and conditions of said Agreement.
- 4. Agrees to secure from any Contractor(s) (as defined in said Agreement) which are or become a subcontractor (of any tier) to it a duly executed Agreement to be Bound in a form identical to this document.

Signature of (Sub)Contractor	Date	
(Authorized Officer & Title)	 Contractor's State License #	

Exhibit B

List of "Schedule A" Agreements:

Collective Bargaining Agreements of each craft signatory to this Project Stabilization Agreement

- 1. Asbestos Workers Local 16
- 2. Boilermakers Local 549
- 3. Bricklayers Local 3
- 4. Northern California Regional Council of Carpenters for and on Behalf of Their Affiliated Crafts
- 5. Sheet Metal Workers Local 104
- 6. Operating Engineers Local 3
- 7. Painters District Council 16
- 8. Sprinkler Fitters Local 483
- 9. United Association Local 342
- 10. Teamsters Local 315
- 11. Hod Carriers Local 166
- 12. Roofers Local 81
- 13. Iron Workers Local 378
- 14. Laborers Local Union 324
- 15. Laborers Local Union 67
- 16. Cement Masons Local 300
- 17. Electrical Workers Local 302
- 18. Plasterers Local 66
- 19. United Association Local 159
- 20. United Association Local 355
- 21. Elevator Constructors Local 8

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Asbestos Workers Local 16	Hod Carriers Local 166
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Bricklayers Local 3	Iron Workers Local 378
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Sheet Metal Workers Local 104	Cement Masons Local 300
Operating Engineers Local 3	Electrical Workers Local 302
Painters District Council 16	Plasterers Local 66
Sprinkler Fitters Local 483	United Association Local 159
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Teamsters Local 315	Elevator Constructors Local 8

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Teamsters Local 315	Elevator Constructors Local 8

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FIRST AMENDMENT TO THE PROJECT STABILIZATION AGREEMENT for the CONTRA COSTA COMMUNITY COLLEGE DISTRICT

Preamble

This is the First Amendment (this "Amendment") to the Project Stabilization Agreement ("Agreement") for the Contra Costa Community College District entered into as of the 22nd day of October, 2012, by and between the Contra Costa Community College District ("District") together with contractors and/or subcontractors who became or will become signatory to the Agreement by signing the Agreement Exhibit A, the "Agreement to be Bound", and the Contra Costa Building & Construction Trades Council ("Council") and its affiliated local unions that have executed the Agreement (all of whom are referred to collectively as "Unions").

Recitals

WHEREAS the District, the Council, and the Unions desire to amend the Agreement to reflect certain agreed upon changes as set forth below, with the understanding that all other terms, conditions and Recitals in the Agreement remain valid and in effect; and

WHEREAS Article 2, Section 2.4.10 of the Agreement provides that the District and the Contra Costa Building and Construction Trades Council may mutually agree in writing to amend and extend this Agreement at any time.

NOW THEREFORE, in consideration of the mutual promises and covenants herein contained, the District and the Contra Costa Building and Construction Trades Council, and its affiliated local unions that become signatory to this Amendment, together with the contractors and/or subcontractors who became or will become signatory to the Agreement, do mutually agree to amend the Agreement as noted below with all other terms and conditions to remain unchanged and in effect.

<u>Amendment</u>

Article 1 Section 1.6 is hereby amended and revised to state as follows:

"Project" means any District construction project that has a total minimum estimated construction cost of one million dollars (\$1,000,000) or more. The District may, at its discretion, designate other project(s) or contract(s) with a total estimated construction cost of less than one million dollars (\$1,000,000) to be covered by this Agreement if the District believes it is in the best interest of the District to do so. Routine maintenance of District properties are not covered by the scope of this Agreement.

Article 2 is hereby amended to include Section 2.4.11 which states as follows:

2.4.11 Pursuant to Section 2.4.10, this Agreement has been reviewed and considered for extension or renewal, and the District and the Contra Costa Building and Construction Trades Council have agreed that the Agreement shall be extended for a term of five (5) years from the original expiration date of the Agreement which is the 22nd day of October 2017. At the close of the extension term, the Agreement shall be reviewed and considered for further extension or renewal, with modifications, if appropriate. Except as amended herein, the Agreement shall continue in full force and effect in accordance with its terms.

Contra Costa Community College District

Chancellor

Contra Costa Building and Construction Trades Council, AFL-CIO

DATE: 10/16/2017

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Bricklayers Local #3	Iron Workers Local #378
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Sheet Metal Workers Local #104	Cement Masons Local #300
Operating Engineers Local #3	Electrical Workers Local #302
District Council #16, Painters and Allied Trades for itself and on behalf of its affiliated local unions	Plasterers Local #66
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Elevator Constructors Local #8	

SECOND AMENDMENT TO THE PROJECT STABILIZATION AGREEMENT for the CONTRA COSTA COMMUNITY COLLEGE DISTRICT

Preamble

This is the Second Amendment to the Project Stabilization Agreement for the Contra Costa Community College District ("Agreement") entered into as of the 22nd day of October, 2012, by and between the Contra Costa Community College District ("District") together with contractors and/or subcontractors who became or will become signatory to the Agreement by signing an "Agreement to be Bound" (referred to collectively as "Contractors/Employers") and the Contra Costa Building and Construction Trades Council ("Council") and its affiliated local unions that have executed the Agreement (referred to collectively as "Unions").

Recitals

WHEREAS, Section 2.4.10 of the Agreement provides that the District and the Council may mutually agree in writing to amend and/or extend the Agreement at any time; and

WHEREAS, the original five-year term of the agreement ended on October 22, 2017; and

WHEREAS, the parties amended the Agreement on October 11, 2017, to add new section 2.4.11, which extended the term of the Agreement for an additional five years and provided for a further extension if mutually agreed; and

WHEREAS, the Agreement will terminate on October 22, 2022, unless extended; and

WHEREAS, the parties desire to extend the term of the Agreement for an additional five years and provide for a further roll-over unless either party opts to terminate the Agreement; and

WHEREAS, the parties desire to modify certain provisions of the Agreement related to the employment of apprentices and Veterans on District projects;

NOW THEREFORE, in consideration of the mutual promises and covenants herein contained, the Contra Costa Community College District and the Contra Costa Building and Construction Trades Council do mutually agree to amend the Agreement as indicated below, with all other terms and conditions to remain unchanged and in effect.

Amendment

Article 2 is hereby amended to include new Section 2.4.12, as follows:

2.4.12 Pursuant to Section 2.4.10 and Section 2.4.11, this Agreement has been reviewed and considered for extension or renewal, and the District and the Council agree that the Agreement shall be extended for an additional term of five (5) years from the expiration date of the First Amendment to the Agreement. Thereafter, approximately ninety (90) days prior to each five (5) year anniversary of this Agreement, the District and the Contra Costa Building and Construction Trades Council shall meet to discuss whether to extend this Agreement and any necessary modifications to it. The District or the Council may terminate this Agreement by providing written notice to the other party prior to the expiration of the term. Absent such written notice to terminate this Agreement by either the District or the Council, this Agreement, with any agreed-upon modifications, will roll over for an additional five (5) years.

Article 10, Section 10.1 is hereby amended and revised to state as follows:

It is an objective of the parties that not less than 25 percent (25%) of all hours worked by journeyman and apprentices on the Project, on a craft by craft basis, be worked by residents of the area served by the Contra Costa Community College District to the extent allowed by law. The Unions will exert their outmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the Contractor(s) /Employer(s). The parties to this Agreement support the development of increased numbers of skilled construction workers that are representative of the diverse communities served by the District in Contra Costa County. To the extent allowed by law, and consistent with the local Union's hiring hall provisions, and as long as they possess the requisite skills and qualifications, residents of the diverse areas served by the District, including journeyman and apprentices, shall be referred for Project work covered by this Agreement.

Article 14, Section 14.1 is hereby amended and revised to state as follows:

Recognizing the need to maintain continuing support of programs designed to develop adequate numbers of competent workers in the construction industry, the Contractor(s)/Employer(s) shall employ apprentices enrolled in a State-approved joint labor-management apprenticeship program in the respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured.

Article 14 is hereby amended to include new Section 14.4 as follows:

Recognizing the need for local apprentice programs as stated in Section 14.1. the Unions agree to collaborate with the District to develop and implement viable new pathways to apprenticeship programs.

Article 15 is hereby amended to include new Section 15.5, as follows:

15.5 In addition, the Unions and Contractors/Employers agree to utilize the District's

implementation of apprenticeships.
This amendment to the Agreement shall become effective on the day it is executed by the District of the Council, and approved by the Contra Costa Community College District Governing Board. Except as stated herein, the Agreement and the prior amendments to the Agreement and the prior amendments to the Agreement and their terms.
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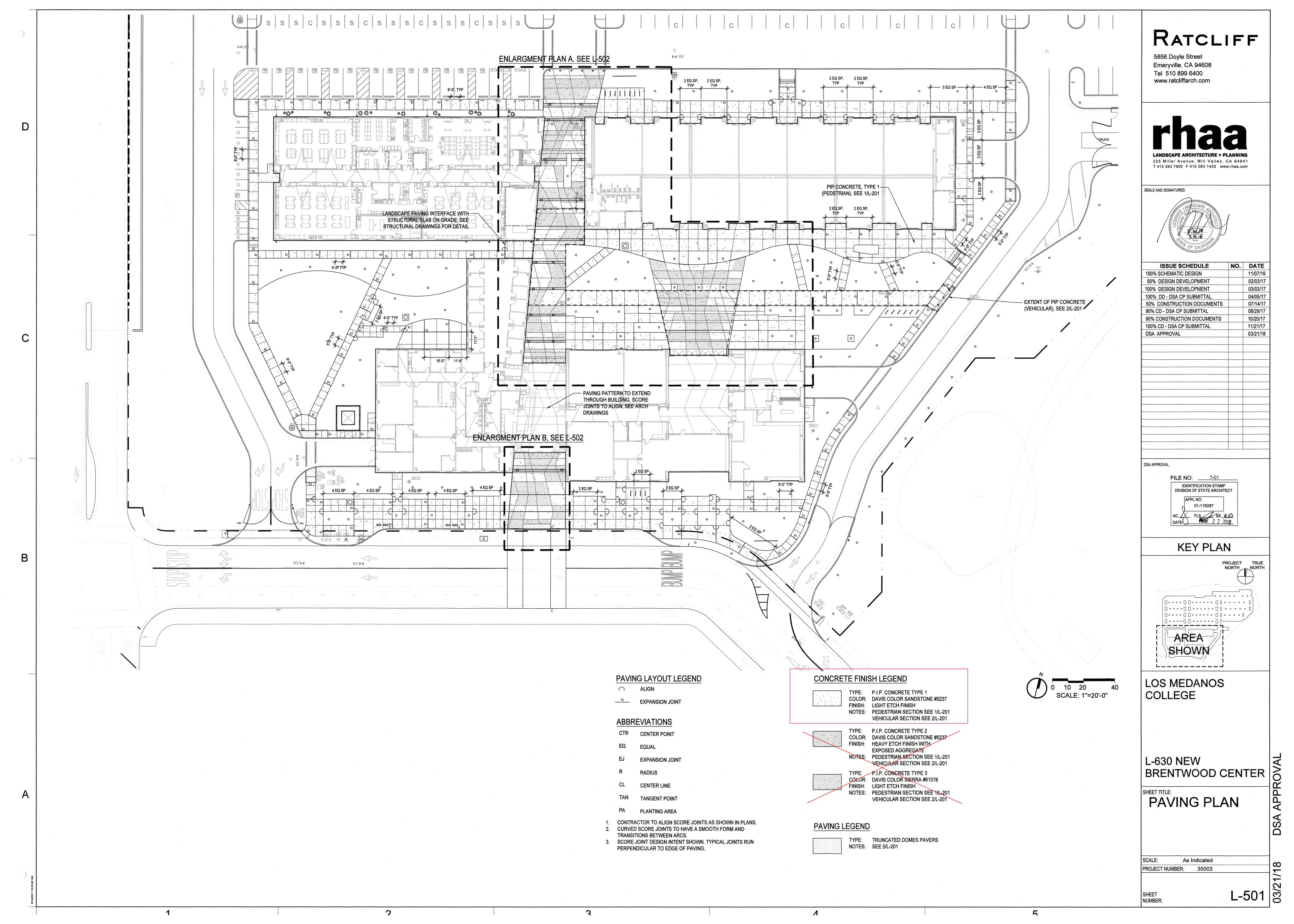
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Bryan Reece, Ph.D. Chancellor	DATE: 8/19/21
Contra Costa Building and Construction Trades Council, AFL-CIO	
BY: Bill Whitney, Chief Executive Officer	DATE: 8/19/2021

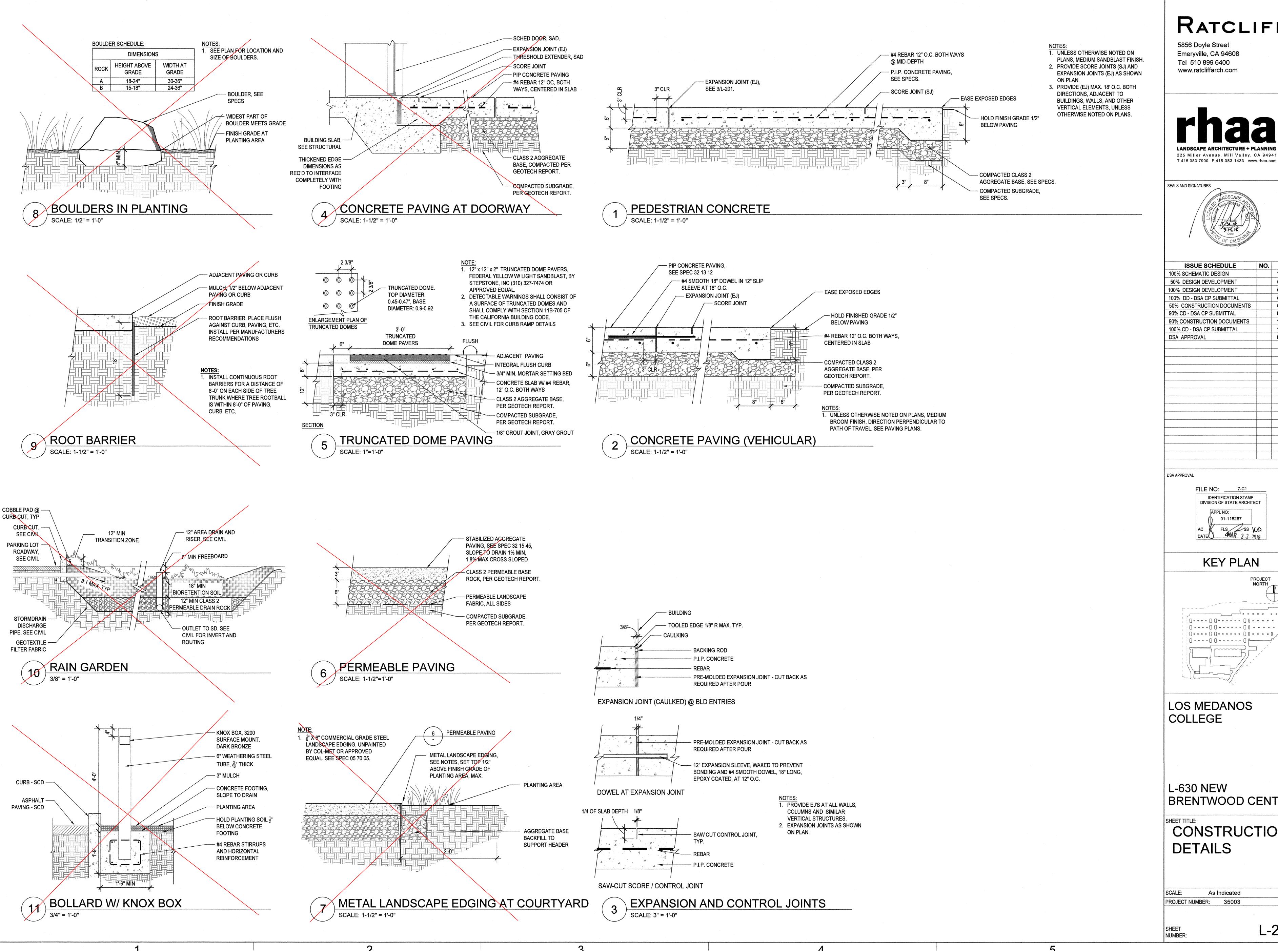
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Attachment D6: Site Concrete Details

Request for Qualifications/Proposals for 4CD Brentwood PV and Resiliency Project

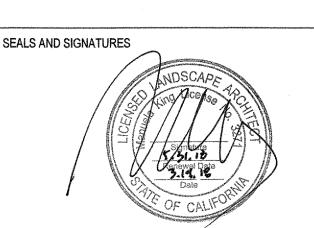




RATCLIFF

5856 Doyle Street Emeryville, CA 94608 Tel 510 899 6400 www.ratcliffarch.com





ISSUE SCHEDULE	NO.	DATE
100% SCHEMATIC DESIGN		11/07/1
50% DESIGN DEVELOPMENT		02/03/1
100% DESIGN DEVELOPMENT		03/03/1
100% DD - DSA CP SUBMITTAL		04/05/1
50% CONSTRUCTION DOCUMENTS		07/14/1
90% CD - DSA CP SUBMITTAL		08/29/1
90% CONSTRUCTION DOCUMENTS		10/20/1
100% CD - DSA CP SUBMITTAL		11/21/1
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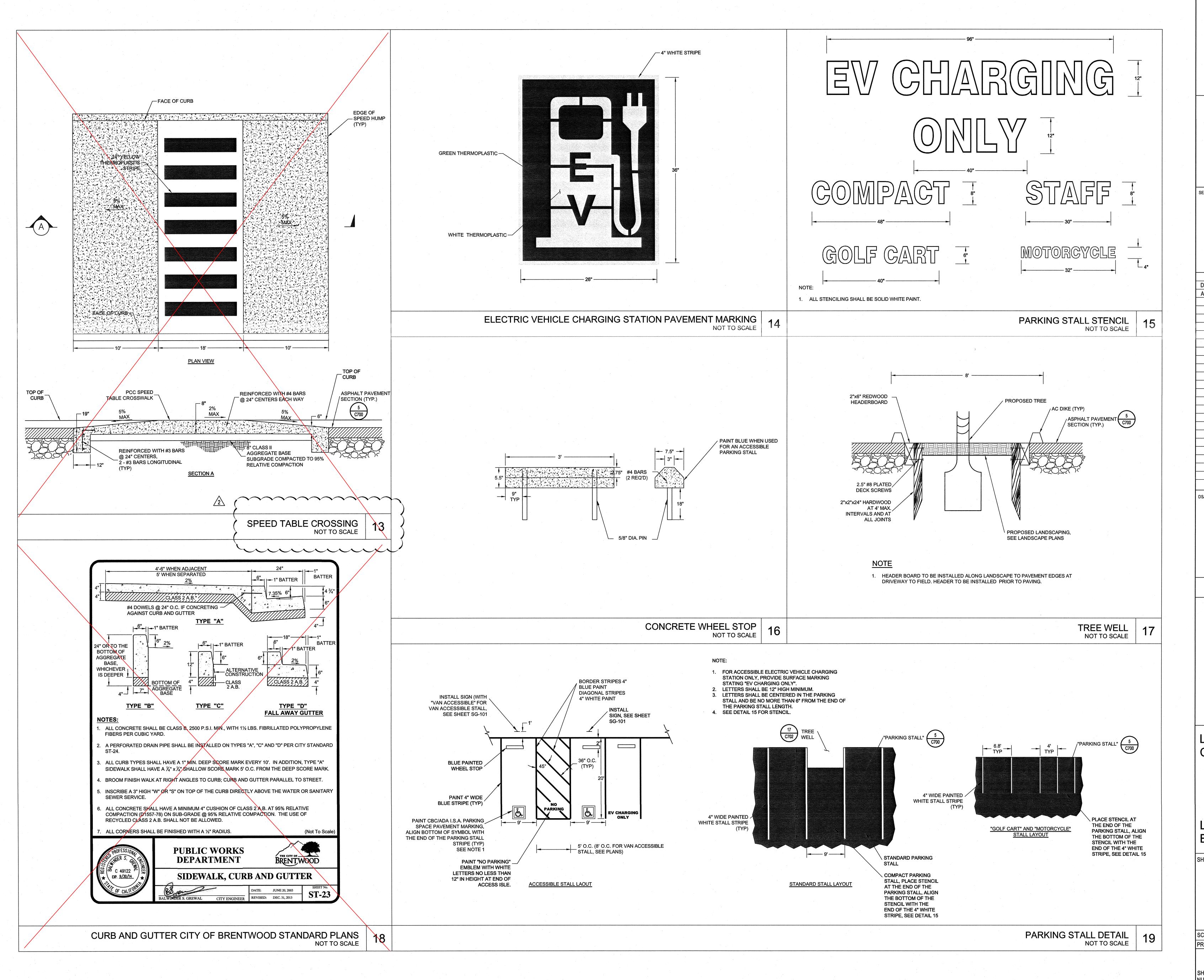
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LOS MEDANOS COLLEGE

L-630 NEW BRENTWOOD CENTER

CONSTRUCTION DETAILS

As Indicated PROJECT NUMBER: 35003



RATCLIFF

5856 Doyle Street Emeryville, CA 94608 Tel 510 899 6400 www.ratcliffarch.com



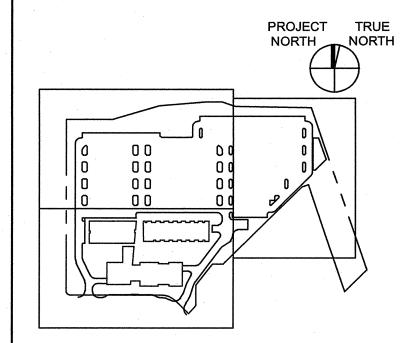
SEALS AND SIGNATURES

ISSUE SCHEDULE	NO.	DATE
DSA APPROVAL		03/21/1
ADDENDUM NO. 2	2	04/26/1

DSA APPROVAL

IDENTIFICATION STAMP DIVISION OF STATE ARCHITECT 01-116287 FLS____ SS___

KEY PLAN



LOS MEDANOS COLLEGE

DIV. OF THE STATE ARCHITECT AC KW FLS AC SS WO APPLNO DI-LILARET DATE 7/2/18

L-630 NEW BRENTWOOD CENTER

SHEET TITLE: CONSTRUCTION **DETAILS**

SCALE. As indicated PROJECT NUMBER: 35003

2

В

Α

4

SHEET NUMBER:

ADDEND

