REQUEST FOR PROPOSAL (RFP) # 2020-019
CONSTRUCTION DSA INSPECTION SERVICES
FOR MENIFEE VALLEY CAMPUS STADIUM

RFP Issued:	**May 15, 2020**
RFP Due:	**June 4, 2020 at 2:00 p.m.**
Submit Response To:	**Tammy Cunningham** **Director of Procurement and General Services** **Purchasing Dept. - Bldg. AA** **1499 N. State Street** **San Jacinto, CA 92583**
Questions or Clarifications:	**All questions must be submitted via e-mail to: Tammy Cunningham Bids@msjc.edu**

MT. SAN JACINTO COMMUNITY COLLEGE DISTRICT
1499 N. State Street, San Jacinto, CA 92583

NOTICE CALLING FOR
REQUEST FOR PROPOSALS (RFP No. 2020-019)
CONSTRUCTION DSA INSPECTION SERVICES FOR MENIFEE VALLEY CAMPUS STADIUM

NOTICE IS HEREBY GIVEN that sealed proposals will be received at **Mt. San Jacinto Community College District, Purchasing Office**, until **June 4, 2020 at 2:00 p.m**. local time, for all work necessary and incidental to:

Construction DSA Inspection Services for MVC Stadium

Only mailed sealed RFP's will be accepted at this time due to the COVID-19 Pandemic.
Sealed Proposals may be delivered in person to the following address during the specified dates and times ONLY:

Mt. San Jacinto Community College District
Attention: RFP No. 2020-019 – Construction DSA Inspection Services for Menifee Valley Campus Stadium
Purchasing Department, Bldg. AA
1499 N. State Street
San Jacinto, CA 92583
RFP drop off date/times: June 3 and June 4, 2020, 8:00 – 2:00 p.m.

Unofficial results will be posted online after the close of receipt of RFP's in the same location as the bid documents.

The receiving time in the Purchasing Department will be governing time for acceptability of proposals. Proposals must bear original signatures and figures. No oral, telegraphic, electronic facsimile, or telephone proposals or modifications will be considered unless specified. It is the responsibility of the firm to see that the proposal submitted shall have sufficient time to be received by the Mt. San Jacinto Community College District, **Purchasing Office, Bldg. AA BEFORE** the proposal Submittal Deadline. Proposals received after the scheduled RFP Submittal Deadline will be returned unopened.

RFP documents are available at the Mt. San Jacinto Community College, Purchasing Office website at http://www.msjc.edu/Purchasing/Pages/--Current-Bids.aspx. Firms are responsible to regularly check the District's website for addendums. Specifications may also be examined and obtained at no charge in the District's Purchasing Office, or by calling (951) 487-3114.

PURPOSE:

The District is requesting quotes from certified DSA Construction Inspectors qualified to provide services in support of the Menifee Valley Campus Stadium project. The District intends to enter into a contract based on competitive hourly rates.
The District generally utilizes the services of outside consultants to help ensure the District that its activities are in compliance will all applicable regulations and industry guideline. Inspection services will include site, plant and material testing.

Tammy Cunningham
Director of Procurement and General Services
Mt. San Jacinto Community College District

Press Enterprise – May 15, 2020 and May 22, 2020

1. REQUEST FOR PROPOSALS

1.1 Purpose

Mt. San Jacinto Community College District (MSJC) is requesting proposals from qualified companies to provide Construction DSA Inspection Services for the Menifee Valley Campus Stadium project. The District is constructing a new 5,000 seat stadium. The project will be procured via Multiple Prime Contracts in conjunction with Balfour Beatty acting as the Construction Manager at Risk. The project will be awarded in three increments.

1.2 Proposal Submission

If your firm is interested in providing full service Construction Inspection Services for the Project, proposals must be delivered to the address below, no later than **2:00 p.m. on Thursday, June 4, 2020.** Late proposals will not be considered. The District is not responsible for late mail or postal delivery errors. Proposers shall submit one electronic version of the proposal on a flash drive (optional); one (1) printed original proposal including any supporting documentation in a sealed box or package addressed as follows:

Attention: Tammy Cunningham
Mt. San Jacinto Community College District
Purchasing Department
Building AA
1499 N. State Street
San Jacinto, CA 92583

1.3 Response Format

Each Consultant is required to submit a Proposal it deems appropriate to this RFP. Submittals should be brief and concise, but provide sufficient clarity to meet the criteria in the evaluation process. Each Consultant shall submit one (1) electronic proposal on a flash drive (optional) and one (1) printed original proposal. The District will evaluate the Proposals based on the responsiveness to District requirements listed in Section 6, Selection Criteria/Evaluation Process.

NOTE for Firms teaming with Sub-Consultants: Each responding firm shall select its proposed sub-consultants based on its own criteria. However, MSJCCD reserves the right to approve sub-consultants proposed for any projects that may be awarded. Sub-Consultants do not need to complete all the Exhibits in this RFP. Carefully read each section to determine which forms the Sub-consultants need to submit.

1.4 Questions

Consultants must carefully read the entire RFP prior to submitting questions as most questions will be answered in this RFP. All questions must be submitted in writing via e-mail to Tammy Cunningham (Bids@msjc.edu). The question deadline for this RFP is **Tuesday, May 26, 2020**. After this deadline, the District will not answer, address, and/or review any questions that interested Consultants might submit. Responses to all questions received prior to the deadline will be provided to all Consultants in an addendum.

1.5 Request for Proposals

Pre-Qualified Consultants are in no way guaranteed to receive any work from the District. Each Proposal shall describe the Consultant's experience and expertise with respect to the services, if any, which are unique to the property or project that is the subject of this RFP. In addition, the Proposal shall set forth a detailed scope of services, a completion schedule, a schedule of professionals that will be used to supervise and staff the project, and a not-to-exceed dollar amount for the services to be performed. The District will allocate work to said Pre-qualified Consultants without having to request and evaluate additional information as to Consultant's qualifications. Consultant shall assign only trained and experienced personnel, support staff, and other Consultants to the requisite tasks. Consultant shall provide cost to perform the tasks outline in the Scope of Services referenced in this RFP.

1.6 Pre-qualification of Bidders

As a condition of bidding for this Project, and in accordance with California Public Contract Code Section 20651.1, prospective bidders are required to submit to the District a completed set of prequalification documents on forms provided by the District. Prequalification documents are available at the Mt. San Jacinto Community College District, Office of Procurement and General Services, Bldg. AA, located at 1499 N. State St., San Jacinto, California 92583 or go to the Mt. San Jacinto Community College Purchasing Office website located at htttp://www.msjc.edu/Purchasing/Pages/UPCCA.aspx to download the UPCCA Pre-Qualification Questionnaire. The prequalification documents must be submitted prior to ten (10) days prior to the Bid Opening. Bids will not be accepted if a Contractor has not been prequalified where qualification is required. Contractors will be notified by telephone or e-mail of their prequalification status within a reasonable period of time after submission of their prequalification documents.

1.7 DIR Registration:

A Construction Inspection firm shall not be qualified to submit a proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in the Labor Code, unless currently registered and qualified to perform public works pursuant to Section 1725.5. It is not a violation of this section for an unregistered inspection firm to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the construction inspection firm is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

This Project is a public works project as defined in Labor Code section 1720. Each contractor bidding on this Project and all subcontractors (of any tier) performing any portion of the Work must comply with the Labor Code sections 1725.5 and 1771.1 and must be properly and currently registered with DIR and qualified to perform public works pursuant to Labor Code section 1725.5 throughout the duration of the Project. For more information and up to date requirements, architects are recommended to periodically review the DI's website at www.dir.ca.gov. Inspection firm shall be solely responsible for ensuring compliance with Labor Code section 1725.5 as well as any requirements implemented by DIR applicable to its services or its subcontractors throughout the term of the Agreement and in no event shall contractor be granted increased payment from the District or any time extensions to complete the Project as a result of contractor's efforts to maintain compliance with the Labor Code or any requirements implemented by DIR. Failure to comply with these requirements shall be deemed a material breach of this Agreement and grounds for termination for cause. The contractor and all subcontractors shall furnish certified payroll records as required pursuant Labor Code section 1776 directly to the Labor Commissioner in accordance with Labor Code section 1771.4 on at least on a monthly basis (or more frequently if required by the District or the Labor Commissioner) and in a format prescribed by the Labor Commissioner. The District reserves the right to withhold contract payments if the District is notified, or determines as the result of its own investigation, that contractor is in violation of any other the requirements set forth in Labor Code section 1720 et. Seq. at no penalty or cost to the District. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/Department of Labor Standards Enforcement (DLSE).

2. PROPOSAL SUBMISSION

2.1 The proposals should include the following:

1. Cover Letter: Briefly describe the qualifications of the company and the proposed personnel for this project and provide a statement that you have reviewed the schedule listed in the RFP and agree to provide the necessary effort or staff allocation to meet the schedule listed in Section 4 of this RFP. (1 page max)
2. Approach to Work: provide (i) a statement of the proposed approach to the project scope of work with a description of the tasks, sub-tasks, deliverables that will be provided, and how the staff intend to coordinate and collaborate with the design team to meet the project schedule, and (ii) a description of the Quality Assurance/Control (QA/QC) plan to be followed during the duration of the work. The OA/QC plan shall address the accuracy, completeness and timeliness of all testing and related reports. (1 page Max)
3. List of the main point of contact for the project team and key personnel. Clearly identify the individual (s) role (s) and responsibilities in the testing program. Include resumes of the proposed personnel with relevant testing experience. (1 page max per individual).
4. Relevant Project List: Provide project experience information of the company describing type, size, location, and any unique features or process of the project that may be relevant to this project. (1 page max).
5. Fee proposal: Lump Sum Fee Proposal clearly listing professional testing services and assumptions. Please also include our hourly billing rates. (include number of pages as needed).

3. Selection Criteria

1. Timeliness and Completeness: To receive consideration, Responses to this RFP must be received by the Response Deadline. In addition, RFP Response will be evaluated with respect to organization, clarity, completeness, and responsiveness to this RFP.
2. Technical Qualifications and Competence: This includes Company and Personnel's experience, expertise, and familiarity with providing Special Testing Services required by the RFP.
3. Approach to Work: This includes your overall approach/methodology and QA/QC plan to meet the project schedule.
4. Fee: Evaluation of proposed fee structure for requested services.

4. PROJECT DESCRIPTION

4.1 Mt. San Jacinto Community College District is in need of Construction Inspection Services for the Menifee Valley Campus Stadium project. The District is constructing a new 5,000 seat Stadium. The project will be procured via Multiple Prime Contracts in conjunction with Balfour Beatty acting as the Construction Manager at Risk. The project will be awarded in three increments.

The selected firm will include the following as part of services:

Each Consultant must be prepared to support multiple construction projects ranging from reconstruction/modernization, retrofit, infrastructure and new construction. Each Consultant must be prepared and equipped to provide such services in a timely manner and on a relatively short notice so as to enable the District to meet critical, and at times unpredictable, time deadlines and schedules.

4.2 SCOPE OF INSPECTOR'S SERVICES-INSPECTOR OF RECORD

The IOR's Scope of services of this RFP is on an as needed basis. The scope may be modified at the sole discretion of the District prior to execution by the selected firms or individuals.

The IOR Inspection services will be on a part time basis for the first two increments of the project.

Increment 1 – part time 5 – 6 months

Increment 2 – part time 5 to 6 months

Increment 3 – full-time – 19 months

All On-Site Inspection Services and Inspection-Related Activities. The INSPECTOR's inspection services shall consist of all on-site inspection services of the PROJECT and all inspection-related activities relating thereto, including, but not limited to, the services set forth under this Article.

Special Inspections

1.) The INSPECTOR shall, if directed by the DISTRICT or the Architect, perform Special Inspections by approved specialty inspectors.

2.) Special Inspections may be performed by the INSPECTOR if INSPECTOR has been specially approved for such purposes. Where other special inspectors are required to comply with DSA or California Building Code requirements, the INSPECTOR shall manage coordination, scheduling and timely reporting of

results to the DISTRICT, the Construction Manager (if applicable), the Architect, and DSA is required.

3.) The DISTRICT may also require Special Inspection for any other shop fabrication procedures that preclude the complete inspection of the work after assembly. The DISTRICT may require Special Inspection at the job site in addition to those listed hereinabove under .1 If deemed necessary because of the special use of the materials or methods of construction.

4.3 Accepted Industry Practices, Compliance With All Laws. The INSPECTOR shall follow accepted industry practices and comply with all federal, state and local laws and ordinances applicable to the work.

4.4 Title 24 California Code of Regulations, District Standards, Division of the State Architect. The INSPECTOR shall ensure that the PROJECT Contractor's ("Contractor") installation of work is constructed to Title 24 California Code of Regulations, the DISTRICT standards and any other requirements of Public Agencies providing jurisdiction. Verifications shall include, but not limited to, welding connections, electrical connections and material utilized in conformance with construction documents. The inspection shall be according to the Division of the State Architect ("DSA") current inspection rules and regulations.

4.4 Continuous Inspection. The INSPECTOR shall perform continuous inspection of the PROJECT during the work of construction in all stages of its progress and digitally document daily activity with pictures and notes. Such inspection shall be conducted based on personal knowledge of the work of construction and shall ensure that the approved plans and specifications are completely executed. Continuous inspection means complete inspection of every part of the work. Work such as concrete or brick work that can be inspected only as it is placed shall require the constant presence of the INSPECTOR. Other types of work that can be completely inspected after the work is installed may be carried on while the INSPECTOR is not present. In no case shall the INSPECTOR have or assume any duties that will prevent the INSPECTOR from providing continuous inspection.

4.5 Inspector's Familiarly with Project Agreements. The INSPECTOR shall become sufficiently acquainted with the PROJECT and the agreements between the DISTRICT and the Architect, Construction Manager (if applicable), and Contractor, to allow for the INSPECTOR's effective and productive interface between the DISTRICT, the Architect, the Construction Manager (if applicable), the Contractor, and governmental inspectors by government inspectors including but not limited to those government inspectors referred to in paragraph 1/9 herein.

4.6 Job Site Meetings. The INSPECTOR shall, as directed by the Architect, the DISTRICT, or the Construction Manager (if applicable), attend meetings held at the PROJECT site or the District Facilities or other location identified to the INSPECTOR by the District. Such meetings shall include but are not limited to billings, meetings, specification reviews, coordination, and progress.

4.7 Inspector's Relationship with Architect. The INSPECTOR shall consult with and work under the general direction of the Architect during the construction and installation phase of the PROJECT. Prior to commencement of work, the INSPECTOR shall cooperate with the Architect to develop an Inspection Plan for the Project. The INSPECTOR shall obtain from the Architect additional details or information when required at the PROJECT for the proper execution of the PROJECT. The INSPECTOR shall assist in the review of Contractor submittals. The INSPECTOR shall review the plans and specifications. All inconsistencies or seeming errors noted by the INSPECTOR in the plans and specifications shall be immediately reported by the INSPECTOR, with written confirmation at the earliest possible time thereafter, to the Architect, with a copy to the District and Construction Manager (if applicable), for the Architect's interpretation and instructions relating thereto. In no case, however, shall the instruction of the Architect be construed by the INSPECTOR to cause work to be done that is not in conformity with approved plans, specifications and change orders. Interpretations received by the INSPECTOR from the Architect that cause deviations from the approved plans, specifications and change orders shall be referred by the INSPECTOR to the architect responsible for preparation of change orders to cover the required work.

4.8 Inspector's Relationship with Contractor. The INSPECTOR shall, through the Contractor's representative, maintain liaison with the Contractor and all subcontractors on the PROJECT. The INSPECTOR shall consider and evaluate suggestions and recommendations that may be submitted by the Contractor to the Architect, and report verbally and confirm in writing the same to the Contractor, the Construction Manager (if applicable), and the Architect, with recommendations to the Construction Manager (if applicable), Architect and the DISTRICT for final decision.

4.9 Governmental Agencies Having Jurisdiction

1. Site Visits by Governmental Inspectors. If any governmental inspectors representing local, state or federal agencies having jurisdiction of the PROJECT should visit the PROJECT site, the INSPECTOR shall accompany such governmental inspectors during their visit through the PROJECT, and record in writing and report to the Construction Manager (if applicable), the Architect and the DISTRICT the results of such governmental inspections.

2. Notifications to Government Agencies and Inspectors. The INSPECTOR shall notify the government agencies and inspectors having authority over the PROJECT when the work is started on the PROJECT; at least forty-eight (48) hours in advance when foundation trenches will be complete, when the work is ready for footing forms; at least forty-eight (48) hours in advance of the first pour of concrete, and when the work is suspended for a period of more than two (2) weeks.

4.10 Inspector's Job Files. The INSPECTOR shall maintain orderly job files at the PROJECT site that include correspondence, reports of Project site conferences, minutes of the job site meetings, shop drawings, and reproductions of the original Construction Contract of the Contractor ("Construction Contract"). Including all addenda, change orders, and supplementary drawings and specifications issued subsequent to the award of the Construction Contract. The INSPECTOR shall keep a file of approved plans and specifications, including all approved addenda and change orders, on the jobsite at all times, and shall immediately return any unapproved documents to the Architect for proper action. The INSPECTOR, as a condition of INSPECTOR's contract, shall have and maintain on the job at all times all codes and documents referred to in the plans and specifications for the PROJECT.

4.11 Inspector's Daily Records. The INSPECTOR shall maintain daily inspector reports and job files that are thorough, complete and orderly and deemed by the INSPECTOR to be accurate and qualitative. Such reports shall record hours on the PROJECT site; weather conditions; construction procedures, where performed and any deviations therefrom; construction equipment and vehicles utilized; manpower assigned by the Contractor and subcontractors; equipment and materials delivered to the site, including INSPECTOR's inspection thereof within forty-eight (48) hours of Contractor's delivery to the job site and INSPECTOR's determination that they meet submittal and specification requirements; daily activities; verbal instructions and clarifications of the work given to the Contractor; decisions that either clarify or deviate from the contract documents; general observations and specific observations in detail as on the case of PROJECT test procedures and results; occurrences or conditions that might affect the construction budget or schedule, any work or material in place that does not correspond with the drawings or specifications, as well as resulting action taken, telephone calls made of a substantial nature, including statements or commitments made during the calls made of substantial nature, including statements or commitments made during the call; and names of all visitors to the PROJECT site, including agency representation and agents of the DISTRICT. Said reports and/or job files shall be made available to the PROJECT Architect ("Architect"), the Construction Manager (if applicable), and the DISTRICT upon request. Failure to

provide these Daily Records shall constitute a material breach of contract and may be cause for termination of this AGREEMENT by the DISTRICT.

4.12 Inspector's Verified and Semi-Monthly Reports

The INSPECTOR shall keep the DISTRICT thoroughly informed as to the progress of the work by submitting reports required by Title 24 as follows:

Copies of verified reports required by Title 24 CCR shall be submitted to the DISTRICT within five (5) work days of the end of the report period and within five (5) days of final acceptance for the final verified report.

Copies of semi-monthly reports required by Title 24 CCR shall be submitted to the DISTRICT within five (5) work days of the end of the report period and within five (5) days of final acceptance for the final verified report.

Copies of semi-monthly reports required by Title 24 CCR shall be submitted to the DISTRICT within two (2) work days of the close of the report period. These reports shall include the following information:

1) A brief description of work in progress by each trade or contractor with an estimate of percentage completed to date.
2) Notation of progress or other project related meetings conducted on site.
3) Notice of official visitors to the site to include the dates of their visit and a brief description of their visit.
4) Notation of all approved submittal, change orders, bulletins, and requests for information or clarification received by the CONTRACTOR from the architect or project engineer.
5) Notation of all correction notices or notices of non-compliance issued to the contractor (include a copy of such notices with the report).
6) Notification of any situation or development that may have an adverse impact on construction activities or delays in material delivery.
7) Notation of the average number of workers and foremen on site each day for the report period.
8) Notice of any delays due to adverse weather conditions including a brief description of the circumstances and any other work that was impeded.
9) Notation of any deviation from the contractor's approved construction schedule.
10) Certification that the construction activities and materials comply with approved project documents unless otherwise specifically noted in the report.

4.13 Inspector's Records of Construction Procedures

1. Maintain all Records. The INSPECTOR shall maintain al the INSPECTOR'S inspection records of the construction procedures on the PROJECT jobsite until the

completion of the work. The INSPECTOR shall maintain a record of phases of construction procedures, if such construction procedures are required.

2. Concrete-Pouring Operations. The INSPECTOR's records shall show the date and time of placing concrete and the date and time of removal of forms in each portion of the structure.

3. Welding Operations. The INSPECTOR's records shall include identification marks of welders, lists of detective welds, manner of correction of defects, and any other relevant information.

4. Piles. The INSPECTOR's records shall, when piles are driven for foundations, include penetration under the last ten (10) blows for each pile.

4.14 Tests: Advise in Advance, Observe and Record. The INSPECTOR shall advise the Architect, the Construction Manager (if applicable), and the DISTRICT in advance, verbally and in writing of the schedules of tests and shall observe the tests at the PROJECT site that are required by the Construction Contract. The INSPECTOR shall record in writing all necessary details relative to the test procedures and results.

4.15 Testing Services for Observation. The INSPECTOR shall observe and record all testing services.

4.16 Certification Documentation. The INSPECTOR shall ensure that all required certification documentation relative to the PROJECT is received in a timely manner by the Construction Manager (if applicable), and the DISTRICT.

4.17 Contractor's Deviations in the Work. Whenever the INSPECTOR observes that the Contractor is performing any portion of the PROJECT in deviation from the approved plans, specifications or change orders or in violation of any local, state or federal codes, or contrary to approved revisions to any of the above, the INSPECTOR shall, if such deviation or violation is not immediately corrected by the Contractor when brought to the attention of the Contractor by the INSPECTOR, immediately direct the Contractor in writing, while simultaneously notifying the Architect, the Construction Manager (if applicable), and the DISTRICT, to cease installation of that nonconforming portion of the PROJECT, pending further decision by the Architect and the DISTRICT, and shall, in all cases, whether or not said deviations or violations are immediately corrected by the Contractor, make a written record of the same. The INSPECTOR shall deliver copies of the writings referred to in this paragraph to the DISTRICT within twenty-four (24) hours of INSPECTOR's origination of the writings.

4.18 Defective Work. If the INSPECTOR determines that any portions of the PROJECT is defective and such defect requires that portion of the work to be rejected, the INSPECTOR shall immediately report said defective work to the Architect, the

Construction Manager (if applicable), and the District. The INSPECTOR's initial report regarding such defective work may be either verbal or in writing, whichever form is deemed more appropriate by the INSPECTOR under the circumstances. However, if such initial report is verbal, the INSPECTOR shall confirm said verbal report in writing within one (1) calendar day.

4.19 Failure to Notify the Architect, the Construction Manager, and the District. INSPECTOR's failure to notify the Architect, the Construction Manager (if applicable), and the DISTRICT of work not in compliance with the plans and specifications shall constitute a material breach of contract and may be cause for termination of this AGREEMENT by the DISTRICT.

4.20 Construction Schedule, Potential Delays in Substantial Completion. The INSPECTOR shall be alert to the construction schedule and to any conditions that may cause delay in substantial completion of the PROJECT. Upon observing such conditions, the INSPECTOR shall report the same immediately and, within one (1) calendar day of observing such conditions, confirm the same in writing to the Architect, the Construction Manager (if applicable), and the DISTRICT.

4.21 Payment Request. The INSPECTOR shall review the Contractor's pay requests prior to the issuance of Architect's and Contractor's certificate of payment to the Construction Manager (if applicable) and the DISTRICT and indicate whether amounts claimed by the Contractor are, in the INSPECTOR's opinion, correct. The INSPECTOR's approval of pay requests shall be shown by signature of the INSPECTOR on the pay request.

4.22 Construction at Existing Facilities. The INSPECTOR shall, where existing facilities are to be maintained in operation during the PROJECT, assist as a liaison between the Construction Manager (if applicable), the DISTRICT and the Contractor in order to prevent materially adverse disruption to the DISTRICT's operations at or near the PROJECT site.

4.23 Occupancy of Facility. The INSPECTOR shall, in the event that the DISTRICT should occupy the PROJECT or any portion thereof prior to substantial completion of the PROJECT by the Contractor, assist in development of a punch list agreement between the DISTRICT, the Construction Manager (if applicable), the Architect and the Contractor as to incomplete items and the general conditions of areas to be occupied by the DISTRICT prior to substantial completion of the PROJECT by the Contractor.

4.24 As-Built Drawings. The INSPECTOR shall review and verify the adequacy and accuracy of required As-Built drawings prepared by the Contractor, as set forth in the Construction Contract, and determine that such As-Built drawings are updated by the Contractor on a monthly basis prior to processing of Contractor's monthly payment request.

4.25 Punch List Items. The INSPECTOR shall, after substantial completion or completion of a portion thereof, check each punch list item to ensure that it is corrected in accordance with the Construction Contract, plans and specifications.

5.0 WORKING CONDITIONS

Each Inspector shall be capable of working indoors and outdoors, in all weather and site conditions including, but not limited to, rain, dirt, mud, and ice. The Inspector's activities may require kneeling, bending, climbing ladders, stepping over trenches, etc.

Project Location: Mt. San Jacinto Community College District
Menifee Valley Campus
28237 La Piedra Road
Menifee, CA 92584

6.0 INSURANCE REQUIREMENTS INSPECTOR OF RECORD

6.1 Compliance with Laws, Workers Compensation Insurance, Hold District Harmless. The INSPECTOR shall comply with the applicable federal, state and local laws, rules, regulations and ordinances, including workers compensation insurance laws. The INSPECTOR understands that, as an independent contractor, INSPECTOR is not covered by any type of DISTRICT insurance, including workers compensation insurance. The INSPECTOR shall provide, through insurance policies or self-insurance, workers compensation insurance coverage for its employees who provide services hereunder. The DISTRICT understands that the INSPECTOR may use independent contractors, volunteers or others not covered by the INSPECTOR's worker's compensation coverage to provide services hereunder. The INSPECTOR shall advise such persons providing services hereunder at the direction of the INSPECTOR that workers compensation insurance is not provided by the District, and the INSPECTOR shall hold the DISTRICT harmless from any and all claims for damages that may be asserted by such persons.

6.2 Self-employment, Responsibility For Medical Insurance and Cost. If the INSPECTOR is a self-employed individual, the INSPECTOR agrees to arrange, in lieu of workers compensation insurance, for insurance for or financial responsibility for any and all medical and related treatment, and to pay the cost of such treatment, including emergency treatment that may be provided that the INSPECTOR did not arrange for

which may be required due to any injuries of any type that may be sustained by the INSPECTOR while performing services under this AGREEMENT. The INSPECTOR shall, prior to commencing services herein, provide the DISTRICT with satisfactory evidence of medical coverage as set forth in Paragraph 1.5, below. Cancellation or lack of medical coverage for the INSPECTOR shall not relieve the INSPECTOR or INSPECTOR's financial responsibility for the cost of medical and related treatment.

6.3 Professional Liability (Errors and Omissions). The INSPECTOR shall carry and maintain during the term of this AGREEMENT a policy of Professional Liability Insurance (Errors and Omissions) with a limit of not less than $500,000 per occurrence. The DISTRICT reserves the right to waive this insurance requirement and if so waived, the INSPECTOR shall hold the DISTRICT harmless from any and all claims for damages.

6.4 Auto Liability. The INSPECTOR shall confirm that all individual inspection staff shall carry and maintain personal Auto Liability for owned, hired and non-owned vehicles, for injury damage and loss, including but not limited to, premises and operations, contractual liability and personal injury that may arise from and in connection with the performance or nonperformance of INSPECTOR's services herein. The INSPECTOR shall hold the DISTRICT harmless from any and all claims for injury, damage, and loss.

6.5 Evidence of Coverage, Cancellation or Material Changes. Not later than ten (10) calendar days after the date of execution of this AGREEMENT and, in any case, prior to commencement of any of the INSPECTOR's services herein, the INSPECTOR shall furnish certificates of insurance evidencing the insurance coverage required above, including endorsements, to the DISTRICT's Department administering the Agreement which certificates shall provide that such insurance shall not be terminated or expire or be materially changed without thirty (30) calendar days written notice to the Department, and INSPECTOR shall maintain such insurance from the time that the INSPECTOR commences performance of services hereunder until INSPECTOR's completion of such services. Within sixty (60) calendar days of the commencement of this Agreement, the INSPECTOR shall furnish certified copies of the policies and all endorsements.

6.6 Additional Named Insureds. All insurance policies, except for Workers Compensation shall contain additional endorsements naming the DISTRICT and its officers, employees, agents and volunteers as additional named insureds with respect to liabilities arising out of the performance of services hereunder.

6.7 Waiver of Subrogation Rights. INSPECTOR shall require the carriers of the coverages required above to waive all rights of subrogation against the DISTRICT, its officers, employees, agents, volunteers, contractors and subcontractors.

6.8 Policies Primary and Non-Contributory. All policies required above shall be primary and non-contributory with any insurance or self-insurance programs carried or administered by the DISTRICT.

6.9 Insurance Review. The above insurance requirements are subject to periodic review by the DISTRICT. The DISTRICT's Risk Manager is authorized, but not required, to reduce or waive any of the above insurance requirements whenever the Risk Manager determines that any of the above insurance is not available, is unreasonably priced, or is not needed to protect the interests of the DISTRICT. In addition, if the Risk Manager determines that heretofore unreasonably priced or unavailable types of insurance coverage or coverage limits become reasonably priced or available, the Risk Manager is authorized, but not required, to change the above insurance requirements to require additional types or insurance coverage or coverage limits, provided that any such change is reasonable in light of past claims against the DISTRICT, inflation, or any other item reasonably related to the DISTRICT's risk. Any such reduction or waiver for the entire term of the Agreement and any change requiring additional types or insurance coverage or higher coverage limits shall be made by amendment to the Agreement. INSPECTOR agrees to execute any such amendment with thirty (30) calendar days of receipt.

7.0 EVALUATION & RECOMMENDATION CRITERIA:

7.1 Evaluation

Proposals will be evaluated by an evaluation panel consisting of individuals selected by the District. At the District's discretion, some, one, or all of the responding firms may be requested to participate in an oral interview. The interview will be used as another opportunity to clarify any issues with a given proposal and explore the approaches that may be used to satisfy all the District's requirements. The District reserves the right to request that some or all of the responding firms consent to being interviewed by selected District personnel and/or representatives and/or to submit additional written information. The District reserves the right to extend the Response Deadline and/or send out additional RFPs.

This RFP and any potential future RFP's associated with this solicitation, does not commit the District to award a contractual agreement to any vendor or to pay any costs incurred in the preparation of RFP Responses. The District reserves the right at its sole discretion to: (i) waive or correct any defect or informality in any response, (ii) withdraw this RFP, (iii) reissue this RFP, (iv) reject any and/or all RFP's, (v) prior to submission deadline for RFPs. Modify all or any portion of the selection procedures including deadlines for accepting responses, services to be provided under RFP, or the requirements for contents or format of the RFPs, (vi) waive irregularities, (vii) procure any services specified in this RFP by any other means, (viii) determine that no projects will be pursued and/or (ix) terminate or change the contracting process articulated in this RFP because of unforeseen circumstances.

The District shall not be responsible in any manner for the cost associated with preparing a response/proposal and/or participating in an interview. The RFP's, including all drawings, plans, photos, and narrative materials, shall become the property of the District upon the District's receipt of same. The District shall have the right to copy, reproduce, publicize and/or dispose of each RFP in any way that the District may choose. The District reserves the right to negotiate the terms and conditions of any agreement for services that may hereafter be let by the District. The proposals will be evaluated by an evaluation panel consisting of individuals selected by the District. Selection of this proposal will not preclude nor guarantee the selected firm consideration for future District projects.

8.0 District Schedule

The schedule currently anticipated by the District is shown in the Preliminary Schedule below. Please note that although the timeframes indicated below represent current expectations, they are approximate and subject to change.

<u>Selection of Design Consultant</u>	
Issue RFP for G/E Services	5/15/2020
RFI Deadline	5/26/20
RFP Responses Due	**6/4/20 @ 2:00 p.m.**
Review/Evaluate	6/5/20
Board of Trustees Approval	6/25/20
Commence Inspection Work	7/6/20
<u>Duration of Design Services (including CA services)</u>	
Planning	TBD
Design	TBD
DSA Review and Approval	TBD
Bid and Award	TBD
Construction	TBD
Closeout	TBD

9.0 GENERAL

9.1 Responsible Charge

All licensed professionals in responsible charge of the work MUST be directly employed by responding Consultant and NOT employed as a sub-consultant.

9.2 District's Agreement

The Consultant, upon selection, will be required to enter into the District's Services Agreement ("Agreement"), provided as Exhibit D –Services Agreement for reference. Consultant shall be familiar with the District's indemnity clause and insurance requirements and must have the ability to secure insurance coverage and provide Certificated Proof of Insurance in conformance with the Agreement.

9.3 Compliance with all Applicable Laws

Consultants response must set forth Consultant's understanding of all applicable Health and Safety laws, guidelines, and requirements including Cal/OSHA Title 8, the EPA (Environmental Protection Agency), the Education Code, the Chancellor's Office, and DSA regulations (including the new Inspection Card requirements and PR 13-01), and local ordinances and/or other applicable zoning or planning ordinances/regulations, relative to the work to be undertaken as well as Consultant's ability to comply with the same and the methodology by which Consultant will do so. The proposal must confirm that the nature of the Work to be completed will meet all the aforementioned requirements for said Work as set by the applicable codes and regulations and all other applicable ordinances and guidelines.

9.4 Working Conditions

Each Consultant shall be capable of working indoors, in all weather and site conditions including, but not limited to, rain, dirt, mud, and ice. The Consultant's activities may require kneeling, bending, climbing ladders, and other similar physical activities.

9.5 Disabled Veteran Business Enterprise Participation Goals

The Mt. San Jacinto Community College District supports a participation goal of at least 3 percent (3%) of overall dollar amount expended each year to Disabled Veteran's Business Enterprises (DVBE). If Consultant is selected to provide services to the District, Consultant will be required to sign and return a Certification form (copy included with previous RFQ document) certifying that they will provide the District with information regarding the use of any DVBE contractors or consultants on the project. Information about DVBE resources can be found on the Executive Branch's website at http://www.dgs.ca.gov/default.htm or by calling the Office of Small Business and DVBE Certification at 916-375-4940. The DVBE documentation will be required if the Consultant is chosen to provided services as a result of an RFP process.

10.0 PROPOSAL STATEMENT

10.1 Firm Information

Provide a cover letter and introduction, including the company name, address, telephone number, and e-mail address of the person (s) authorized to represent the institution regarding all matters related to Consultant's proposal. A person authorized to bind the Firm to all commitments made in Consultant's proposal shall sign this letter.

10.2 Current Workload and Availability

State Consultant's ability to provide the required Inspection services in a timely manner, and indicate if those types of services are offered exclusively. Provide a list of current and anticipated commitments that involve any of the personnel (Project Team) that Consultant intends to assign to this project, and define the anticipated start and completion dates of the involvement of those personnel in such other projects.

10.3 Project Team and Sub-Consultants

Provide identification of Consultant's Project Team (including sub-consultants) and the District's main point of contact utilizing an organization chart. Identify the following key information for each team member: firm name, contact information, discipline, specific expertise, and experience in architectural and/or engineering services, especially as it relates to school sites/facilities and similar project types.

Utilize *Exhibit A – Team Member Resume Form* to provide additional detailed resumes of each team member, all of whom will be part of the designated team, thoroughly knowledgeable, regularly attentive, and fully available to work directly with the District.

Utilize *Exhibit B – Team Member Experience Form* to provide a minimum of five (5) relevant projects completed within the last five (5) years for EACH proposed team member (both for the prime Consultant as well as any sub-consultant). Prime consideration will be given to Consultants who propose team members with experience in community college projects of similar size, type, and difficulty, and which involve the same review and approval processes as those required by the DSA and other agencies having jurisdiction.

Any sub-consultants designated by the Consultant shall be subject to approval by the District in writing prior to performing any work on behalf of the Consultant. The District has the sole discretion to reject any sub-consultants proposed by the Consultant whether designated by Consultant in its RFP or not. Any replacement sub-consultants shall be subject to the District's prior written approval.

The members of the designated team shall not be charged unless agreed upon by the District. The District has the right to request additional sub-consultants in the future if those listed in this RFP are changed. All licensed professionals in responsible charge of the work MUST be directly employed by Consultant and NOT employed as a sub-consultant.

10.4 Billing Rates

Consultant shall propose an all-inclusive fixed fee for all the services described in this RFP. Consultant's proposed fee must include and account for all direct labor costs, fringe benefits, insurance, overhead, profit, and all other expenses the Consultant will incur in providing the required Inspection services.

Utilizing *Exhibit C – Billing Rate Form*, provide billing rates for all personnel and/or categories of employees **(including sub-consultants)** as well as any overhead or other special charges. If applicable, Consultant's RFP Response should include estimates for certain standardized components of the Inspection service process. All rates must include any escalation anticipated by Consultant during the entire duration of the *Service Agreement*. All other services not included herein shall be negotiable as required.

All proposed reimbursable expenses shall be directly related to the services required for the Project and must be supported by proper documentation and prior District authorization. Reimbursement shall not exceed cost plus 5%. Consultant shall review *Exhibit D –Service Agreement* for acceptable reimbursable items.

10.5 Services Agreement

Consultant shall review the District's *Service Agreement*, attached as *Exhibit D*, and shall note in its Proposal any suggested language revisions. Suggested language revisions **not** noted in Consultant's Proposal will **not** be considered by the District.

10.6 Evaluation

Proposals will be evaluated by an evaluation panel consisting of individuals selected by the District. At the District's discretion, some, one, or all of the responding firms may be requested to participate in an oral interview. The interview will be used as another opportunity to clarify any issues with a given proposal and explore the approaches that may be used to satisfy all the District's requirements. The District reserves the right to request that some or all of the responding firms consent to being interviewed by selected District personnel and/or representatives and/or to submit

additional written information. The District reserves the right to extend the Response Deadline and/or send out additional RFPs.

This RFP and any potential future RFP's associated with this solicitation, does not commit the District to award a contractual agreement to any vendor or to pay any costs incurred in the preparation of RFP Responses. The District reserves the right at its sole discretion to: (i) waive or correct any defect or informality in any response, (ii) withdraw this RFP, (iii) reissue this RFP, (iv) reject any and/or all RFP's, (v) prior to submission deadline for RFPs. Modify all or any portion of the selection procedures including deadlines for accepting responses, services to be provided under RFP, or the requirements for contents or format of the RFPs, (vi) waive irregularities, (vii) procure any services specified in this RFP by any other means, (viii) determine that no projects will be pursued and/or (ix) terminate or change the contracting process articulated in this RFP because of unforeseen circumstances.

The District shall not be responsible in any manner for the cost associated with preparing a response/proposal and/or participating in an interview. The RFP's, including all drawings, plans, photos, and narrative materials, shall become the property of the District upon the District's receipt of same. The District shall have the right to copy, reproduce, publicize and/or dispose of each RFP in any way that the District may choose. The District reserves the right to negotiate the terms and conditions of any agreement for services that may hereafter be let by the District.

Exhibit A

Team Member Resume Form

Proposed Consultant Name

Title

Firm Name

Proposed Position

Years w/Firm

Years w/Previous Firm

Years w/Community Colleges

Availability

Education Specific to Position (School/Year/Degree/Subject):

Other Training/Experience w/MSJCCD. DSA, Community College Chancellors Office and other State Agencies (or equivalent)

Credentials/Certifications/Licenses/Registrations/Accreditations (related to position and years acquired): *Note: Do not list and certifications, licenses, etc. that are expired or not from the state of California.*

Skills Relevant to the Proposed Project:

List of Community College Districts Consultant has worked for:

Exhibit B

Team Member Experience Form

Provide a minimum of five (relevant) and similar projects types completed within the last five years.
Use multiple sheets as necessary.

Background

Proposed Team Member Name | Title

Firm Name (at time of Project)

Project Details

Project Name | Client District

Project Lead Name Title | Phone | E-Mail

Address

DSA PROJECT =	DSA CERTIFIED (Yes/No)	Project Scope [1]	School Type [2]	Project Start Date	Project Completion Date

Total Cost	= Change Orders	Cost of Change Orders

Change Order Notes Include description and reason:

Team Member Title and Duties for this Project:

Project Narrative Firms role, responsibilities, challenges, how consultant met Client/District's needs. Describe project and responsibilities in detail, demonstration of how this project experience contributes to thorough knowledge of commissioning requirements of public school buildings in California and demonstration of how this project contributes to familiarity with California building code requirements relating to school sites and buildings

(1) Project Scope – RE – Renovation/Remodel/Repurpose, ADD – Addition/Expansion, New – New Construction, FIX – Repair, PLAN – Planning

(2) School Type ES-Elementary School, MS-Middle School, KS-Kindergarten-8th Grade School, HS-High School, CCD-Community College, HE-Other College, NS-Non-school/Other

Exhibit C

Billing Rate Form

Firm Name

Billing Rates
Do rates include travel charges? ☐ Yes
Note, all fees and rates must be inclusive of travel. Travel is not an acceptable reimbursable expense.

Job Title	Personnel Name	Hourly Rate

Consultant's proposed ALL INCLUSIVE NOT-TO EXCEED FEE: $_____

Estimate of Reimbursable Expenses in the fee stated above: $_____

Authorized Signature

INSPECTOR SERVICES AGREEMENT

This AGREEMENT is made and entered into this ___ day of _____, 20___, by and between the _____ COMMUNITY COLLEGE DISTRICT ("DISTRICT"), and _____ ("INSPECTOR"). The DISTRICT and the INSPECTOR are sometimes referred to herein singularly as a "PARTY" and collectively as the "PARTIES". The INSPECTOR and the DISTRICT do hereby contract and agree as follows:

(A) The INSPECTOR shall at all times be qualified and approved by the Division of the State Architect ("DSA"), Department of General Services, State of California, and shall at all times maintain proper qualifications, to perform the duties of and act as General Building Inspector on school building construction projects and modification of the type for which he/she agrees to perform inspection services. The INSPECTOR shall be properly registered with the Department of Industrial Relations and qualified to perform public works in accordance with Labor Code sections 1725.5 and 1771.1 at all times during the term of this AGREEMENT.

(B) Services to be Provided by the INSPECTOR. The INSPECTOR shall provide to the DISTRICT on the terms set forth herein all the services articulated in Section (C) of this AGREEMENT and as set forth in the INSPECTOR's Proposal which shall be attached hereto and incorporated herein as EXHIBIT "A" (the "INSPECTOR's PROPOSAL"). The PARTIES agree that the terms of this AGREEMENT shall be controlling over any of the terms contained within the INSPECTOR's PROPOSAL.

(C) The INSPECTOR agrees to discharge the duties of an inspector as specified in California Education Code Sections 81141 and 81143 and Sections 4-333 and 4-342 of Title 24 of the California Code of Regulations. These duties include, but are not limited to, the following:

(1) **General**. The INSPECTOR shall act under the direction of the architect and registered engineer. The Inspector shall attend all planning, pre-construction conferences, project meetings, and/or meetings as required by the DISTRICT.

(2) **Duties**. The general duties of the INSPECTOR in fulfilling his/her responsibilities are as follows:

(a) Continuous Inspection Requirement. The INSPECTOR must have actual personal knowledge, which is obtained by his or her personal and continuous inspection of the work of construction in all stages of its progress, as set forth in California Education Code Section 81141, that the requirements of the approved plans and specifications are being completely executed.

Continuous inspection means complete inspection of every part of the work. Work, such as concrete work or brick work which can be inspected only as it is placed, shall require the constant presence of the INSPECTOR. Other types of work which can be completely inspected after the work is installed may be carried on while the INSPECTOR is not present. In any case, the INSPECTOR must personally inspect every part of the work. In no case shall the INSPECTOR have or assume any duties which will prevent him/her from providing continuous inspection.

(b) Relations with Architect and Engineer. The INSPECTOR shall work under the general direction of the architect or registered engineer. All inconsistencies or seeming errors in

the plans and specifications shall be reported promptly to the architect or registered engineer for his interpretation and instructions. In no case, however, shall the instruction of the architect or registered engineer be construed to cause work to be done which is not in conformity with approved plans, specifications, and change orders. Interpretations received by the INSPECTOR which cause deviations from the approved drawings and specifications shall be referred to the responsible architect for preparation of change orders to cover the required work.

(c) Job File.

(i) The INSPECTOR shall keep a Job File on the PROJECT jobsite at all times in an organized manner (along with a back-up of the files on some other media such as a hard drive or back-up electronic file service). The INSPECTOR's Job File shall be readily accessible to the DSA, the DISTRICT, Project Architect/Engineer upon site visits and upon request. The INSPECTOR's Job File shall include all documents required to be maintained on a school construction site in accordance with Title 24 including, but not limited to, the following:

(A) Form DSA 152 – Project Inspection Card(s)
(B) DSA approved plans and specifications;
(C) DSA approved Form DSA 103 – Statement of Structural Tests and Special Inspections
(D) Deferred submittals as required by the DSA approved plans;
(E) DSA approved addenda and revisions;
(F) DSA approved Construction Change Documents;
(G) Contractor submittals (construction schedule, shop drawings, material certificates, products labels, concrete trip tickets, etc.) as required by the DSA approved Construction Documents;
(H) Communication log; all communications and project related meeting minutes/notes;
(I) Deviation Notices (Form DSA 154), as delivered to the DSA, Project Architect/Engineer and Contractor with log listing all notices with resolution status;
(J) Notices of Deviations/Resolution of Deviations (Form DSA 154);
(K) Inspector Daily Reports;
(L) Laboratory tests and inspection reports (Form DSA 291);
(M) Special inspection reports (Form DSA 292);
(N) Geotechnical reports (Form DSA 293);
(O) Records of concrete placing operations;
(P) Records of welding operations;
(Q) Records of pile driving operations;
(R) Verified reports from all parties required to file verified reports;
(S) Completed semi-monthly reports;
(T) DSA Field Trip Notes;
(U) Project Inspector Notifications (Form DSA 151;
(V) Contractor Notification to Project Inspector Commencement/Completion of Work (Form DSA 156);
(W) Certificate of Compliance – Approved Bleacher/Grandstand Fabricator (Form DSA 130);
(X) Applicable codes and referenced standards;
(Y) Any other documents required to provide a complete record of

construction.

The INSPECTOR shall notify the DISTRICT immediately when the Architect, Engineer, Contractor, Laboratory of Record, Special Inspector, or any other party involved in the construction of the PROJECT, has failed to timely prepare and submit any of the above documents to the DSA and/or the INSPECTOR as required by Title 24 and PR 13-01. Any references to the DSA requirements, DSA forms, documents, manuals applicable to the PROJECT shall be deemed to include and incorporate any revisions or updates thereto.

(ii) The INSPECTOR shall provide the DISTRICT with a copy of the entire Job File with the exception of the building codes and standards at the completion of the PROJECT.

(iii) Notwithstanding any other requirements in this AGREEMENT or Title 24, the INSPECTOR shall ensure that copies of the following documents are submitted to the DSA from the INSPECTOR's Job File which shall hereinafter be collectively referred to as the "DSA Document Submittal":

(A) All completed Form DSA 152 documents required for the completion of the PROJECT;
(B) All completed Form DSA 6PI documents including interim and final verified reports;
(C) All completed Form DSA 6AE documents including interim and final verified reports;
(D) The completed Form DSA 6C documents from each contractor having a contract with the SCHOOL;
(E) All completed Form DSA 292 documents including interim and final reports prepared by the Special Inspectors;
(F) All completed Form DSA 291 documents including interim and final reports prepared by the Engineering Manager of the Laboratory of Record;
(G) All completed Form DSA 293 documents including interim and final reports prepared by the Geotechnical Engineer;
(H) The completed Form DSA 130 Certificate of Compliance for Bleachers and Grandstand Fabricator as applicable.

(iv) The documents making up the DSA Document Submittal shall be submitted to the DSA upon any of the following events:

(A) The services of the INSPECTOR are terminated for any reason prior to the completion of the PROJECT;
(B) The PROJECT is substantially complete in accordance with DSA requirements;
(C) The work on the PROJECT is suspended for a period of more than one (1) year; or
(D) Upon the request of the DSA.

(v) The INSPECTOR shall immediately return any unapproved documents to the Architect for proper action and notify the DSA if the Contractor proceeds with construction activities in accordance with such unapproved documents.

(vi) All documents required to be submitted to the DSA by the INSPECTOR in accordance with Title 24, PR 13-01 and this AGREEMENT shall also be submitted

electronically in accordance with the DSA's approved procedures for the submittal of such documents.

(d) Project Inspection Cards.

(i) The INSPECTOR shall obtain the Project Inspection Cards ("PIC") (Form DSA 152) necessary for the inspection of the PROJECT from the Project Architect/Engineer for the INSPECTOR's use in approving and signing off work as it is completed on the PROJECT. The Inspector shall notify the DSA Regional Office with the construction oversight authority over the PROJECT, by phone and electronically, if construction commences without the INSPECTOR having received the PIC's necessary for the inspection and completion of the PROJECT.

(ii) The INSPECTOR shall complete each PIC as the work progresses pursuant to Title 24, the DSA 152 Manual, PR 13-01 and this AGREEMENT. The INSPECTOR shall not approve and sign off a block or section on a PIC unless the INSPECTOR has verified that: (1) the identified work is in compliance with the DSA approved Construction Documents; (2) all required testing and special inspections have been completed; (3) any and all deviations from the DSA approved Construction Documents have been resolved; (4) all DSA field trip note issues have been resolved; and (5) all required documentation has been received by the INSPECTOR.

(iii) The INSPECTOR shall post all PIC's in the INSPECTOR's Project File and shall electronically post the PIC's with the DSA as work is being completed on the PROJECT. Electronic posting of the PIC's shall be performed by emailing the PIC's to the DSA Regional Office with the construction oversight authority over the PROJECT. The INSPECTOR shall consistently update the PIC's as work on the PROJECT is being completed. Each time the INSPECTOR updates the PIC's in the INSPECTOR's Project File, the INSPECTOR shall simultaneously update the corresponding PIC posted electronically with the DSA to ensure the PIC's in the INSPECTOR's Project File are current and consistent with the PIC's that are posted electronically with the DSA. The INSPECTOR shall allow any party involved in the construction of the PROJECT to review any PIC at the INSPECTOR's office upon request. The INSPECTOR shall provide a current copy of any PIC to the DSA, the DISTRICT, Project Architect/Engineer or any other state agency upon request.

(iv) The INSPECTOR shall collect copies of the Interim Verified Reports prepared by the Project Architect/Engineer (Form DSA 6-AE) prior to the INSPECTOR's approval and sign off of the following sections of the PIC's as applicable:

(A) Initial Site Work;
(B) Foundation;
(C) Vertical Framing;
(D) Horizontal Framing;
(E) Appurtenances;
(F) Non-Building Site Structures;
(G) Finish Site Work;
(H) Other Work; or
(I) Final.

If the Project Architect/Engineer has delegated responsibility for any portion of the PROJECT's design to other engineers, the INSPECTOR shall likewise obtain copies of the Interim Verified Reports prepared by such engineers (Form DSA 6-AE) prior to the INSPECTOR's approval and sign off of the above sections of the PIC's as they relate to the portions of the PROJECT that were delegated to the other engineers. In the case of a Geotechnical engineer, the INSPECTOR shall collect a copy of the Interim Verified Report (Form DSA 293) prepared by such Geotechnical engineer as applicable before the INSPECTOR can approve and sign off any of the above sections that relate to the portions of the PROJECT that were delegated to the Geotechnical engineer.

(v) The INSPECTOR shall collect a copy of the necessary Interim Verified Reports (Form DSA 291) prepared by the Laboratory of Record prior to the INSPECTOR approving and signing off any sections of the PIC's which require testing or special inspections by the employees of the Laboratory of Record as required by the DSA approved Construction Documents including, but not limited to, the following sections:

(A) Initial Site Work;
(B) Foundation;
(C) Vertical Framing;
(D) Horizontal Framing;
(E) Appurtenances;
(F) Non-Building Site Structures;
(G) Finish Site Work;
(H) Other Work; or
(I) Final.

(vi) The INSPECTOR shall collect a copy of the necessary Interim Verified Reports (Form DSA 292) prepared by any Special Inspector not employed by the Laboratory of Record prior to the INSPECTOR approving and signing off any sections of the PIC's which require special inspections by such Special Inspectors as required by the DSA approved Construction Documents including, but not limited to, the following sections:

(A) Initial Site Work;
(B) Foundation;
(C) Vertical Framing;
(D) Horizontal Framing;
(E) Appurtenances;
(F) Non-Building Site Structures;
(G) Finish Site Work;
(H) Other Work; or
(I) Final.

(vii) The INSPECTOR shall obtain the original PIC's for the in-plant construction of any relocatable building being placed on the PROJECT site as part of the PROJECT at the time such relocatable building is delivered to the PROJECT site. The INSPECTOR shall post such PIC's in the INSPECTOR's Project File and with the DSA. The INSPECTOR shall also provide the DISTRICT and the Project Architect/Engineer with copies of the PIC's from the in-plant construction of the relocatable buildings that were prepared by the in-plant project inspector.

(viii) The INSPECTOR shall immediately notify the DSA Regional Office with construction oversight authority over the PROJECT, by phone and electronically, if applicable blocks/sections of any PIC have not been signed off by the INSPECTOR and the Contractor on the PROJECT is proceeding with construction activities that are covering the unapproved work.

(e) Testing and Special Inspections.

(i) The INSPECTOR shall obtain a copy of the DSA approved Statement of Structural Tests and Special Inspections (Form DSA 103) from the Project Architect/Engineer prior to the commencement of construction and maintain a copy of the approved DSA 103 form in the INSPECTOR's Project File for the duration of the PROJECT. The INSPECTOR shall thoroughly review and evaluate the approved Form DSA 103 for the PROJECT and be familiar with the required testing and special inspections program required by the DSA approved Construction Documents.

(ii) The INSPECTOR shall met with the Project Architect/Engineer, DISTRICT and Contractor as needed throughout the completion of the PROJECT to verify, acknowledge and coordinate the testing and special inspection program required by the DSA approved Construction Documents.

(iii) The INSPECTOR shall meet with the Laboratory of Record and all Special Inspectors that are not employed by the Laboratory of Record to verify, acknowledge and coordinate the testing and special inspection program required by the DSA approved Construction Documents. The INSPECTOR shall ensure that the Laboratory of Record and all Special Inspectors obtain copies of the DSA approved Construction Documents and a copy of the approved Statement of Structural Tests and Special Inspections (Form DSA 103) prior to the commencement of construction on the PROJECT.

(iv) The INSPECTOR shall verify that each laboratory providing materials/structural testing is approved by the DSA to provide the services being performed by such laboratory in connection with the completion of the PROJECT. The INSPECTOR shall verify that all Special Inspectors employed by the Laboratory of Record are performing under the supervision of the Engineering Manager of the Laboratory of Record. The INSPECTOR shall verify the current certification of all Special Inspectors working on the PROJECT who are not employed by the Laboratory of Record prior to the commencement of any construction work that requires special inspection as required by the DSA approved Construction Documents.

(v) INSPECTOR shall monitor the work of the Laboratory of Record and all Special Inspectors who are not employed by the Laboratory of Record to ensure that all testing and special inspections required for the completion of the PROJECT are performed timely and satisfactorily. The INSPECTOR shall verify that all necessary tests and special inspections are completed and that all necessary reports are collected by the INSPECTOR and posted in the INSPECTOR's Project File and posted electronically with the DSA prior to the start of the construction work requiring such test and/or special inspections and prior to the INSPECTOR signing off or otherwise approving any block/section of a PIC that requires testing and/or special inspection according to the DSA approved Construction Documents.

(vi) Copies of all daily inspection reports, special daily inspection reports, Interim Verified Reports, Verified Reports and any other reports related to the testing and special

inspections performed on the PROJECT, pursuant to the DSA approved Construction Documents, shall be maintained and posted in the INSPECTOR's Project File throughout the duration of the PROJECT. All testing and special inspection related reports obtained by the INSPECTOR pursuant to this Section (C)(2)(e) shall also be posted electronically with the DSA.

(f) Inspector's Semimonthly Reports. The INSPECTOR shall keep the architect or registered engineer thoroughly informed as to the progress of the work by making semimonthly reports in writing as required in Section 4-342 of Title 24 of the California Code of Regulations. See also sample of semimonthly report in Appendix of Title 24 of the California Code of Regulations.

(g) Inspector's Daily Report to District. The INSPECTOR shall keep the DISTRICT thoroughly informed as to the progress of the work by submitting daily reports in writing to the DISTRICT. Such reports shall include, but not be limited to, the following information:

(i) Activities performed by the Contractors, and areas where work is performed with relation to the plans and specifications.

(ii) Manpower assigned to the Contractor and subcontractor(s), including the number of individuals in each trade and the type of work being performed.

(iii) Weather conditions.

(iv) Equipment and materials delivered to the site.

(v) Construction equipment and vehicles utilized and duration on PROJECT.

(vi) Nature and location of the work being performed (starting and completion dates for various portions of the work).

(vii) Verbal communication and clarifications of the work given to the Contractor awarded the PROJECT.

(viii) Inspection by representatives of regulatory agencies.

(ix) Occurrences or conditions that might affect Contract Sum or Contract Time.

(x) Visitors to the site, titles, and employers of visitors, and reasons for visit.

(xi) INSPECTOR's record journal to include "Pertinent Calls" relating to conflicting issues regarding changes to documents, i.e., plans, specifications, change orders and job conditions affecting the interests of the DISTRICT.

(xii) Any work or material in place that does not correspond with the codes, drawings or specifications, as well as resulting action taken. List any other problems or abnormal occurrences that arise during each day, including notations of any particular lack of activity on the part of the Contractor. Note corrective actions taken.

(xiii) Times of day INSPECTOR was present on site.

(h) Notifications to Division of the State Architect. The INSPECTOR shall notify the Division of the State Architect:

(i) When work is started on the PROJECT.

(ii) At least 48 hours in advance of the time when foundation trenches will be complete, ready for footing forms.

(iii) At least 48 hours in advance of the first pour of concrete.

(iv) When work is suspended for a period of more than two weeks.

(i) Construction Procedure Records. The INSPECTOR shall keep a record of certain phases of construction procedure including, but not limited to, the following:

(i) Concrete pouring operations. The record shall show the time and date of placing concrete and the time and date of removal of forms in each portion of the structure.

(ii) Welding operations. The record shall include identification marks of welders, lists of defective welds, manner of correction of defects, etc.

(iii) Penetration under the last ten (10) blows for each pile when piles are driven for foundations.

All records of construction procedure shall be kept on the job until the completion of the work. All records kept by the INSPECTOR arising out of or in any way connected with the PROJECT shall be and remain the property of the DISTRICT. At the end of each individual PROJECT, the INSPECTOR shall provide to the DISTRICT with all PROJECT documentation in a professional format, both in binders and on a computer CD.

A complete and accurate copy of all records kept or created by the INSPECTOR arising under or connected in any way to the PROJECT shall be furnished by the INSPECTOR to the DISTRICT immediately upon written demand by the DISTRICT.

(j) Deviations. The INSPECTOR shall notify the contractor, in writing, of any deviations from the approved plans and specifications which are not immediately corrected by the contractor when brought to his/her attention. Copies of such notice shall be forwarded immediately to the architect or registered engineer, and to the Division of the State Architect.

Failure on the part of the INSPECTOR to notify the contractor of deviations from the approved plans and specifications shall in no way relieve the contractor of any responsibility to complete the work covered by his/her contract in accordance with the approved plans and specifications and all laws and regulations.

(k) Verified Reports. The INSPECTOR shall make and submit to the Division of the State Architect verified reports pursuant to Section 3-342 of Title 24 of the California Code of Regulations. The INSPECTOR shall prepare and deliver to the Division of the State Architect detailed statements of fact regarding materials, operations, etc., when requested.

(l) Violations. Failure, refusal, or neglect on the part of the INSPECTOR to notify the contractor of any work which does not comply with the requirements of the approved plans and specifications, or failure, refusal, or neglect to report immediately, in writing, any such violation to the architect or registered engineer, to the DISTRICT's board, and to the Division of the State Architect shall constitute a violation of the Field Act and shall be cause for the Division of the State Architect to take action.

(D) Insurance. The INSPECTOR shall purchase and maintain policies of insurance with an insurer or insurers, qualified to do business in the State of California and acceptable to DISTRICT which will protect the INSPECTOR and DISTRICT from claims which may arise out of or result from the INSPECTOR's actions or inactions relating to the AGREEMENT, whether such actions or inactions be by themselves or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. The aforementioned insurance shall include coverage for:

(1) Workers' Compensation and Employers Liability Insurance in accordance with the laws of the State of California. However, in no event shall such policy limit be less than $1,000,000.00.

(2) Comprehensive general liability insurance with limits of not less than TWO MILLION DOLLARS ($2,000,000.00) and automobile liability insurance with limits not less than ONE MILLION DOLLARS ($1,000,000.00) for bodily injury and property damage liability per occurrence, including:

a. Owned, non-owned and hired vehicles at cash value;
b. Blanket contractual;
c. Broad form property damage;
d. Products/completed operations; and
e. Personal injury.

(3) Professional liability insurance, including contractual liability, with limits of One Million Dollars ($1,000,000), per occurrence. Such insurance shall be maintained during the term of this AGREEMENT and renewed for a period of at least five (5) years thereafter and/or at rates consistent with the time of execution of this AGREEMENT adjusted for inflation. In the event that INSPECTOR subcontracts any portion of INSPECTOR's duties, INSPECTOR shall require any such subcontractor to purchase and maintain insurance coverage as provided in this subparagraph. Failure to maintain professional liability insurance is a material breach of this AGREEMENT and grounds for immediate termination.

(4) Each policy of insurance required in Section D(2) above shall name DISTRICT and its officers, agents and employees as additional insureds; shall state that, with respect to the operations of the INSPECTOR hereunder, such policy is primary and any insurance carried by DISTRICT is excess and non-contributory with such primary insurance; shall state that not less than thirty (30) days' written notice shall be given to DISTRICT prior to cancellation; and, shall waive all rights of subrogation. The INSPECTOR shall notify DISTRICT in the event of material change in, or failure to renew, each policy. Prior to commencing work, the INSPECTOR shall deliver to DISTRICT certificates of insurance as evidence of compliance with the requirements herein. In the event the INSPECTOR fails to secure or maintain any policy of insurance required hereby, DISTRICT may, at its sole discretion, secure such policy of insurance in the name of and for the account of the INSPECTOR, and in such event, the INSPECTOR shall reimburse DISTRICT upon demand for the cost thereof.

(E) The DISTRICT agrees to pay the INSPECTOR in accordance with the rate and price schedule information set forth in EXHIBIT "A". This AGREEMENT is based on estimated Time and Material expense. In no event shall the total payment to INSPECTOR under this AGREEMENT exceed the Estimated Project Inspection Cost ("INSPECTION COST") of _____ ($_____), inclusive of all Reimbursable Expenses, for all services performed and expenses incurred pursuant to this AGREEMENT.

(F) The INSPECTOR agrees to discharge the duties as set out in this contract in a manner satisfactory to the Division of the State Architect and the Architect retained by the DISTRICT. The INSPECTOR shall devote each working day to the inspection of TEMECULA VALLEY CAMPUS (hereinafter referred to as the "PROJECT(S)".

(G) Termination. This AGREEMENT may be terminated by either PARTY upon fourteen (14) days written notice to the other PARTY in the event of a substantial failure of performance by such other PARTY, including insolvency of the INSPECTOR; or if the DISTRICT should decide to abandon or indefinitely postpone the PROJECT.

(1) In the event of a termination based upon abandonment or postponement by DISTRICT, the DISTRICT shall pay INSPECTOR for all services performed and all expenses incurred under this AGREEMENT supported by documentary evidence, including payroll records, and expense reports up until the date of the abandonment or postponement plus any sums due the INSPECTOR for Board approved extra services. In ascertaining the services actually rendered hereunder up to the date of termination of this AGREEMENT, consideration shall be given to both completed work and work in process of completion and other documents whether delivered to the DISTRICT or in the possession of the INSPECTOR. In the event termination is for a substantial failure of performance, all damages and costs associated with the termination, including increased inspection and replacement inspector costs shall be deducted from payments to the INSPECTOR.

(2) In the event a termination for cause is determined to have been made wrongfully or without cause, then the termination shall be treated as a termination for convenience in accordance with Paragraph (G)(3) below, and INSPECTOR shall have no greater rights than it would have had if a termination for convenience had been effected in the first instance. No other loss, cost, damage, expense or liability may be claimed, requested or recovered by INSPECTOR.

(3) This AGREEMENT may be terminated without cause by DISTRICT upon fourteen (14) days written notice to INSPECTOR. In the event of a termination without cause, the DISTRICT shall pay INSPECTOR for all services performed and all expenses incurred under this AGREEMENT supported by documentary evidence, including payroll records, and expense reports up until the date of notice of termination plus any sums due the INSPECTOR for Board approved extra services.

(4) In the event the INSPECTOR is terminated, with or without cause, the INSPECTOR shall personally provide all the original PIC's prepared or obtained by the INSPECTOR in connection with the PROJECT to the assuming DSA inspector or the DSA as directed by the DISTRICT. All original PIC's must be provided to the DSA assuming inspector or the DSA, as applicable, within 48 hours of the effective date of the INSPECTOR's termination. Under no circumstances shall the INSPECTOR withhold any original PIC's related to the PROJECT upon the INSPECTOR's termination. The INSPECTOR shall be responsible for any delays on the PROJECT that arise out of the INSPECTOR's failure to provide the original PIC's to the assuming DSA inspector or the DSA as directed by the DISTRICT in accordance with this

section. Upon the effective date of the INSPECTOR's termination, the INSPECTOR shall provide copies of all current PIC's in the INSPECTOR's Project File to the DISTRICT along with all other documents detailed in Section (C)(2)(c) of this AGREEMENT.

(5) In the event of a dispute between the PARTIES as to performance of the work or the interpretation of this AGREEMENT, or payment or nonpayment for work performed or not performed, the PARTIES shall attempt to resolve the dispute. Pending resolution of this dispute, the INSPECTOR agrees to continue the work diligently to completion. If the dispute is not resolved, the INSPECTOR agrees it will neither rescind the AGREEMENT nor stop the progress of the work, but the INSPECTOR's sole remedy shall be to submit such controversy to determination by a court having competent jurisdiction of the dispute, after the PROJECT has been completed, and not before.

(6) THE DISTRICT AND INSPECTOR UNDERSTAND AND AGREE THAT SECTION (G) OF THIS AGREEMENT SHALL GOVERN ALL TERMINATION RIGHTS AND PROCEDURES BETWEEN THE PARTIES. ANY TERMINATION PROVISION THAT IS ATTACHED TO THIS AGREEMENT AS AN EXHIBIT SHALL BE VOID AND UNENFORCEABLE BETWEEN THE PARTIES.

(H) Hold Harmless. To the fullest extent permitted by law, the INSPECTOR agrees to indemnify, defend and hold the DISTRICT entirely harmless from all liability arising out of:

(1) Workers' Compensation and Employers' Liability. Any and all claims under Workers' Compensation acts and other employee benefit acts with respect to the INSPECTOR's employees or the INSPECTOR's subcontractor's employees arising out of INSPECTOR's work under this AGREEMENT; and

(2) General Liability. Liability for damages for (a) death or bodily injury to person; (b) injury to, loss or theft of property; (c) any failure or alleged failure to comply with any provision of law or (d) any other loss, damage or expense arising under either (a), (b), or (c) herein this paragraph, sustained by the INSPECTOR or any person, firm or corporation employed by the INSPECTOR related to, founded upon or in connection with this AGREEMENT, except for liability resulting from the sole or active negligence, or willful misconduct of the DISTRICT, its officers, employees, agents or independent consultants who are directly employed by the DISTRICT;

(3) Professional Liability. Any loss, injury to or death of persons or damage to property caused by any act, neglect, default or omission of the INSPECTOR, or any person, firm or corporation employed by the INSPECTOR, either directly or by independent contract, including all damages due to loss or theft, sustained by any person, firm or corporation including the DISTRICT, arising out of, or in any way connected with the PROJECT, including injury or damage either on or off DISTRICT property; but not for any loss, injury, death or damages caused by the sole or active negligence, or willful misconduct of the DISTRICT.

(4) Business Automobile Liability. Liability for bodily injury or property damage claims arising out of the use of owned, hired, or non-owned automobiles operated by the INSPECTOR, its officers, agents, employees or anyone employed by the INSPECTOR, in connection with work performed under this AGREEMENT.

(5) INSPECTOR, at INSPECTOR's own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the DISTRICT, its

officers, agents or employees on account of or founded upon any of the causes, damages or injuries identified herein Section (H) and shall pay or satisfy any judgment that may be rendered against the DISTRICT, its officers, agents or employees in any action, suit or other proceedings as a result thereof.

(6) THE PARTIES UNDERSTAND AND AGREE THAT SECTION (H) OF THIS AGREEMENT SHALL BE THE SOLE INDEMNITY, AS DEFINED BY CALIFORNIA CIVIL CODE § 2772, GOVERNING THIS AGREEMENT. ANY OTHER INDEMNITY THAT MAY BE ATTACHED TO THIS AGREEMENT AS AN EXHIBIT OR OTHERWISE INCLUDED IN THE CONSULTANT'S TERMS AND CONDITIONS SHALL BE VOID AND UNENFORCEABLE BETWEEN THE PARTIES.

(7) ANY ATTEMPT TO LIMIT THE INSPECTOR'S LIABILITY TO THE DISTRICT IN AN ATTACHED EXHIBIT SHALL BE VOID AND UNENFORCEABLE BETWEEN THE DISTRICT AND THE INSPECTOR.

(I) Independent Contractor. INSPECTOR, in the performance of this AGREEMENT, shall be and act as an independent contractor. The INSPECTOR understands and agrees that INSPECTOR and all of INSPECTOR's employees shall not be considered officers, employees or agents of the DISTRICT, and are not entitled to benefits of any kind or nature normally provided employees of the DISTRICT and/or to which DISTRICT's employees are normally entitled, including, but not limited to, State Unemployment Compensation or Workers' Compensation. The INSPECTOR assumes the full responsibility for the acts and/or omissions of the INSPECTOR's employees or agents as they relate to the services to be provided under this AGREEMENT. The INSPECTOR shall assume full responsibility for payment of all prevailing wages and all federal, state and local taxes or contributions, including unemployment insurance, social security and income taxes for the respective INSPECTOR's employees. INSPECTOR shall fully defend and indemnify the DISTRICT from any claims, damages or any liability arising from or related to DISTRICT or its subcontractors' failure to comply with any applicable prevailing wage laws and requirements.

(J) Nothing contained in this AGREEMENT shall create a contractual relationship with or a cause of action in favor of any third party against either the DISTRICT or the INSPECTOR.

(K) The DISTRICT and the INSPECTOR, respectively, bind themselves, their partners, officers, successors, assigns and legal representatives to the other PARTY to this AGREEMENT with respect to the terms of this AGREEMENT. The INSPECTOR shall not assign this AGREEMENT.

(L) This AGREEMENT shall be governed by the laws of the State of California.

(M) Each of the PARTIES have had the opportunity to, and have to the extent each deemed appropriate, obtained legal counsel concerning the content and meaning of this AGREEMENT. Each of the PARTIES agrees and represents that no promise, inducement or agreement not herein expressed has been made to effectuate this AGREEMENT. This AGREEMENT represents the entire AGREEMENT between the DISTRICT and INSPECTOR and supersedes all prior negotiations, representations or agreements, either written or oral. This AGREEMENT may be amended or modified only by an agreement in writing signed by both the DISTRICT and the INSPECTOR.

(N) THIS AGREEMENT SHALL NOT INCLUDE OR INCORPORATE THE TERMS OF ANY GENERAL CONDITIONS, CONDITIONS, MASTER AGREEMENT OR ANY OTHER BOILERPLATE TERMS OR FORM DOCUMENTS PREPARED BY THE INSPECTOR. THE ATTACHMENT OF ANY SUCH DOCUMENT TO THIS AGREEMENT AS EXHIBIT "A" SHALL

NOT BE INTERPRETED OR CONSTRUED TO INCORPORATE SUCH TERMS INTO THIS AGREEMENT UNLESS THE DISTRICT APPROVES OF SUCH INCORPORATION IN A SEPARATE WRITING SIGNED BY THE DISTRICT. ANY REFERENCE TO SUCH BOILERPLATE TERMS AND CONDITIONS IN THE PROPOSAL OR QUOTE SUBMITTED BY THE INSPECTOR SHALL BE NULL AND VOID AND HAVE NO EFFECT UPON THIS AGREEMENT. PROPOSALS, QUOTES, STATEMENT OF QUALIFICATIONS AND OTHER SIMILAR DOCUMENTS PREPARED BY THE INSPECTOR MAY BE INCORPORATED INTO THIS AGREEMENT AS EXHIBIT "A" BUT SUCH INCORPORATION SHALL BE STRICTLY LIMITED TO THOSE PARTS DESCRIBING THE INSPECTOR'S SCOPE OF WORK, RATE AND PRICE SCHEDULE AND QUALIFICATIONS.

(O) Time is of the essence with respect to all provisions of this AGREEMENT.

(P) This AGREEMENT will be liberally construed to effectuate the intention of the PARTIES with respect to the transaction described herein. In determining the meaning of, or resolving any ambiguities with respect to, any word, phrase or provision of this AGREEMENT, neither this AGREEMENT nor any uncertainty or ambiguity be construed or resolved against either PARTY (including the PARTY primarily responsible for drafting and preparation of this AGREEMENT), under any rule of construction or otherwise, it being expressly understood and agreed that the PARTIES have participated equally or have had equal opportunity to participate in the drafting hereof.

(Q) If either PARTY becomes involved in litigation arising out of this AGREEMENT or the performance thereof, each PARTY shall bear its own litigation costs and expenses, including reasonable attorney's fees.

(R) All exhibits referenced herein and attached hereto shall be deemed incorporated into and made a part of this AGREEMENT by this reference as though fully set forth in each instance in the text hereof unless otherwise excluded by this AGREEMENT.

(S) This AGREEMENT is not a valid or enforceable obligation against the DISTRICT until approved or ratified by motion of the Governing Board of the District duly passed and adopted.

(T) Assignment. INSPECTOR shall not assign or transfer this AGREEMENT or any interests of INSPECTOR herein without the prior written approval of the DISTRICT. Any such attempt by the INSPECTOR to assign or transfer this AGREEMENT or any of the INSPECTOR's interests set forth herein without the DISTRICT's written approval shall be void and shall be given no force or effect. No individual person assigned to provide the services hereunder for the PROJECT may be changed or substituted without the prior written consent of the DISTRICT. Such consent may be given or withheld in the DISTRICT's absolute discretion.

(U) Administration. The INSPECTOR shall produce, or shall hire the necessary independent contractors and/or consultants needed to produce, a clerically smooth product for the DISTRICT and for the INSPECTOR's routine correspondence with the DISTRICT. These clerical services shall be provided at no additional expense to the DISTRICT.

(V) Conflict of Interest. The INSPECTOR hereby represents, warrants and covenants that: (i) at the time of execution of this AGREEMENT, the INSPECTOR has no interest and shall not acquire any interest in the future, whether direct or indirect, which would conflict in any manner or degree with the performance of services under this AGREEMENT; and (ii) the INSPECTOR shall not employ in the performance of services under this AGREEMENT any person or entity having such an interest.

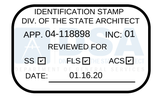
The PARTIES, through their authorized representatives, have executed this AGREEMENT as of the day and year first written above.

INSPECTOR:	DISTRICT:
_____	MT. SAN JACINTO COMMUNITY COLLEGE DISTRICT
By: _____	By: _____
Name:_____	Beth Gomez
Title_____	Vice President, Business Services
Date _____	Date _____

EXHIBIT "A"

(Fill in Applicable Rates Below or Attach Inspector's Proposal, if any, for Rates and/or Additional Basic Services)

INSPECTOR CERTIFICATION	HOURLY
PROJECT INSPECTOR CLASS 1	$_____
PROJECT INSPECTOR CLASS 2	$_____
PROJECT INSPECTOR CLASS 3	$_____



MVC STADIUM

MT. SAN JACINTO COMMUNITY COLLEGE

MENIFEE VALLEY CAMPUS

DSA 04-118898 - INCREMENT 1

ROUGH GRADING PACKAGE

BakerNowicki design studio
731 Ninth Avenue, Suite A
San Diego, California 92101
619.795.2450

ORIGINAL SUBMITTAL: INC 01_DWG_V1; 12/11/19

BACKCHECK: INC 01_DWG_V2; 1/17/20

MENIFEE VALLEY CAMPUS - NEW STADIUM + FIELDS

MT. SAN JACINTO COMMUNITY COLLEGE

APPLICABLE CODES

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH:
2016 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(+ 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2014 NATIONAL ELECTRICAL CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R.
(2015 UNIFORM MECHANICAL CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2015 UNIFORM PLUMBING CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.

2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2015 INTERNATIONAL FIRE CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.

2016 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

2013 ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS

2. ALL BARRIER FREE ITEMS SHALL COMPLY WITH TITLE 21 AND 24 OF THE CALIFORNIA CODE OF REGULATIONS, 2016.

3. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THESE CODES AND ALL APPLICABLE LOCAL ORDINANCES. WHERE CODES CONFLICT, THE MORE STRINGENT SHALL APPLY.

4. PROTECTION DURING WELDING: CONFORM TO TITLE 8, C.C.R. FURTHER PROTECT OCCUPANTS AND THE PUBLIC WITH PORTABLE SOLID VISION BARRICADES AROUND LOCATION WHERE WELDING IS BEING PERFORMED.PROVIDE SIGNS WARNING AGAINST LOOKING AT WELDING WITHOUT PROPER EYE PROTECTION OR EQUIVALENT. SEE C.F.C. FOR REQUIREMENTS FOR ON SITE WELDING.

5. DURING THE ENTIRE CONSTRUCTION PERIOD, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CONDITIONS AT THE PROJECT SITE TO MEET THE REQUIREMENTS OF D.S.A. AND THE CALIFORNIA OCCUPATIONAL REGULATIONS. THIS PROVISION SHALL COVER THE CONTRACTOR'S EMPLOYEES AND ALL OTHER PERSONS WORKING UPON OR VISITING THE SITE. THE CONTRACTOR SHALL BECOME FULLY INFORMED OF ALL APPLICABLE STANDARDS AND REGULATIONS AND INFORM ALL PERSONS AND REPRESENTATIVES RESPONSIBLE FOR WORK UNDER THIS CONTRACT.

APPLICABLE STANDARDS

NFPA 13	AUTOMATIC FIRE SPRINKLER SYSTEMS	2016 EDITION
NFPA 14	STANDPIPE AND HOSE SYSTEMS	2013 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 17A	WET CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 20	STATIONARY PUMPS FOR FIRE PROTECTION	2016 EDITION
NFPA 22	WATER TANKS FOR PRIVATE FIRE PROTECTION	2013 EDITION
NFPA 24	PRIVATE FIRE MAINS & THEIR APPURTENANCES	2016 EDITION
NFPA 25	STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS	2013 EDITION
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE	2016 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES 2016 EDITION	
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2015 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2015 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
ICC 300ICC	STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRAND STANDS	2012 EDITION
UL 464	AUDIBLE SIGNAL APPLIANCES	2016 EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS- 2016 CBC (SFM) CHAPTER 35. SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

GENERAL NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDA OR A C.C.D. APPROVED BY THE OFFICE OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, C.C.R.

2. A DSA ACCEPTED TESTING LABORATORY, EMPLOYED DIRECTLY BY THE OWNER (DISTRICT) SHALL CONDUCT ALL THE TESTS AND INSPECTIONS FOR THE PROJECT.

3. ALL WORK SHALL CONFORM TO 2016 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

4. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

INSPECTOR OF RECORD

INSPECTOR OF RECORD (IOR) OF RECORD SHALL BE EMPLOYED BY THE OWNER AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA). DUTIES AND REQUIRED IOR. CLASSIFICATION PER SECTION 4-342, TITLE 24, PART 1 CCR AND IR A-7: CLASS 1 CERTIFIED BY DSA.

AGENCY REQUIREMENTS

1. COMPLIANCE WITH TITLE 24, CCR, PARTS 1–6 AND 9.
2. TITLE 24, CCR, PARTS 1–5 MUST BE KEPT ON SITE DURING CONSTRUCTION
3. ALL ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY DSA. (SECTION 4-338(b), PART (1)
4. ALL SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE CONSIDERED AS A CHANGE ORDER OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION. (IR A-6) (SECTION 4-338(c), PART 1) SUBSTITUTIONS SHALL BE FOR ANY MATERIAL, SYSTEM OR PRODUCT THAT WOULD OTHERWISE BE REGULATED BY DSA.
5. THE CHANGE ORDERS/CCD AND FIELD CHANGE DOCUMENTS (PRELIMINARY CHANGE ORDERS) (SECTION 4-338(c)(d), PART 1) MUST BE SIGNED BY ALL THE FOLLOWING:
   a. A/E OF RECORD
   b. OWNER (CHANGE ORDERS ONLY)
   c. STRUCTURAL ENGINEER (WHEN APPLICABLE)
   d. DELEGATED PROFESSIONAL ENGINEER (WHEN APPLICABLE)

   AND SHALL BE SUBMITTED TO AND APPROVED BY DSA.
6. THE PROJECT INSPECTOR AND TESTING LAB SHALL BE EMPLOYED AND PAID BY THE OWNER AND APPROVED BY ALL OF THE FOLLOWING:
   a. A/E OF RECORD
   b. STRUCTURAL ENGINEER (WHEN APPLICABLE)
   c. DSA
7. FOR ALTERATIONS, REHABILITATION OR RECONSTRUCTION AS STATED IN TITLE 24, PART 1 SECTION 4-317(c) OR SIMILAR MEANING: "THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NONCOMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK."

VICINITY MAP NOT TO SCALE

NORTH

SCOPE OF WORK

DSA APP NUMBER: 04-118898
BNDS FILE NUMBER : 19001-03

DEMOLITION AND REMOVAL OF EXISTING IMPROVEMENTS WITHIN THE BOUNDARY OF THE 'LIMIT OF WORK' (SEE SHEET C1.0R) FOR THE ROUGH GRADING OF SITE TO PREPARE SITE FOR CONSTRUCTION OF STADIUM BUILDING, PLAZA, VISITOR BLEACHERS, AND SPORTS FIELDS.

LEGAL DESCRIPTION

CONSTRUCTION:
TYPE II A: SPRINKLERED: Unlimited height, Unlimited Stories, 1 HR Structural frame, Bearing walls, floor

TYPE II B: SPRINKLERED, Unlimited height, Unlimited Stories, 0 Rating requirements

OCCUPANCY :
A-5 (Outdoor Bleachers)
A-2, A-3 (Fitness)
B (Classroom for over 12th grade, offices, lockers)
S1 (Storage)
U (Mechanical, Restrooms)

CHAPTER 9:
903.2.1.3 Group A-3 needs automatic sprinkler system #3 located on a floor other than level of exit discharge.

THIS PROJECT HAS BEEN DESIGNED TO BE IN COMPLIANCE WITH THE ALTERNATE DSA-SS/CC COMMUNITY COLLEGE PROVISIONS OF THE (2016) CALIFORNIA BUILDING CODE.

DEFERRED APPROVAL ITEMS

FABRICATION AND INSTALLATION OF DEFERRED APPROVAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER WHO HAS BEEN DELEGATED THE RESPONSIBILITY OF COVERING THE WORK SHOWN ON A PARTICULAR PLAN OR SPECIFICATION, AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT. DEFERRED ITEMS SHALL BE COMPLETED PRIOR TO OCCUPANCY OF BUILDINGS AFFECTED BY THE DEFERRED WORK.
ALL WORK SHALL CONFORM TO 2016 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

DEFERRED APPROVAL ITEMS ARE AS FOLLOWS: NOT APPLICABLE FOR ROUGH GRADING

THE PLANS AND SPECIFICATIONS SHALL BE STAMPED AND SIGNED BY THE ARCHITECT AND ENGINEER OF RECORD BEFORE SUBMITTAL TO DSA.

Statement of General Conformance
FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS,
INCLUDING BY NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS
(Application No. 04-118898 File No. INC 1)

☒ All drawings or sheets listed on the cover or index sheet (Civil, Landscape, Structural, Mechanical, Plumbing, Electrical)

☒ This drawing, page of specifications/calculations

have been prepared by other design professionals or consultants who are licensed and/or authorized to prepare such drawings in this state. It has been examined by me for:

1. design intent and appears to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2. coordination with my plans and specifications and is acceptable for incorporation into the construction of this project.

The Statement of General Conformance "shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344" of Title 24, Part 1. *(Title 24, Part 1, Section 4-317 (b))*

I find that: ☒ All drawings or sheets listed on the cover or index sheet
☒ This drawing or page

☒ is/are in general conformance with the project design, and	☐ is/are in general conformance with the project design, and
☒ has/have been coordinated with the project plans and specifications	☐ has/have been coordinated with the project plans and specifications
Signature: Richard Nowicki — Date: 1/06/20	Signature: — Date:
Architect or Engineer designated to be in general responsible charge	**Architect or Engineer delegated responsibility for this portion of the work**
Print Name: Richard Nowicki	Print Name:
License Number: C28042 — Exp. Date: 9/30/2021	License Number: — Exp. Date:

SYMBOLS

NORTH ARROW

ITEM / ELEVATION — SPOT ELEVATION

ITEM / ELEVATION — FINISH FLOOR LEVEL

A / 1 — STRUCTURAL GRID LINES

MATCH LINE

DTL # / SHT # — DETAIL REFERENCE TAG (DETAIL NUMBER, SHEET NUMBER)

DTL # / SHT # — BUILDING SECTION TAG (DETAIL NUMBER, SHEET NUMBER)

DTL# / SHT # — BUILDING ELEVATION TAG (DETAIL NUMBER, SHEET NUMBER)

ROOM / 101 / 9'-0" — ROOM NAME TAG (ROOM NUMBER, ROOM CEILING HEIGHT)

ELEV # A / ELEV # D / SHT # / ELEV # B / ELEV # C — INTERIOR ELEVATION TAG (DETAIL NUMBER, SHEET NUMBER)

X — WALLTYPE TAG (SEE SHEET G---)

X — WINDOW NUMBER TAG (SEE WINDOW SCHEDULE)

XXX — DOOR NUMBER TAG (SEE DOOR / FRAME SCHEDULE)

XXXXXX.XX — CONSTRUCTION KEYNOTE (SEE LEGEND EACH SHEET)

XXXXXX.XX — DEMOLITION KEYNOTE (SEE LEGEND EACH SHEET)

SHEET INDEX

Discipline	Sheet Number	Sheet Name
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GENERAL	G1.1.1	SHEET INDEX - INC 1
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CIVIL		
CIVIL	C1.0 R	OVERALL EXISTING CONDITIONS AND DEMOLITION KEY PLAN
CIVIL	C1.1 R	EXISTING CONDITIONS AND DEMOLITION PLAN
CIVIL	C1.2 R	EXISTING CONDITION AND SURVEY MAP
CIVIL	C2.0 R	OVERALL ROUGH GRADING & DRAINAGE PLAN, GENERAL NOTES, LEGEND
CIVIL	C2.1 R	ROUGH GRADING AND DRAINAGE PLAN
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CIVIL	C4.0 R	DETAILS
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CIVIL	C5.0 R	HORIZONTAL CONTROL PLAN
CIVIL	C6.0 R	EROSION CONTROL PLAN
CIVIL	C7.0 R	FEMA-FIRM
LANDSCAPE		
LANDSCAPE	LI 1.05	IRRIGATION DEMO PLAN
LANDSCAPE	LI 1.06	IRRIGATION DEMO PLAN

TOTAL NUMBER OF SHEETS = 20

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DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

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DSA 04-118898 - INCREMENT 1
SHEET INDEX - INC 1

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 01/17/19

DRAWING
G1.1.1

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FINISH NOTES

NOT APPLICABLE FOR INC 1- ROUGH GRADING

ACCESSIBILITY NOTES

NOT APPLICABLE FOR INC 1- ROUGH GRADING

FIRE & LIFE SAFETY NOTES

1. ALL INTERIOR FINISHES SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 8, PART 2, TITLE 24, CCR. ALL FINISHES SHALL HAVE A FLAME SPREAD RATING OF 75 OR LESS AND A SMOKE DENSITY NOT TO EXCEED 450 WHEN TESTED IN ACCORDANCE WITH CBC 2016 & ASTM E 84, and SHALL HAVE A CLASS A OR B FLAME SPREAD CLASSIFICATION PER TABLE 803.5 .

2. ALL INSULATION MATERIALS INSTALLED WITHIN ROOF - CEILING ASSEMBLIES, ATTICS, OR WALLS SHALL HAVE A FLAME - SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DENSITY NOT TO EXCEED 450 WHEN TESTED IN ACCORDANCE WITH CBC 2016 & ASTM E 84.

3. PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECTED TO THE REQUIREMENTS OF ASTM-E-814 AND CBC 2016 AND IN COMPLIANCE WITH THE PROJECT MANUAL.

4. ALL ELECTRICAL, MECHANICAL, AND PLUMBING PENETRATIONS, INCLUDING CONDUITS AND PIPING, THROUGH FIRE RATED WALL, FLOOR AND CEILING ASSEMBLIES SHALL BE TIGHTLY AND SOLIDLY SEALED WITH FIRESTOPPING COMPLYING WITH CBC 2016 & ASTM E 814 AND THE PROJECT MANUAL. WHERE ITEM PENETRATES AN AREA SEPARATION WALL, THE SECTION PASSING THROUGH THE WALL SURFACE AND THE FIXTURE CONNECTIONS THERETO SHALL BE ONLY OF METAL.

5. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A-10BC WITHIN A 75 FOOT TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILDING ON EACH FLOOR.

6. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 1-BC FOR ELECTRICAL ROOMS, MECHANICAL ROOMS, ELEVATOR MACHINE ROOMS AND TRASH ROOMS.

7. PROVIDE AN APPROPRIATE NUMBER OF PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 4A-60BC FOR PROTECTION DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY PEDESTRIAN PROTECTION AS REQUIRED BY LOCAL CODE AND SPECIFICATION.

9. DO NOT BLOCK EXITS AT ANY TIME.

10. DUCT INSULATION APPLIED TO THE EXTERIOR SURFACE OF DUCTS LOCATED IN BUILDINGS SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED AS A COMPOSITE INSTALLATION INCLUDING INSULATION, FACING MATERIALS, TAPES AND ADHESIVES AS NORMALLY APPLIED.

11. THE FIRE ALARM SYSTEM SHALL CONFORM TO ARTICLE 760 OF THE CALIFORNIA ELECTRICAL CODE, STANDARDS AS DEFINED IN CHAPTER 35 CALIFORNIA BUILDING CODE AND APPLICABLE NFPA STANDARDS.

12. FIRE SPRINKLER SYSTEM AND AUTOMATIC EXTINGUISHING SYSTEM. DRAWINGS SHALL BE STAMPED AND SIGNED BY A C-16 CONTRACTOR, LICENSED FIRE PROTECTION ENGINEER, LICENSED MECHANICAL ENGINEER OR LICENSED CIVIL ENGINEER. PROVIDE TESTING IN THE PRESENCE OF THE ENFORCING AGENCY AT VARIOUS STAGES AND UPON COMPLETION AS SPECIFIED AND AS DIRECTED BY THE ENFORCING AGENCY. THE ARCHITECT WILL REVIEW SHOP DRAWINGS FOR HEAD TYPE, LOCATION CONFLICT AND SEISMIC RESTRAINT ONLY.

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GENERAL NOTES

1. DURING THE ENTIRE CONSTRUCTION PERIOD, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CONDITIONS AT THE PROJECT SITE, TO MEET THE REQUIREMENTS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND CALIFORNIA OCCUPATIONAL REGULATIONS . THIS PROVISION SHALL COVER THE CONTRACTOR'S EMPLOYEES AND ALL OTHER PERSONS WORKING UPON OR VISITING THE SITE. THE CONTRACTOR SHALL BECOME FULLY INFORMED OF ALL APPLICABLE STANDARDS AND REGULATIONS AND INFORM ALL PERSONS AND REPRESENTATIVES RESPONSIBLE FOR WORK UNDER THIS CONTRACT.

2. CONFIRM ALL NEW AND EXISTING CONDITIONS WITH THE CONTRACT DOCUMENTS. NOTIFY ARCHITECT IMMEDIATELY IN WRITING OF ALL DISCREPANCIES OR CONFLICTS. DO NOT PROCEED WITH WORK IN THE AREA OF DISCREPANCY OR CONFLICT UNTIL DIRECTION IS GIVEN BY ARCHITECT. IF CONTRACTOR PROCEEDS WITHOUT DIRECTION FROM ARCHITECT, IT SHALL BE AT CONTRACTORS RISK, AND CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED CORRECTIVE ACTION.

3. IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED GRAPHICS. NOTIFY ARCHITECT IMMEDIATELY IN WRITING OF ALL ADDITIONAL REQUIRED DIMENSIONS. DO NOT PROCEED WITH WORK IN THE AREA OF DISCREPANCY OR CONFLICT UNTIL DIRECTION IS GIVEN BY ARCHITECT. IF THE CONTRACTOR PROCEEDS WITHOUT DIRECTION FROM ARCHITECT, IT SHALL BE AT CONTRACTORS RISK, AND CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED CORRECTIVE ACTION.

4. CORRECT ALL WORK INSTALLED IN CONFLICT WITH THE CONSTRUCTION DOCUMENTS BY CONTRACTOR AS DIRECTED BY ARCHITECT AND AT NO ADDITIONAL EXPENSE TO THE OWNER.

5. VISIT JOB SITE PRIOR TO BEGINNING WORK AND VERIFY ALL DIMENSIONS AND CONDITIONS.

6. SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES AND LICENSES REQUIRED FOR PROPER COMPLETION OF THE WORK. REQUEST ALL INSPECTIONS REQUIRED BY LOCAL GOVERNMENTAL AGENCIES AND COORDINATE THE WORK ACCORDINGLY.

7. WHERE WORK OR EQUIPMENT IS INDICATED "N.I.C." (NOT IN CONTRACT) ON THE DRAWINGS, SUCH WORK AND/OR EQUIPMENT SHALL BE PROVIDED BY OTHERS. CONTRACTOR SHALL COORDINATE AND COOPERATE TO EFFECT SUCH INSTALLATION.

8. ALL PLAN DIMENSIONS SHOWN AT CENTER OF WALL REPRESENT CENTER LINE OF STUD OR STRUCTURAL ELEMENT UNLESS NOTED OTHERWISE.

9. ALL PLAN DIMENSIONS FOR MASONRY AND CONCRETE REPRESENT FACE OF MATERIAL AND OPENING UNLESS NOTED OTHERWISE.

10. ALL DIMENSIONS SHOWN ARE TO FACE OF STUD AT NEW CONSTRUCTION AND FACE OF FINISH AT EXISTING CONSTRUCTION, UNLESS NOTED OTHERWISE.

11. DIMENSIONS ARE NOT ADJUSTABLE WITHOUT THE REVIEW OF ARCHITECT UNLESS NOTED (+/-) OR “VERIFY”. DIMENSIONS NOTED “HOLD” SHALL BE CONSIDERED AS ABSOLUTE AND USED FOR LAY-OUT CONTROL UNLESS OTHERWISE DIRECTED BY ARCHITECT.

12. ALL HEIGHTS ARE DIMENSIONED FROM TOP OF SLAB UNLESS NOTED "AFF" (ABOVE FINISH FLOOR).

13. "TYPICAL" MEANS COMPARABLE CHARACTERISTICS FOR THE ELEVATION OR DETAIL NOTED. WHEN A DETAIL OR NOTE IS IDENTIFIED AS “TYPICAL”, CONTRACTOR SHALL APPLY THIS DETAIL OR NOTE TO EVERY LIKE CONDITION, WHETHER OR NOT THE REFERENCE IS REPEATED IN EVERY INSTANCE. VERIFY DIMENSIONS AND ORIENTATION ON PLANS.

14. PROVIDE WORK NOT SPECIFICALLY DETAILED OR SPECIFIED IN ACCORDANCE WITH DETAILS OR SIZES COVERING SIMILAR WORK.

15. "SIMILAR" MEANS COMPARABLE CHARACTERISTICS FOR THE ELEVATION OR DETAIL NOTED VERIFY DIMENSIONS AND ORIENTATION ON PLANS.

16. ABBREVIATIONS THROUGHOUT THE DOCUMENTS COMPLY WITH DOCUMENT ABBREVIATION LIST OR ARE THOSE IN COMMON USE. ARCHITECT WILL DEFINE THE INTENT OF ANY IN QUESTION.

17. PROVIDE FOR THE PROPER SEQUENCE OF CONSTRUCTION, LOCATION AND SIZE OF OPENINGS. COORDINATE ALL CONSTRUCTION AS INDICATED BY THE CONTRACT DOCUMENTS, INCLUDING SHOP DRAWINGS REVIEWED BY ARCHITECT.

18. TAKE ALL MEASURES TO ACCOMPLISH THE WORK WITH THE MINIMUM OF INTERRUPTION TO NORMAL BUILDING PROCEDURES. NOTIFY OWNER IN ADVANCE OF HVAC, ELECTRICAL OR OTHER BUILDING SYSTEM SHUT-OFFS. MINIMIZE NOISE AND DUST GENERATION TO MAXIMUM EXTENT POSSIBLE. COMPLY WITH REQUIREMENTS AS SPECIFIED IN PROJECT MANUAL.

19. REMOVE ALL TRASH AND DEBRIS DAILY. DO NOT STORE BUILDING MATERIALS IN CORRIDORS AT ANY TIME. COMPLY WITH REQUIREMENTS AS SPECIFIED IN PROJECT MANUAL.

20. PERFORM ALL CUTTING, PATCHING, AND FINISHING NECESSARY TO RESTORE THE BUILDING AND SITE TO ORIGINAL CONDITION OF ALL EXISTING PORTIONS OF THE BUILDING AND SITE AFFECTED BY CONTRACTORS WORK, TO THE SATISFACTION OF ARCHITECT AND OWNER.

21. VERIFY POINTS OF CONNECTION, INCLUDING SIZES AND LOCATIONS, AND ALL OTHER REQUIRED OPERATING CRITERIA WITH EQUIPMENT MANUFACTURER.

22. COORDINATE THE LOCATION AND TYPE OF ALL ACCESS PANELS REQUIRED FOR ACCESSING MECHANICAL, PLUMBING, ELECTRICAL AND OTHER BUILDING SYSTEMS WITH ARCHITECT.

23. CONTRACTOR SHALL INSURE ALL CONSTRUCTION SHALL REMAIN ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL APPROVED BY THE INSPECTOR OF RECORD. FOR CONTINUOUS INSPECTION, TESTING, AND OBSERVATION REQUIREMENTS, REFER TO THE TESTING AND OBSERVATION PROGRAM.

24. PROTECTION DURING WELDING: CONFORM TO TITLE 8, C.C.R. FURTHER PROTECT OCCUPANTS AND THE PUBLIC WITH PORTABLE SOLID VISION BARRICADES AROUND LOCATION WHERE WELDING IS BEING PERFORMED. PROVIDE SIGNS WARNING AGAINST LOOKING AT WELDING WITHOUT PROPER EYE PROTECTION OR EQUIVALENT. SEE C.F.C. FOR REQUIREMENTS FOR ON SITE WELDING.

25. SEE CFC CHAPTER 33 FOR FIRE SAFETY DURING CONSTRUCTION.

26. VERIFY DIMENSIONS, LOCATIONS OF EXISTING UTILITIES, AND CONITIONS ON THE JOB SITE PRIOR TO THE START OF WORK OR PORTIONS OF THE WORK. NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE ACTUAL FIELD CONDITIONS AND THE CONSTRUCTION DOCUMENTS. EXISTING CONDITIONS ARE INDICATED AS A RESULT OF FIELD OBSERVATIONS, INFORMATION SHOWN ON AVAILABLE DOCUMENTS AND FIELD CONDITIONS AT THE TIME OF PREPARATION, AND ARE NOT GUARANTEED TO BE ACCURATE.

27. WHERE ANY CONFLICT OCCURS BETWEEN THE REQUIREMENTS OF LAWS, CODES, ORDINANCES, RULES AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.

28. WHERE NO SPECIFIC DETAIL IS SHOWN, THE FRAMING OR CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION OR PER COMMON INDUSTRY PRACTICE IF THERE ARE NO LIKE CASES.

29. CHANGES TO THE APPROVED DRAWINGS AND/OR SPECIFICATIONS SHALL BE MADE BY ADDENDA OR A CONSTRUCTION CHANGE DOCUMENT APPROVED BY THE DIVISION OF THE STATE ARCHITECT AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.

30. CONTRACTOR TO COOPERATE WITH OWNER PROVIDED TESTING LAB TO OBTAIN TEST SAMPLES. THE INSPECTOR FOR AGENCY HAVING JURISDICTION SHALL HAVE FULL ACCESS TO THE WORK AT ALL TIMES.

31. CONTRACTOR'S SAFETY BARRICADE (TEMPORARY FENCING) SHALL PROTECT PUBLIC FROM CONSTRUCTION ACTIVITIES. THE SAFETY BARRICADE SHALL PROTECT AND SECURE THE CONSTRUCTION AREA. TEMPORARY FENCING SHALL ALSO BE PROVIDED TO PROTECT AND SECURE STORAGE YARDS. EXACT LOCATION OF SAFETY BARRICADE AND OTHER TEMPORARY FENCING SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.

32. PENETRATIONS OF ANY KIND, INCLUDING THOSE REQUIRING CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH EXISTING OR NEW STRUCTURAL ELEMENTS IS NOT TO BE STARTED UNTIL THE DETAILS HAVE BEEN REVIEWED BY THE OWNER AND THE D.S.A. FIELD ENGINEER, IF DETAILS DO NOT SHOW OR CONFORM TO THE APPROVED DRAWINGS.

33. CONTACT UNDERGROUND UTILITY SERVICE TO CHECK PUBLIC UTILITIES PRIOR TO STREET WORK. LOCATE ON-SITE UTILITIES BY POTHOLING OR OBTAIN AND PAY FOR THE SERVICES OF A UTILITY LOCATOR.

34. WHERE CONFLICTS OCCUR IN THE DOCUMENTS, BID THE MORE EXPENSIVE ITEM.

ABBREVIATIONS

&	AND
△	ANGLE
@	AT
AB	ANCHOR BOLT
ABAN	ABANDON
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE
AC	AIR CONDITIONING
AC	ASPHALTIC CONCRETE
ACOUS	ACOUSTICAL
AC PVG	ASPHALT CONCRETE PAVING
ACP	ACOUSTICAL PANEL
ACT	ACOUSTICAL TILE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGGR	AGGREGATE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMT	AMOUNT
ANOD	ANODIZED
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECT/ARCHITECTURAL
ASD	AUTOMATIC SPRINKLER DRAIN
ASPH	ASPHALT
ASSY	ASSEMBLY
AV	AUDIO VISUAL
AWP	ACOUSTICAL WALL PANEL
BAL	BALANCE
BBD	BULLETIN BOARD
BBRG	BALL BEARING
BC	BACK OF CURB
BD	BOARD
BG	BUMPER GUARD
BETW	BETWEEN
BEV	BEVEL
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BLW	BELOW
BM	BEAM
BM	BENCH MARK
BMU	BRICK MASONRY UNIT
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BRS	BRASS
BRZ	BRONZE
BSMNT	BASEMENT
BUR	BUILT-UP ROOF
C_	CENTERLINE
C&G	CURB AND GUTTER
C/C	CENTER TO CENTER
CAB	CABINET
CB	CORNER BEAD
CB	CATCHBASIN
CBD	CHALKBOARD
CCTV	CLOSED CIRCUIT TELEVISION
CCW	COUNTER CLOCKWISE
CEM	CEMENT
CER	CERAMIC
CI	CAST IRON
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CF	CLEAR FINISH COATING
CFX	CLEAR FINISH COATING - EXTERIOR
CG	CORNER GUARD
CL	CENTER LINE
CLG	CEILING
CLG DIFF	CEILING DIFFUSER
CLG HT	CEILING HEIGHT
CLG REG	CEILING REGISTER
CLO	CLOSET
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COM	COMMON
COMB	COMBINATION
COMPL	COMPLETE
CONC	CONCRETE
CONC FL	CONCRETE FLOOR
COND	CONDENSER/CONDENSATE
CONF	CONFERENCE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS/CONTINUATION
CONTR	CONTRACT/CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
COTG	CLEAN OUT TO GRADE
COV	COVER
COV PL	COVER PLATE
CP	CONCRETE PAVING
CP	CONTROL PANEL
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRASHRAIL
CR	COAT RACK/COAT ROD
CRSTL	COLD ROLLED STEEL
CS	CHANGING STATION
CSK	COUNTERSINK
CSMNT	CASEMENT
CT	CERAMIC TILE
CTV	CABLE TELEVISION
CU YD	CUBIC YARD
CW	COLD WATER
CYL	CYLINDER
DAT	DATUM
DBL ACT	DOUBLE ACTING
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DIAG	DIAGONAL
DIAM	DIAMETER
DIFF	DIFFERENCE
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISP	DISPENSER
DIV	DIVISION
DL	DEAD LOAD
DN	DOWN
DO	DITTO
DR	DOOR
DRN	DRAIN
DS	DIRECTIONAL SIGN
DS	DOWNSPOUT
DUPL	DUPLICATE

DW	DISHWASHER
DWG	DRAWING
DWL	DOWEL
DWR	DRAWER
DWV	DRAIN WASTE & VENT
E	EAST
EA	EACH
(E)	EXISTING
EC	ELASTOMERIC COATING
ECON	ECONOMIZER
ECU	EVAPORATIVE COOLING UNIT
EF	EACH FACE
EHD	ELECTRIC HAND DRYER
EJ	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENAM	ENAMEL
ENCL	ENCLOSURE
ENGR	ENGINEER
ENTR	ENTRANCE
EP	ELECTRICAL PANEL
EOP	EDGE OF PAVEMENT
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ES	EACH SIDE
EST	ESTIMATE
ESMNT	EASEMENT
EW	EACH WAY
EWC	ELECTRICAL WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXIST GR	EXISTING GRADE
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F/F	FACE TO FACE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FEM	FEMALE
FGL	FIBERGLASS
FHC	FIRE HOSE CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHWS	FLAT HEAD WOOD SCREW
FH	FIRE HYDRANT
FIN	FINISH
FIXT	FIXTURE
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLASHING
FL	FLOW LINE
FLR	FLOOR/FLOORING
FLR FIN	FLOOR FINISH
FLUOR	FLUORESCENT
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FPM	FEET PER MINUTE
FREQ	FREQUENCY
FS	FLOOR SINK
FSPKR	FIRE SPRINKLER
FSS	FOLDING SHOWER SEAT
FSTNR	FASTENER
FT	FOOT
FTG	FITTING
FTG	FOOTING
FURR	FURRING
FURN	FURNITURE
FUT	FUTURE
FWC	FABRIC WALL COVERING
G	GAS
GA	GAGE/GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GI	GALVANIZED IRON
GL	GLASS
GLU LAM	GLUE LAMINATED
GLBM	GLUE LAMINATED BEAM
GLZ	GLAZING
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE/GRADING
GRC	GRAFITTI RESISTANT COATING
GR BM	GRADE BEAM
GR LN	GRADE LINE
GRTG	GRATING
GRV	GRAVITY ROOF VENTILATOR
GSTL	GALVANIZED STEEL
GV	GRAVITY VENT
GVL	GRAVEL
GVTR	GAS VENT THROUGH ROOF
GYP	GYPSUM
GBD	GYPSUM BOARD
H	HIGH
H PLAM	HIGH PRESSURE LAMINATE
HB	HOSE BIBB
HC	HOLLOW CORE
HC	HOSE CABINET
HD	HEAD
HDBD	HARDBOARD
HDR	HEADER
HDWL	HEADWALL
HDWR	HARDWARE
HGR	HANGER
HGT	HEIGHT
HHWS	HEX HEAD WOOD SCREW
HM	HOLLOW METAL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HS	HIGH STRENGTH
HSB	HIGH STRENGTH BOLT
HTG	HEATING
HTR	HEATER
HVY	HEAVY
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
HYD	HYDRANT

ID	INSIDE DIAMETER
IF	INSIDE FACE
ILLUM	ILLUMINATION
INCAND	INCANDESCENT
INL	INLET
INSTL	INSTALLATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
INV EL	INVERT ELEVATION
IP	IRON PIPE
IPS	INSIDE PIPE SIZE
IPS	INTERNATIONAL PIPE STANDARD
ISO	ISOMETRIC
IWH	INSTANTANEOUS WATER HEATER
JAN	JANITOR
JB	JUNCTION BOX
JST	JOIST
JT	JOINT
KD	KILN DRIED
KD	KNOCK DOWN
KO	KNOCKOUT
KPL	KICKPLATE
L	LEFT
LAD	LADDER
LAM	LAMINATED
LAT	LATERAL
LAV	LAVATORY
LB	LAG BOLT
LB	POUND
LDG	LANDING
LDR	LEADER
LF	LINEAR FOOT
LG	LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LIN	LINEAR
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW POINT
LP	LOW PRESSURE
LS	LUMP SUM
LT	LIGHT
LT WT	LIGHTWEIGHT
LTG	LIGHTING
LTG PNL	LIGHTING PANEL
LUB	LUBRICATE
LV	LOW VOLTAGE
LVL	LEVEL
LVR	LOUVER
LVR	LEVER
LWC	LIGHTWEIGHT CONCRETE
M	MIRROR
MACH RM	MACHINE ROOM
MAINT	MAINTENANCE
MAN	MANUAL
MARB	MARBLE
MAS	MASONRY
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MB	MACHINE BOLT
MB	MIXING BOX
MBF	THOUSAND BOARD FEET
MBD	MARKER BOARD
MC	MOMENT CONNECTION
MC	MEDICINE CABINET
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAID
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFGR	MANUFACTURER
MH	MANHOLE
MI	MILE
MIR	MIRROR
MGL	MIRROR GLASS
MLDG	MOLDING
MLWK	MILLWORK
MO	MASONRY OPENING
MOD	MODULE
MON	MONUMENT
MPH	MILES PER HOUR
MR	MOP RACK
MS	MIRROR WITH SHELF
MTD	MOUNTED
MTG	MEETING
MTG	MOUNTING
MTR	METER
MTR	MORTAR
MULL	MULLION
MULT	MULTIPLE
#	NUMBER
N	NORTH
NA	NOT APPLICABLE
NAT	NATURAL
NCP	NON-REINFORCED CONCRETE PIPE
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NRC	NOISE REDUCTION COEFFICIENT
NST	NATURAL STONE TILE
NTS	NOT TO SCALE
O/O	OUT TO OUT
OA	OUTSIDE AIR
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OUTSIDE DIMENSION
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OPPOSITE HAND
OHD	OVERHEAD
OHWS	OVAL HEAD WOOD SCREW
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTIONAL
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
OVFL	OVERFLOW
OZ	OUNCE
d	PENNY
PAR	PARALLEL
PB	PANIC BAR
PBD	PARTICLEBOARD
PC	PIECE

PC	POINT OF CURVE
PC	PORTLAND CEMENT
PCF	POUNDS PER CUBIC FOOT
PD	PLANTER DRAIN
PERF	PERFORATED
PERIM	PERIMETER
PERM	PERMANENT
PERP	PERPENDICULAR
PF	PAINT FINISH
PFX	PAINT FINISH - EXTERIOR
PGL	PLASTIC GLAZING
PH	PHASE
PHOTO	PHOTOGRAPH
PHS	PHILLIP HEAD SCREW
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PKG	PACKAGE
PL	PLATE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLAT	PLATFORM
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
POL	POLISHED
PORT	PORTABLE
POS	POSITIVE
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PREP	PREPARATION
PRKG	PARKING
PROJ	PROJECT
PROP	PROPERTY
PS	PROJECTION SCREEN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PTS	PNUEMATIC TUBE STATION
PVC	POLYVINYL CHLORIDE
PVG	PAVING
PVMT	PAVEMENT
PWR	POWER
QT	QUARRY TILE
QTR	QUARTER
QTY	QUANTITY
QUAL	QUALITY
RA	RETURN AIR
RA GR	RETURN AIR GRILLE
RAD	RADIUS
RB	RUBBER BASE
RBR	RUBBER
RC	REINFORCED CONCRETE
RCP	PREINFORCED CONCRETE PIPE
RD	ROAD
RD	ROOF DRAIN
REC	RECESSED
RECD	RECEIVED
RECIRC	RECIRCULATE
RECPT	RECEPTACLE
RECPT	RECEPTIONIST
RECT	RECTANGULAR
REF	REFERENCE
REFL	REFLECTOR
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED/REINFORCING
REM	REMOVABLE
RE	RIM ELEVATION
REQD	REQUIRED
RESIL	RESILIENT
RET	RETURN
RFG	ROOFING
RH	RELATIVE HUMIDITY
RH	RIGHT HAND
RHMS	ROUND HEAD MACHINE SCREW
RHR	RIGHT HAND REVERSE
RHWS	ROUND HEAD WOOD SCREW
RLG	RAILING
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPW	RIGID PROTECTIVE WALLCOVERING
RS	ROOM SIGN
RSF	RESILIENT SHEET FLOORING
RTF	RESILIENT TILE FLOOR
RWC	RAIN WATER CONDUCTOR
RWF	RESILIENT WOOD FLOOR
RWL	RAIN WATER LEADER
S	SOUTH
S	SHELF
SA	SUPPLY AIR
SAG	SUPPLY AIR GRILLE
SALV	SALVAGE
SAN	SANITARY
SAT	SATURATION
SB	SPLASH BLOCK
SC	SHOWER CURTAIN
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SD	SOAP DISPENSER
SD	STORM DRAIN
SD	SUPPLY DIFFUSER
SDS	SITE DIRECTIONAL SIGN
SEC	SECOND
SECT	SECTION
SGL	SINGLE
SHT	SHEET/SHEETING
SHTHG	SHEATHING
SHV	SHELVES/SHELVING
SHT	SHEET
SHTHG	SHEATHING
SIM	SIMILAR
SLV	SLEEVE
SM	SHEET METAL
SMS	SHEET METAL SCREW
SNK	SINK
SP	SPACING
SPCL	SPECIAL
SPEC	SPECIFICATION
SPD	SANITARY PRODUCTS DISPENSER
SFRM	SPRAYED FIRE RESISTIVE MATERIAL
SPKLR	SPRINKLER
SPKR	SPEAKER
SPLY	SUPPLY
SPW	SANITARY PRODUCTS WASTE RECEPTACLE

SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SR	SHOWER ROD
SSNK	SERVICE SINK
SSTL	STAINLESS STEEL
ST	STREET
ST	STAIN FINISH
STA	STATION
STAG	STAGGERED
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
STX	STAIN FINISH - EXTERIOR
SUH	SUSPENDED UNIT HEATER
SUSP	SUSPENDED
SV	STONE VENEER
SWHR	SHOWER
SWR	SEWER
SYM	SYMBOL
SYM	SYMMETRICAL
SYNTH	SYNTHETIC
SYS	SYSTEM
T	TEE
T	THERMOSTAT
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TB	TOWEL BAR
TBD	TACKBOARD
TBD	TO BE DETERMINED
TBT	THIN BRICK TILE
TC	TOP OF CONCRETE
TC	TOP OF CURB
TD	TOWEL DISPENSER
TD	TRENCH DRAIN
TDR	TOWEL DISPENSER WASTE RECEPTACLE
TE	TOP ELEVATION
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERED
TEMP	TEMPERATURE
TEMP	TEMPORARY
TER	TERRAZZO
TERM	TERMINAL
THK	THICKNESS
THRESH	THRESHOLD
THRU	THROUGH
TOBM	TOP OF BEAM
TOC	TOP OF CURB
TOF	TOP OF FOOTING
TOL	TOLERANCE
TOM	TOP OF MASONRY
TOP	TOP OF PAVING
TOP	TOP OF PARAPET
TOS	TOP OF SHEATHING
TOS	TOP OF STEEL
TOT	TOTAL
TOW	TOP OF WALL
TPH	TOILET PAPER HOLDER
TPL	TOP OF PLATE
TRANS	TRANSPARENT
TRMS	TAMPER RESISTANT METAL SCREW
TRWS	TAMPER RESISTANT WOOD SCREW
TS	TUBE STEEL
TV	TELEVISION
TYP	TYPICAL
UC	UNDERCUT
UNFIN	UNFINISHED
UNGND	UNDERGROUND
UNIF	UNIFORM
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
UV	ULTRAVIOLET
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VALVE BOX
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VCP	VITRIFIED CLAY PIPE
VCTBD	VINYL COVERED TACKBOARD
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VIB	VIBRATION
VIT	VITREOUS
VNR	VENEER
VOL	VOLUME
VS	VEHICULAR SIGN
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WC	WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WGL	WIRE GLASS
WH	WALL HYDRANT
WHTR	WATER HEATER
WI	WROUGHT IRON
WIC	WOODWORK INSTITUTE OF CALIFORNIA
WID	WIDTH
WL	WATER LINE
WL	WIND LOAD
WP	WORKING POINT
WP	WATERPROOF
WR	WATER RESISTANT
WR	WASTE RECEPTACLE
WSCT	WAINSCOT
WSP	WET STAND PIPE
WT	WEIGHT
WTR	WATER
WTRPRF	WATERPROOFING
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER
YB	YARD BOX
YD	YARD
ZA	ZINC ALLOY

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APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

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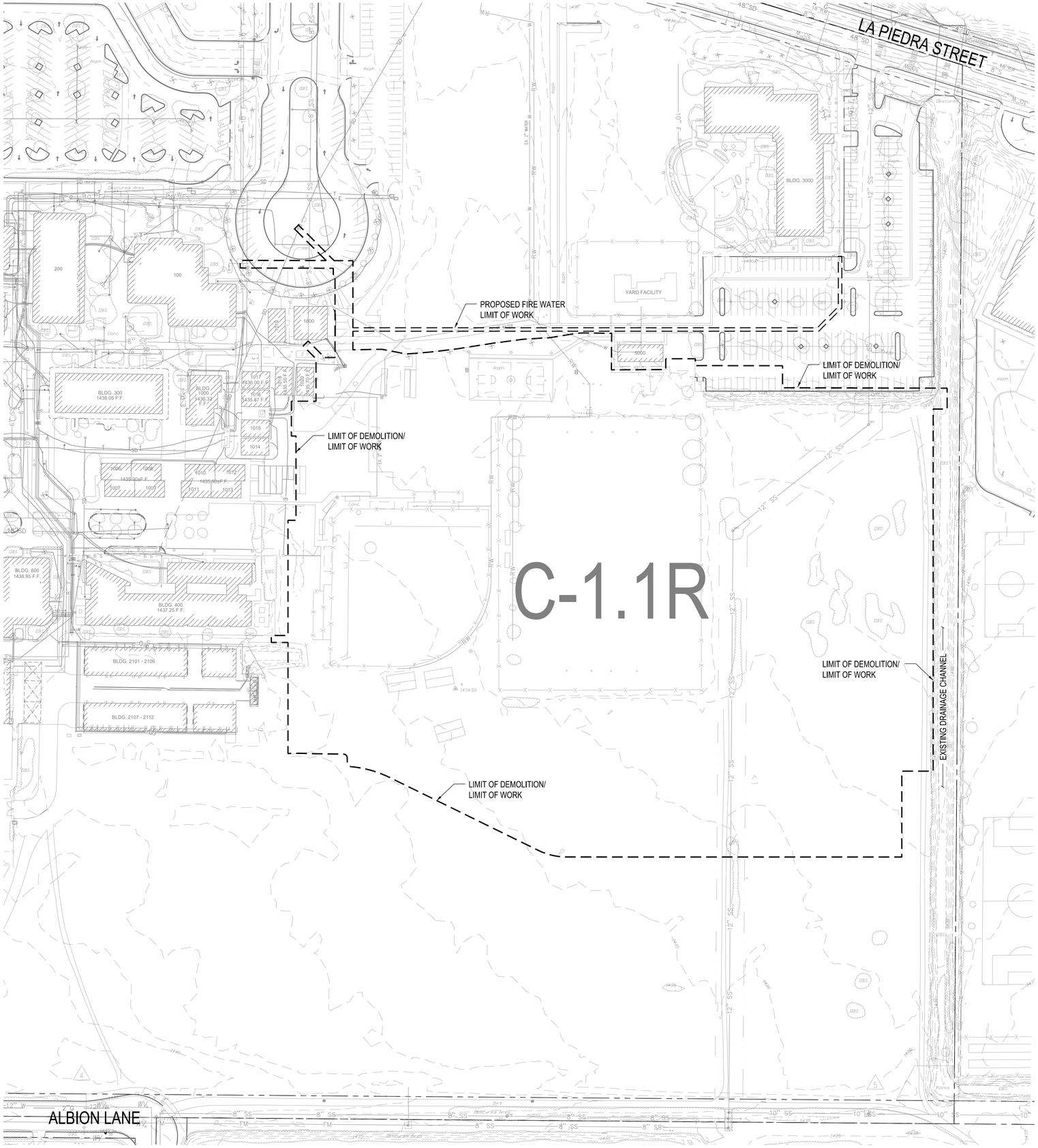
DSA 04-118898 - INCREMENT 1
GENERAL NOTES

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 01/17/19

DRAWING
G1.2



OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 60'

NOTICE TO CONTRACTOR

1. CONTRACTOR TO LOCATE ALL IRRIGATION LINES WITHIN LIMIT OF WORK. ALL IRRIGATIONS LINE TO BE DEMOLISHED, REMOVED, AND END CAPPED WITHIN LIMIT OF CONSTRUCTION.
2. ELECTRICAL, GAS, WATER AND SEWER MAY BE REQUIRED OUTSIDE OF LIMIT LINE SHOWN ON THIS PLAN. REFER TO ELECTRICAL AND LOW VOLTAGE PLANS FOR WORK OUTSIDE OF LIMIT LINE.

1" = 60' (120'-0" | 60 0 60 120 | scale feet)

LICENSED ARCHITECT — EDWARD E. ROBINETT — NO. C28042 — EXP. 9-30-21 — STATE OF CALIFORNIA

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SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

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DEMOLITION NOTES

1. DEMOLISH AND REMOVE ALL EXISTING IMPROVEMENTS WITHIN LIMITS OF WORK UNLESS INDICATED OTHERWISE. KEYNOTES REFER TO TYPICAL ITEMS OF DEMOLITION AND ARE NOT ALL-INCLUSIVE.
2. THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
3. PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
4. THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
5. COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS, MECHANICAL/ELECTRICAL FACILITIES, AND OTHER INSTALLATIONS. REFER TO LANDSCAPE, PLUMBING, ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
6. ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
7. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
LIMIT OF WORK LINE	
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING TREE	
EXISTING BRUSH	
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

WSP USA
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(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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DSA INCREMENTAL SUBMITTAL #1
OVERALL EXISTING CONDITIONS AND DEMOLITION KEY MAP

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C1.0R

REGISTERED PROFESSIONAL ENGINEER — SHAHID ASLAM — NO. 77283 — Expires 6/30/2021 — CIVIL — STATE OF CALIFORNIA

MATCHLINE - REFER BELOW FOR CONTINUATION

REFER TO UTILITY PLAN SHEET C3.0R FOR WORK NORTH OF THIS AREA

LIMIT OF WORK

SAWCUT LINE

EXISTING 8" WATER

EXISTING BOOSTER PUMP AND EXISTING CONTROLLER IN CHAINLINK ENCLOSURE

2,554,503 sf

EXISTING DRAINAGE CHANNEL

40.0' EXISTING EMWD SEWER EASEMENT

GRAVEL

1017 1436.00 F.F.

1018 1435.87 F.F.

1016 1435.87 F.F.

1015

1014

1019

1020 1435.87 F.F.

MATCHLINE - REFER ABOVE FOR CONTINUATION

EXISTING CONDITIONS AND DEMOLITION PLAN
SCALE: 1" = 30'

1" = 30' scale 30 0 30 60 feet

LICENSED ARCHITECT — DAVID E. NOWICKI — NO. C28042 — EXP. 9-30-21 — STATE OF CALIFORNIA

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APP. 04-118898 INC: 01
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SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

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DEMOLITION LEGEND

- DEMOLISH AND REMOVE FENCE AND ASSOCIATED FOOTINGS.
- DEMOLISH EXISTING UNDERGROUND UTILITIES
- APPROX. LIMITS OF WORK

DEMOLITION KEY NOTES

1	REMOVE EXISTING VEGETATION AND ANY DEBRIS, CLEAR AND GRUB WITHIN LIMIT OF GRADING.
2	DEMOLISH AND REMOVE EXISTING CHAINLINK FENCE AND ASSOCIATED FOOTINGS.
3	REMOVE AND SALVAGE EXISTING STORAGE CONTAINER AND RETURN TO OWNER.
4	PROTECT IN-PLACE EXISTING EMWD SEWER MAIN AND INFRASTRUCTURE.
5	PROTECT IN-PLACE EXISTING FENCE.
6	PROTECT IN-PLACE EXISTING RECLAIMED WATER LINE.
7	REMOVE AND SALVAGE EXISTING SOCCER GOAL AND RETURN TO OWNER.
8	PROTECT IN-PLACE EXISTING CURB.
9	REMOVE AND DIS-ASSEMBLY EXISTING FLAG POLE AND RETURN TO OWNER AND DEMOLISH AND REMOVE EXISTING ASSOCIATED CONCRETE FOOTING.
10	PROTECT IN-PLACE EXISTING DRAINAGE SWALE.
11	PROTECT IN-PLACE EXISTING DECOMPOSED GRANITE WALKWAY.
12	PROTECT IN-PLACE EXISTING AC PAVEMENT.
13	PROTECT IN-PLACE EXISTING BUILDING AND ASSOCIATED INFRASTRUCTURE.
14	DEMOLISH AND REMOVE EXISTING BALL FIELD FENCE.
15	SAWCUT, DEMOLISH AND REMOVE EXISTING PCC HARDSCAPE.
16	REMOVE AND SALVAGE EXISTING METAL BLEACHERS AND RETURN TO OWNER.
17	DEMOLISH AND REMOVE EXISTING BASEBALL DUGOUT.
18	DEMOLISH AND REMOVE EXISTING BASEBALL BATTING CAGES.
19	PROTECT IN-PLACE EXISTING STORAGE CONTAINER.
20	REFER TO ELECTRICAL PLANS FOR INFORMATION REGARDING EXISTING ELECTRICAL LINES/VAULTS TO BE REMOVED OR PROTECTED IN-PLACE.
21	DEMOLISH AND REMOVE EXISTING SCORE BOARD AND ASSOCIATED FOOTINGS.
22	DEMOLISH AND REMOVE EXISTING WATER LINE AND PROVIDE END CAP.
23	SAWCUT, DEMOLISH AND REMOVE EXISTING AC PAVEMENT.
24	DEMOLISH AND REMOVE ANY REMAINING FOOTINGS OR DEBRIS IN THIS AREA.
26	PROTECT IN-PLACE EXISTING PCC HARDSCAPE.
27	PROTECT IN-PLACE EXISTING EXISTING TREE.
28	SAWCUT, DEMOLISH AND REMOVE EXISTING PCC CURB.
29	DEMOLISH AND REMOVE EXISTING RECLAIMED WATER LINE AND ASSOCIATED VALVES, ECT. AND PROVIDE END CAP.
30	DEMOLISH AND REMOVE EXISTING BOOSTER PUMP AND EXISTING CONTROLLER AND CHAINLINK ENCLOSURE.
31	EXISTING CONCRETE UNDERGROUND ELECTRICAL, COMMUNICATIONS HANDHOLES, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
32	EXISTING RECEPTACLES AND ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
33	EXISTING ELECTRICAL PANEL, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
34	PROTECT IN-PLACE EXISTING PARKING LOT LIGHT AND POLE.
35	EXISTING WALKWAY LIGHT/POLE, CONCRETE BASE, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
36	SAWCUT, DEMOLISH AND REMOVE EXISTING TRASH ENCLOSURE SLAB, FOOTINGS AND MISCELLANEOUS ITEMS.
37	DEMOLISH AND REMOVE EXISTING BASKETBALL POLE AND ASSOCIATED FOOTING.

NOTICE TO CONTRACTOR

CONTRACTOR TO LOCATE ALL IRRIGATION LINES WITHIN LIMIT OF WORK. ALL IRRIGATIONS LINE TO BE DEMOLISHED, REMOVED, AND END CAPPED WITHIN LIMIT OF CONSTRUCTION.

REFER TO SHEET C1.0R FOR GENERAL NOTES AND LEGEND

WSP USA
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DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
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619.795.2450
www.bndesignstudio.com

DSA INCREMENTAL SUBMITTAL #1
EXISTING CONDITIONS AND DEMOLITION PLAN

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C1.1R

STRUCTURAL PROFESSIONAL ENGINEER — DAVID A. KAHN — NO. 77283 — Expires 6/30/2021 — CIVIL — STATE OF CALIFORNIA

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

40.0' EXISTING EMWD SEWER EASEMENT

40.0' EXISTING EMWD SEWER EASEMENT

EXISTING DRAINAGE CHANNEL

EX. 12" WATER

EX. WATER

1" = 30'
30 0 30 60
scale feet

EXISTING CONDITION AND SURVEY MAP
SCALE: 1" = 30'

LICENSED ARCHITECT
RICHARD E. NOWICKI
NO. C-28042
EXP. 9-30-21
STATE OF CALIFORNIA

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APP. 04-118898 INC: 01
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DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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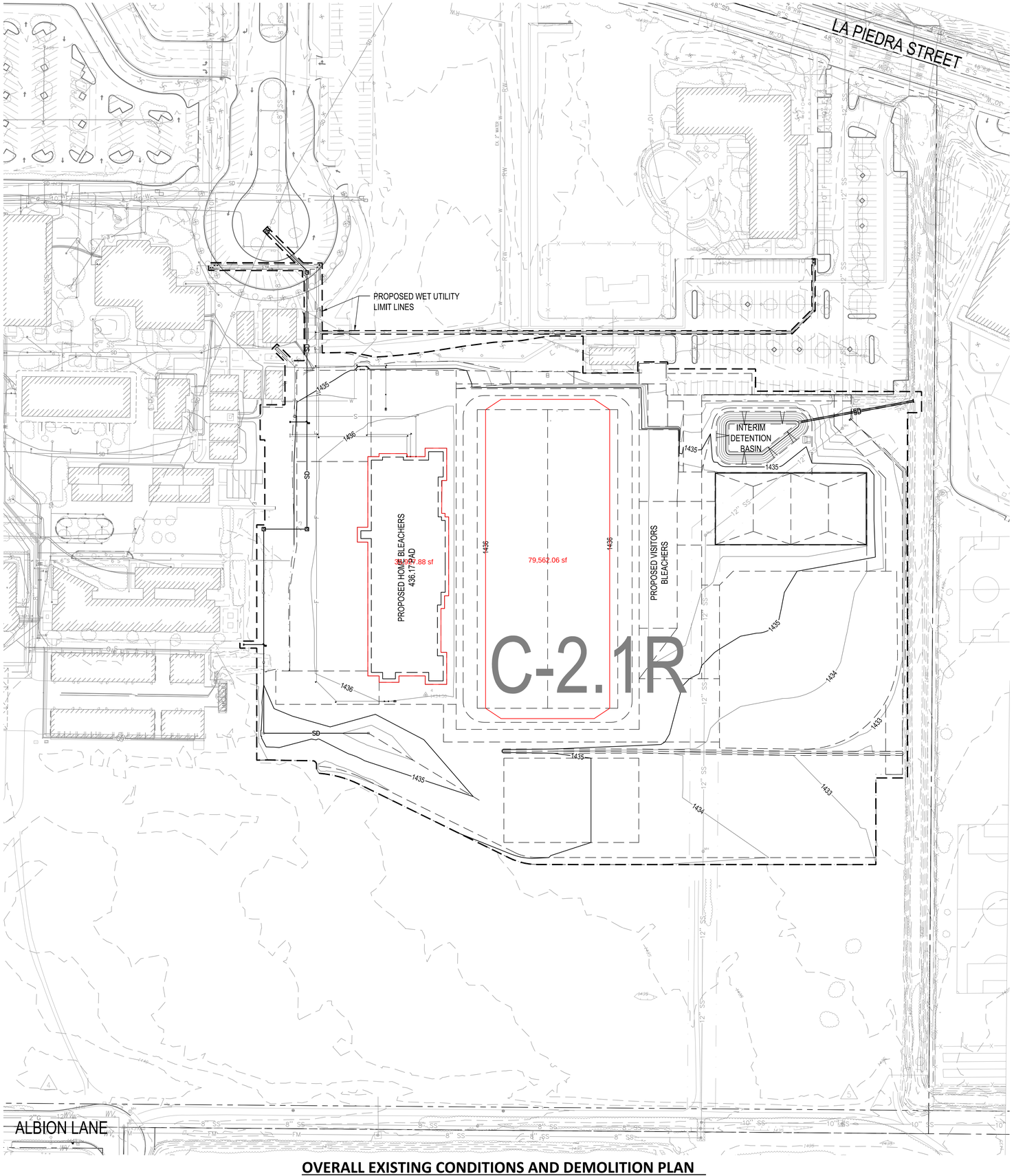
DSA INCREMENTAL SUBMITTAL #1
EXISTING CONDITION AND SURVEY MAP

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

LICENSED PROFESSIONAL ENGINEER
RICHARD E. NOWICKI
NO. 77253
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA

DRAWING
C1.2R



OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 60'

GRADING NOTES

1. NOTIFY UNDERGROUND SERVICE ALERT, (800) 227-2600, AND ALL CONCERNED UTILITY COMPANIES AT LEAST TWO WORKING DAYS IN ADVANCE OF EXCAVATION.
2. LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY CONDITIONS ON THE JOB SITE PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH HIS PRIVATE DEVELOPMENT CONSTRUCTION.
4. FILL AREAS SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, SCARIFIED, AND INSPECTED BY THE OWNERS INSPECTOR AND SOILS ENGINEER PRIOR TO THE PLACING OF FILL.
5. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
6. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL.
7. FILLS SHALL BE PLACED IN THIN LIFTS 8 INCH COMPACTED AND TESTED AS GRADING PROGRESSES UNTIL FINAL GRADES ARE ATTAINED.
8. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES IN ANY DIMENSION SHALL BE BURIED OR PLACED IN FILLS.

GENERAL NOTES

A. THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.

B. PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.

C. THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.

D. COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

E. ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.

G. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E	– ELECTRICAL	– ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	– ELECTRICAL DRAWINGS
G	– GAS	– PLUMBING DRAWINGS

NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES (UTILITY PIPES, STRUCTURES, ETC.) SHOWN ON THESE PLANS (MAIN LINES ONLY – NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY THE UTILITY AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. LOCATIONS OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SPECIAL NOTICE TO CONTRACTOR

PRIOR TO STARTING ANYWORK, CONTRACTOR TO POTHOLE, FIELD VERIFY AND RECORD ALL UTILITY POINT OF CONNECTIONS AND CROSSINGS AND CONFIRM EXISTING PIPE SIZES AND DEPTHS OF EXISTING PIPES TO MAKE SURE GRAVITY CONNECTIONS OF THE PROPOSED SEWER AND DRAINAGE LATERALS DO NOT HAVE CONFLICT AND THAT THE GRAVITY CONNECTIONS WILL WORK. NOTIFY THE SCHOOL DISTRICT REPRESENTATIVE IMMEDIATELY OF ANY CONFLICT.

1" = 60' scale: 60 0 60 120 feet

REGISTERED PROFESSIONAL ENGINEER RICHARD ASLAN KAHN NO. 77283 Expires 6/30/2021 CIVIL STATE OF CALIFORNIA

LICENSED ARCHITECT RICHARD E. NORTH NO. C-28042 EXP. 8-30-21 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA INCREMENTAL SUBMITTAL #1
OVERALL GRADING AND DRAINAGE PLAN, GENERAL NOTES, LEGEND

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C2.0R

MATCHLINE - REFER BELOW FOR CONTINUATION

EXIST. BLDG
434.15 F.F.

PROPOSED BLDG.
436.17 PAD

5.0'
OVER EXCAVATION

INTERIM
DETENTION BASIN

MATCHLINE - REFER ABOVE FOR CONTINUATION

ROUGH GRADING AND DRAINAGE PLAN
SCALE: 1" = 30'

GRADING AND DRAINAGE KEY NOTES		
1	DETENTION BASIN WITH STORM DRAIN CMP JUNCTION BOX, PER DETAIL	F C-4.0R
4	STORM DRAIN HEADWALL, PER DETAIL	A C-4.0R
5	8" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
6	12" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
7	24" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
8	2 – 12" DIA. PARALLEL SDR-35, PVC,, STORM DRAIN PIPE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
10	36" x 42" PRECAST CATCH BASIN WITH 6" THICK CONCRETE BOTTOM, SLOPED TOWARDS OUTLET @ 2% GALVANIZED STEEL GRATE & FRAME, BOLT DOWN & CBC COMPLIANT, PER DETAIL.	B C-4.0R
11	STORM DRAIN MANHOLE, PER DETAIL	D C-4.1R
12	STORM DRAIN CLEANOUT, COVER TO SAY "STORM", PER DETAIL, LEAVE RISER PIPE ±24" ABOVE ROUGH GRADE ELEVATION. RIM TO BE ADJUSTED DURING PRECISE GRADING PHASE.	B C-4.1R
13	STORM DRAIN CLEANOUT, COVER TO SAY "STORM", PER DETAIL.	B C-4.1R
14	24" SQUARE PRECAST CATCH BASIN WITH 6" THICK CONCRETE BOTTOM, SLOPED TOWARDS OUTLET @ 2% GALVANIZED STEEL GRATE & FRAME, BOLT DOWN & CBC COMPLIANT, PER DETAIL.	B C-4.0R
15	INSTALL TEMPORARY 8" STORM DRAIN ENDCAP.	
16	EARTHEN SWALE, PER DETAIL	H C-4.0R
17	18" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R

REFER TO SHEET C2.0R FOR GENERAL NOTES AND LEGEND

NOTE FOR SURVEYOR:
*ADD 1000' TO ELEVATIONS SHOWN ON PLANS

1" = 30' scale 30 0 30 60 feet

LICENSED ARCHITECT RICHARD E. NOWICKI NO. C28042 EXP. 9-30-21 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

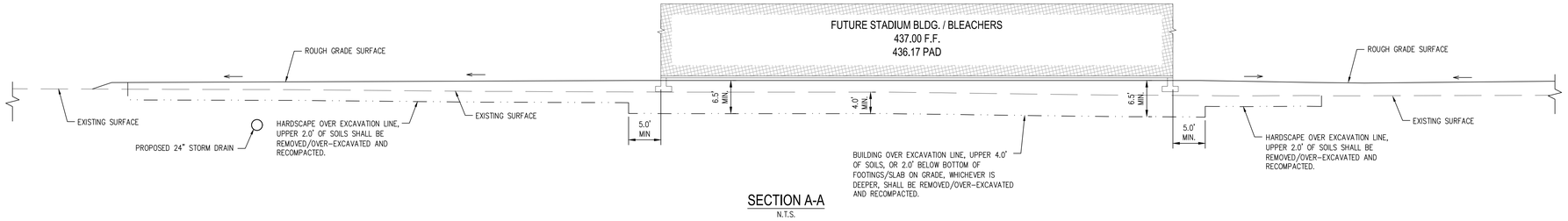
DSA INCREMENTAL SUBMITTAL #1
ROUGH GRADING AND
DRAINAGE PLAN

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C2.1R

REGISTERED PROFESSIONAL ENGINEER SHAHID ASLAM NO. 77283 Expires 6/30/2021 CIVIL STATE OF CALIFORNIA



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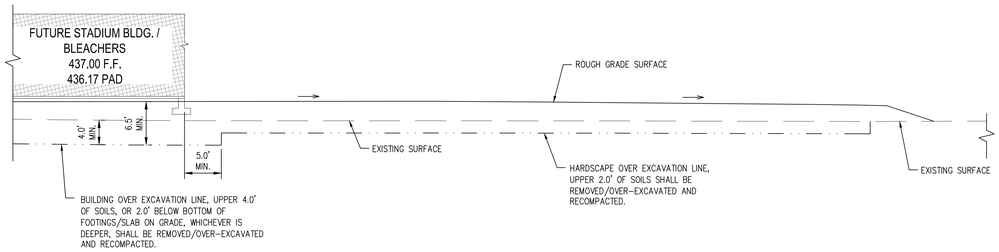

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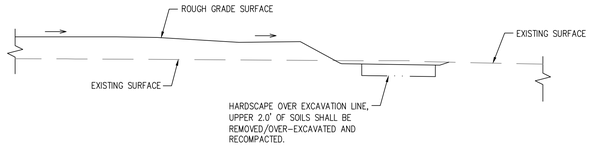
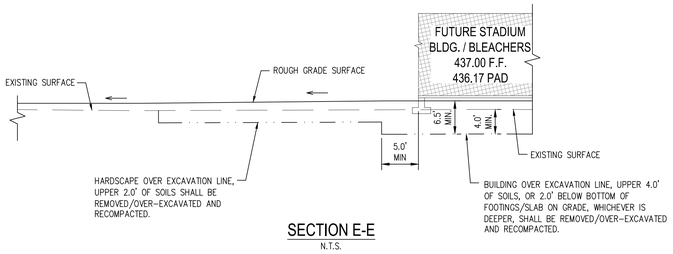


SECTION C-C
N.T.S.

SECTION D-D
N.T.S.



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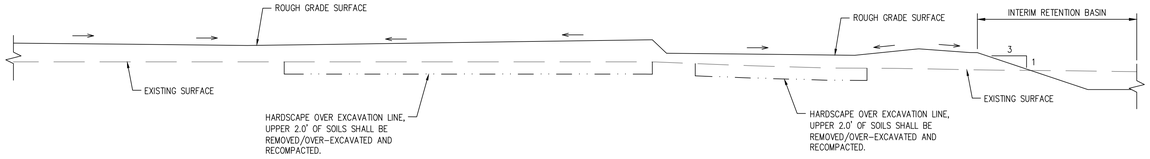

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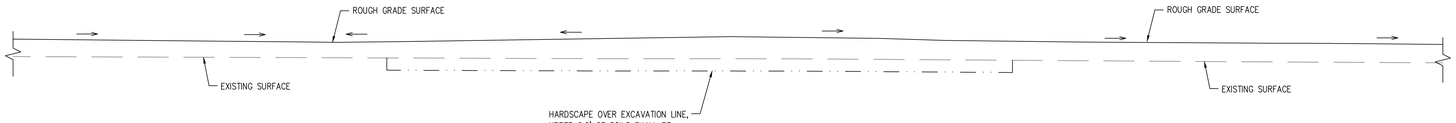

SECTION F-F

SECTION H-H

LICENSED ARCHITECT
EDWARD E. NOWICKI
EXP. 8-30-21
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
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DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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619.795.2450
www.bndesignstudio.com

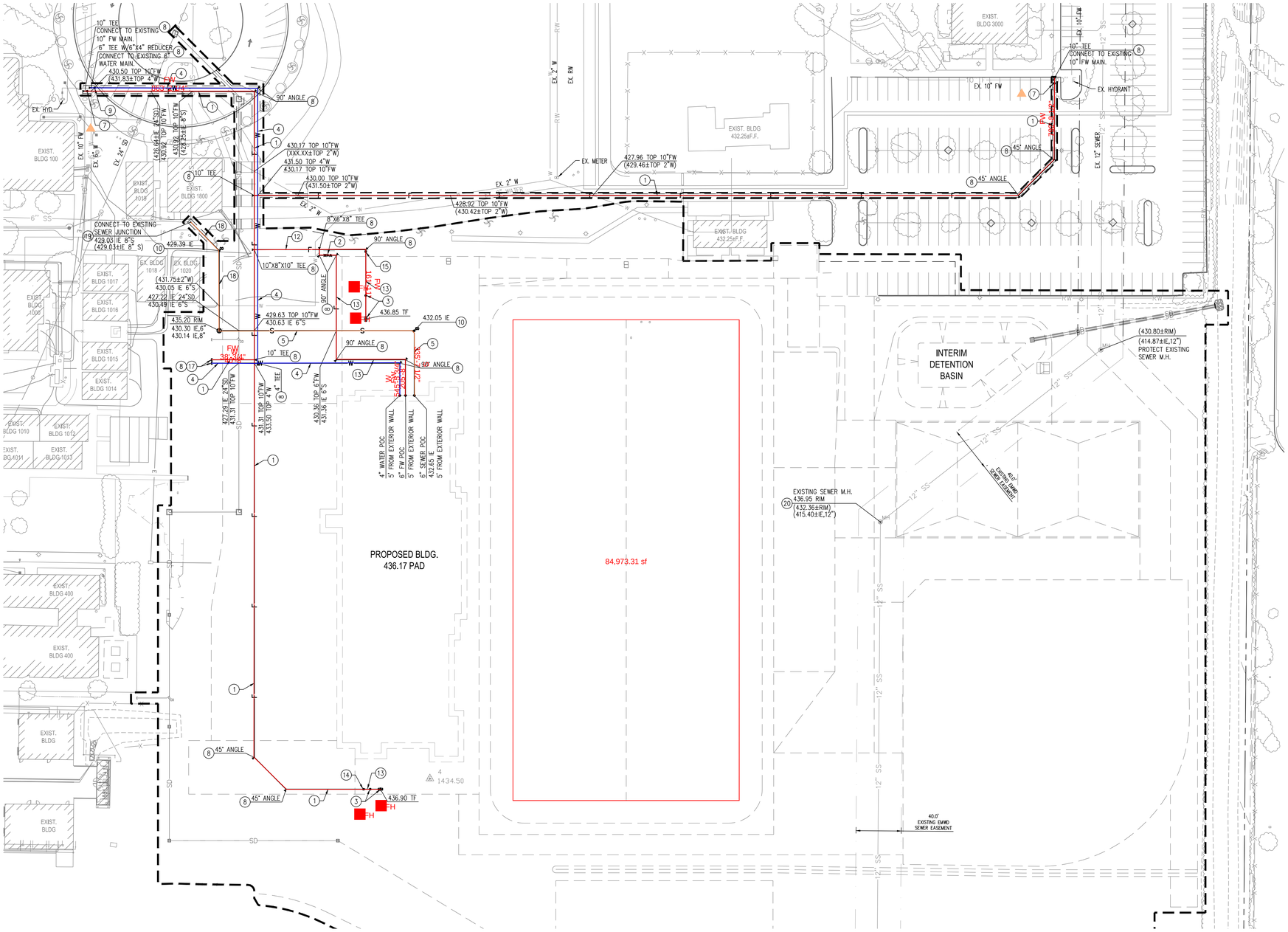
DSA INCREMENTAL SUBMITTAL #1
GRADING SECTIONS

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C2.2R

ARCHITECTURAL ENGINEER
AHMAD ASLAM AZAM
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



WET UTILITY PLAN

SCALE: 1" = 40'

NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS

1. PRIOR TO INSTALLATION, ALL PLANS AND SPECIFICATIONS SHALL BE APPROVED BY DSA. REFER TO DSA IR A-25 FOR DESIGN, INSTALLATION AND MAINTENANCE GENERAL REQUIREMENTS.
2. INSPECTIONS ARE REQUIRED: 1) PRIOR TO POURING THRUST BLOCKS. 2) FOR HYDROSTATIC TESTING , AND 3) FOR FLUSH.
3. INSTALLATION, INSPECTION , AND TESTING SHALL CONFORM TO 2016 EDITIONS CFC, NFPA 13 AND NFPA 24.
4. PRIVATE FIRE HYDRANTS SHALL BE APPROVED WET BARREL STYLE WITH A MINIMUM OF ONE 2 1/2" AND ONE 4" OUTLET. THE 4" OUTLET SHALL FACE THE FIRE DEPARTMENT ACCESS ROAD. ALL OUTLETS SHALL BE PROVIDED WITH NATIONAL STANDARD THREADS (NST) . NFPA 24, 7.1*
5. FIRE HYDRANT SUPPLY PIPING SHALL BE A MINIMUM OF SIX INCHES IN DIAMETER. THE CENTER OF THE HOSE OUTLET SHALL BE NOT LESS THAN 18" ABOVE FINAL GRADE OR, WHERE LOCATED IN A HOSE HOUSE, 12" ABOVE THE FLOOR. NFPA 24, 7.1.1.1 & 7.3.3.
6. FIRE HYDRANTS SHALL BE A MINIMUM OF 40 FEET FROM ALL STRUCTURES. NFPA 24, 7.2.3.
7. A CONTROLLED GATE VALVE SHALL BE PROVIDED FOR EACH HYDRANT IN AN ACCESSIBLE LOCATION. VALVES SHALL NOT BE LOCATED IN PARKING STALLS. NFPA 24, 7.1.1.2.
8. ALL UNDERGROUND PIPING SHALL BE LISTED FOR USE IN FIRE PROTECTION SERVICE AND COMPLY WITH AWWA STANDARDS (CLASS 150 MINIMUM) CLASS 200 PIPE SHALL BE USED WHERE THE PRESSURE MAY EXCEED 150 PSI. NFPA24, 10.1*
9. ALL BOLTED JOINTS SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION RETARDING MATERIAL AFTER INSTALLATION . NFPA 24, 10.4
10. BACKFILL SHALL BE WELL TAMPED LAYERS TO CONSIST OF 6" MINIMUM BED OF CLEAN FILL SAND OR PEA GRAVEL BELOW AND 12 " ABOVE THE PIPE (TOTAL 18" MINIMUM). NFPA 24, 10.9.1.
11. FITTINGS SHALL BE OF AN APPROVED TYPE. NFPA 24, 10.2.1.
12. A MINIMUM OF 30" OF COVER, FROM FINISH GRADE TO THE TOP OF THE PIPE , SHALL BE PROVIDED. WHEN SURFACE LOADS ARE EXPECTED , A MINIMUM OF 36" COVER SHALL BE PROVIDED. NFPA 24 , 10.4.2.2.3

NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS

13. THRUST BLOCKS, OR OTHER APPROVED METHOD OF THRUST RESTRAINT, SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION. BACK-FILL BETWEEN THE JOINTS TO PREVENT MOVEMENT OF THE PIPE . PROVIDE DETAILS AND CALCULATIONS FOR SIZING THRUST BLOCKS BASE ON ACTUAL SOIL CONDITIONS . NFPA 24, 10.6.1*
14. A HYDROSTATIC TEST (200 PSI FOR TWO HOURS OR 50 PSI OVER MAXIMUM STATIC PRESSURE, WHICHEVER IS GREATER) SHALL BE PERFORMED. NFPA24, 10.10.2.2.1.
15. THE SYSTEM SHALL BE THOROUGHLY FLUSHED BEFORE CONNECTION IS MADE TO OVERHEAD PIPING. FLOW SHALL BE THROUGH A MINIMUM OF 4" HOSE OF PIPE. NFPA 24, 10.10.2.1.
16. ALL CONTROL VALVES SHALL BE LOCKED IN THE OPEN POSITION . VALVES SHALL BE MONITORED IF THEY SERVE 20 OR MORE SPRINKLER HEADS. CBC/CFC 903.4.
17. ALL CONTROL VALVES SHALL BE LISTED INDICATING TYPE UNLESS A NON-INDICATING VALVE , SUCH AS AN UNDERGROUND GATE VALVE WITH APPROVED ROADWAY BOX COMPLETE WITH T-WRENCH , IS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION (AHJ). NFPA 24 , 6.1.1.
18. TESTS SHALL BE MADE BY THE INSTALLING CONTRACTOR IN THE PRESENCE OF THE (AHJ). PROVIDE A COMPLETED CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING TO DSA. NFPA 24, 10.10.2.2 & 14.1, CFC 901.5 & 6.

NOTICE TO CONTRACTOR

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PRIOR TO STARTING ANYWORK, CONTRACTOR TO POTHOLE, FIELD VERIFY AND RECORD ALL UTILITY POINT OF CONNECTIONS AND CROSSINGS AND CONFIRM EXISTING PIPE SIZES AND DEPTHS OF EXISTING PIPES TO MAKE SURE GRAVITY CONNECTIONS OF THE PROPOSED SEWER AND DRAINAGE LATERALS DO NOT HAVE CONFLICT AND THAT THE GRAVITY CONNECTIONS WILL WORK. NOTIFY THE SCHOOL DISTRICT REPRESENTATIVE IMMEDIATELY OF ANY CONFLICT.

SPECIAL NOTE:

A. ALL FITTINGS SHALL BE BITUMINOUS COATED. WRAP ALL BURIED, FERROUS METAL FITTINGS WITH 2 LAYERS OF 8 MIL POLYURETHANE FILM SECURED WITH PLASTIC ADHESIVE TAPE PER AWWA C105.

B. ALL BOLTS, NUTS, WASHERS AND RODDING USED FOR THE INSTALLATION OF UNDERGROUND PIPING, VALVES AND FITTING SHALL BE STAINLESS STEEL CONFORMING TO UNS 31600 (FORMERLY AISI TYPE 316). BOLTS SHALL CONFORM TO ASTM F 593, ALLOY GROUP 2, CONDITION CW1/CW2 (DEPENDING ON SIZE). NUTS SHALL CONFORM TO ASTM F 594, ALLOY GROUP 2, CONDITION CW1/CW2 (DEPENDING ON SIZE).

C. CONCRETE FOR THRUST BLOCKS SHALL BE CLASS 470-C-2000, CONFORMING TO SECTION 201 OF THE STANDARD SPECIFICATIONS. QUANTITY OF CONCRETE AND THE AREA OF BEARING IN UNDISTURBED SOIL SHALL BE AS SHOWN ON (A C-4.1B)

D. MECHANICAL RESTRAINT DEVICES SHALL BE PROVIDED AT ALL PIPE JOINTS. RESTRAINT DEVICES SHALL BE THE WEDGING ACTION TYPE. ALL RODS, NUTS AND WASHERS SHALL BE STAINLESS STEEL PER ASTM F-593 AND F-594. UNIFLANGE, EBBA IRON OR EQUAL.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED PIV, FDC ASSEMBLY	
PROPOSED FIRE HYDRANT	
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

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IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

UTILITY NOTE

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E	– ELECTRICAL	–	ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	–	ELECTRICAL DRAWINGS
G	– GAS	–	PLUMBING DRAWINGS

PIPE TRENCH DIMENSIONS:

THE FOLLOWING REQUIREMENTS ARE CONSIDERED MINIMAL UNLESS OTHERWISE INDICATED, IN ORDER TO PROVIDE ADEQUATE PIPE CLEARANCES AND BEDDING. PROVIDE TRENCHES WIDER THAN THE SPECIFIED MINIMUMS WHERE REQUIRED TO PROPERLY INSTALL THE PARTICULAR TYPE OF PIPING. IN THE EVENT UTILITY COMPANY REGULATIONS, CODE REQUIREMENTS, OR THE PIPE MANUFACTURE'S RECOMMENDATIONS DIFFER FROM THESE PROVISIONS, THE MOST RESTRICTIVE REQUIREMENTS SHALL TAKE PRECEDENCE:

1. MINIMUM PIPE BURIAL DEPTHS:

SEWER:	AS SHOWN ON PLAN + 4" BED
DRAINAGE:	24" + PIPE O.D. + 4" BED
GAS:	30" + PIPE O.D. + 4" BED
WATER (FIRE)	48" + PIPE O.D. + 6" BED
WATER (DOMESTIC)	36" + PIPE O.D. + 4" BED
ALL OTHER:	24" (30" AT PLANTERS) + PIPE O.D. + 4" BED

WATER (IRRIGATION PRESSURE PIPING – RECLAIM)
3" DIAMETER OR LESS: 18" + PIPE O.D. + 2" BED
4" DIAMETER OR MORE: SAME AS DOMESTIC WATER

NOTES: FINISH GRADE TO TOP OF PIPE, TYPICAL O.D.: OUTSIDE DIMENSION.

2. TRENCH WIDTHS:

SEWER & DRAINAGE:	12" + PIPE O.D. FOR 4" TO 18" DIA. PIPE
GAS	8" + PIPE O.D.
WATER (FIRE):	12" + PIPE O.D.
WATER (DOMESTIC):	8" + PIPE O.D.

WATER (IRRIGATION PRESSURE PIPING):
3" DIAMETER OR LESS: 4" + PIPE O.D.
4" DIAMETER OR MORE: 8" + PIPE O.D.

1" = 40'

40 0 40 80
scale feet
120'-0"

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

LICENSED ARCHITECT
ROBERT E. NOWICKI
NO. C-28042
EXP. 9-30-21
STATE OF CALIFORNIA

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

UTILITY KEY NOTES

1	10" DIA. C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
2	PIV, FDC ASSEMBLY, PER DETAIL	G C-4.0R
3	6" WET BARREL FIRE HYDRANT ASSEMBLY, PER DETAIL	C C-4.3R
4	4" DIA. PVC, SCH-80 POTABLE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
5	6" DIA. PVC, SDR-35 SEWER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	A,B C-4.3R
6	RELOCATED 12" EMWD SEWER MAIN, PER SEPARATE DRAWINGS.	
7	10" R.S.G.V. PER DETAIL	B C-4.2R
8	THRUST BLOCK PER SPECIFICATIONS AND PER DETAIL	A C-4.1R
9	4" R.S.G.V. PER DETAIL	B C-4.2R
10	SEWER CLEANOUT PER SPECIFICATIONS AND PER DETAIL, LEAVE RISER PIPE ±24" ABOVE ROUGH GRADE ELEVATION. RIM TO BE ADJUSTED DURING PRECISE GRADING PHASE.	B C-4.1R
12	8" DIA, C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
13	6" DIA, C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
14	10" X 6" REDUCER	
15	8" X 6" REDUCER	
16	SEWER MANHOLE PER DETAIL	A C-4.4R
17	PROVIDE ENDCAP	
18	8" DIA. PVC, SDR-35 SEWER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	A,B C-4.3R
19	CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING 8" SEWER PRIOR TO START OF ANY CONSTRUCTION.	
20	RAISE EXISTING SEWER MANHOLE FRAME AND GRATE TO PROPOSED ELEVATION. ADD GRADE RINGS AND STEPS AS REQUIRED PER EMWD STANDARD DRAWING SB-53.	

NOTE FOR SURVEYOR:
***ADD 1000' TO ELEVATIONS SHOWN ON PLANS**

GENERAL UTILITY NOTES

1. THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
2. PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
3. THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
4. COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
5. ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 09/04/19
PLOTTED: 12:56 P
WSP PROJECT NO.: WA31600003
DESIGN BY: AAK, SLL
DRAWN BY: SLL
REVIEWED BY: AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA INCREMENTAL SUBMITTAL #1

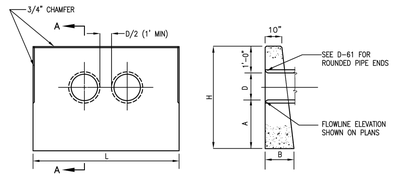
WET UTILITY PLAN

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C3.0R

REGISTERED PROFESSIONAL ENGINEER
SHAHID ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



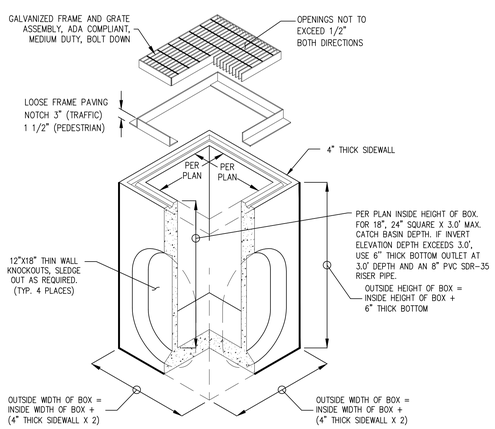
D	A	B	H	SINGLE L	SINGLE CONCRETE (C.Y.)	DOUBLE L	DOUBLE CONCRETE (C.Y.)
12"	2'	1'	4'	4'	0.46	5'-8"	.62

NOTES

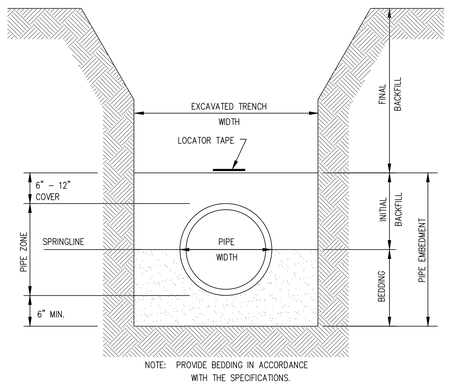
1. CONCRETE SHALL BE 560-C-3250.
2. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

LEGEND ON PLANS

HEADWALL DETAIL (A)
NOT TO SCALE

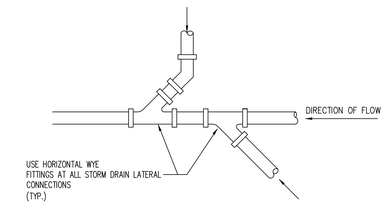


STORM DRAIN CATCH BASIN (B)
NOT TO SCALE

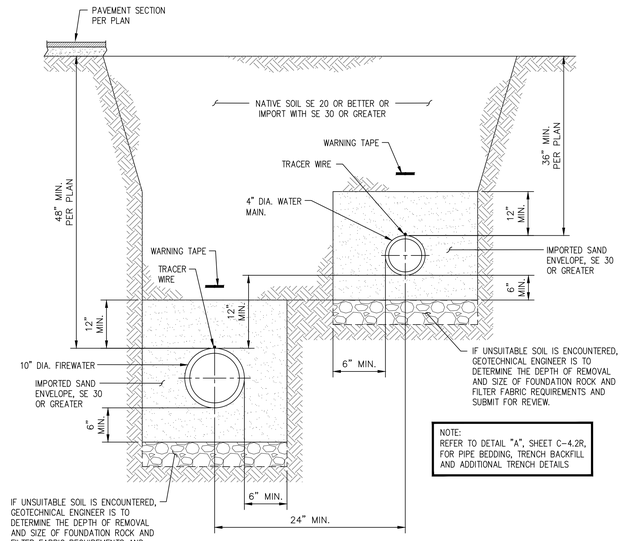


NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.

TRENCH FOR STORM DRAIN (C)
NOT TO SCALE



STORM DRAIN LATERAL CONNECTION (D)
NOT TO SCALE

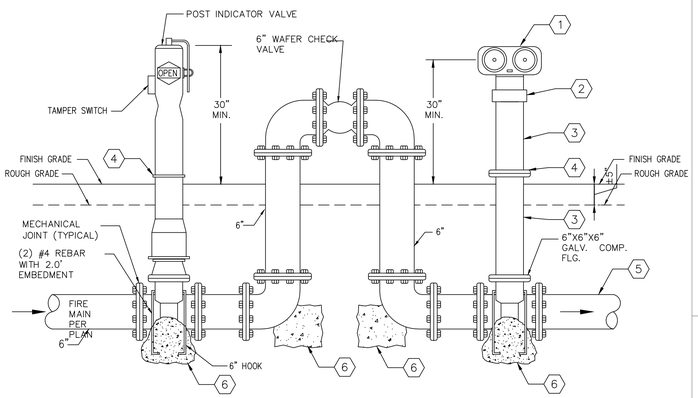


DOUBLE PIPE TRENCH DETAIL (E)
NOT TO SCALE

NOTES:

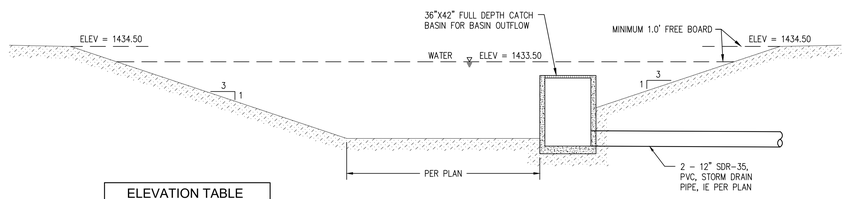
1. FREE STANDING FIRE DEPARTMENT CONNECTION WITH KNOX CAPS. 2"x2 1/2"x2 1/2" SIAMESE CONNECTION W/ CLAPPER INTERNAL 6" CHECK VALVE
2. IDENTIFICATION NAME PLATE.
3. PROVIDE AND INSTALL 6" DIA SCH-40 GALVANIZED STEEL PIPE
4. CORROSION RESISTANT PLATE.
5. GALVANIZED PIPING BURIED BELOW GRADE TO BE TARRED AND WRAPPED.

CONCRETE THRUST BLOCK TO BE SIZED PER NFPA #24.



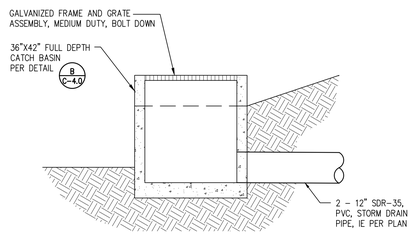
NOTE:
PROVIDE PROTECTIVE COATING OF ASPHALTIC MASTIC ON ALL METALLIC PIPE, RODS, NUTS & BOLTS.

FDC, CV, PIV ASSEMBLY (G)
NOT TO SCALE

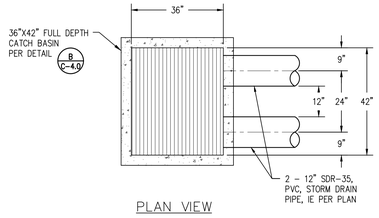


ELEVATION TABLE	BASIN A
TOP OF BASIN	1434.50
TOP OF CATCH BASIN	1432.50
FLOOR OF BASIN	1428.50
IE 2-12" PIPE	1328.00

DETANTION BASIN AND 36"x42" CATCHBASIN OUTFALL
N.T.S.

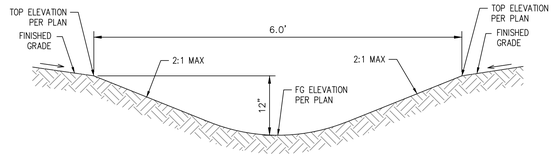


36"x42" CATCH BASIN AND JUNCTION BOX



PLAN VIEW

WATER QUALITY / DETENTION BASIN (F)
NOT TO SCALE



EARTHEN SWALE (H)
NOT TO SCALE

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

PRELIMINARY-NOT FOR CONSTRUCTION

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Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

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WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

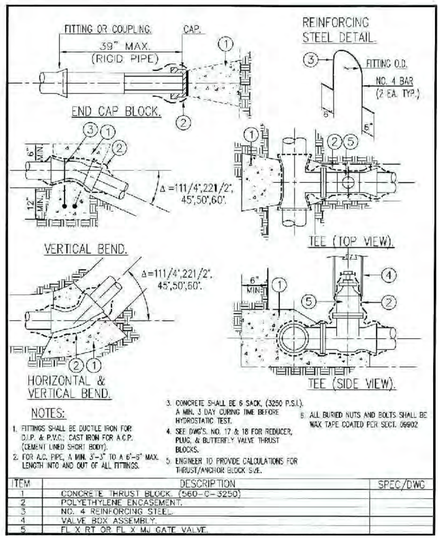
BakerNowicki designstudio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DETAILS

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

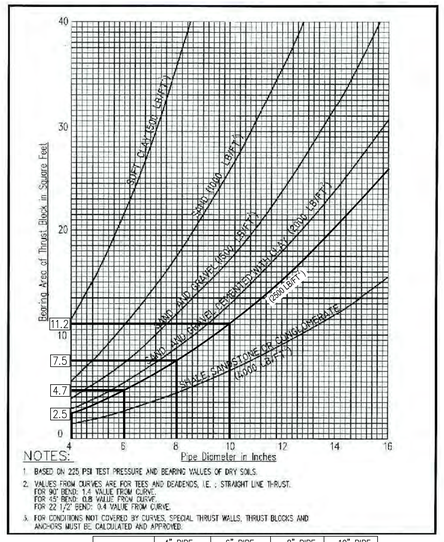
DRAWING
C4.0R



NOTES:

1. FITTINGS SHALL BE DUCTILE IRON FOR D.I.P. & P.V.C. CAST IRON FOR A.C.P. (CEMENT LINED SHORT BODY).
2. FOR A.C. PIPE, A MIN. 3'-3" TO A 6'-9" MAX. LENGTH INTO AND OUT OF ALL FITTINGS.
3. CONCRETE SHALL BE 6 SACK, (3250 P.S.I.). A MIN. 3 DAY CURING TIME BEFORE HYDROSTATIC TEST.
4. SEE DWG'S. NO. 17 & 18 FOR REDUCER, PLUG, & BUTTERFLY VALVE THRUST BLOCKS.
5. ENGINEER TO PROVIDE CALCULATIONS FOR THRUST/ANCHOR BLOCK SIZE.
6. ALL BURIED NUTS AND BOLTS SHALL BE MAX TAPE COATED PER SDCL 09692

ITEM	DESCRIPTION	SPEC/DWG
1	CONCRETE THRUST BLOCK (560-C-3250)	
2	POLYETHYLENE ENCASEMENT.	
3	NO. 4 REINFORCING STEEL.	
4	VALVE BOX ASSEMBLY.	
5	FL X RT OR FL X MJ GATE VALVE.	



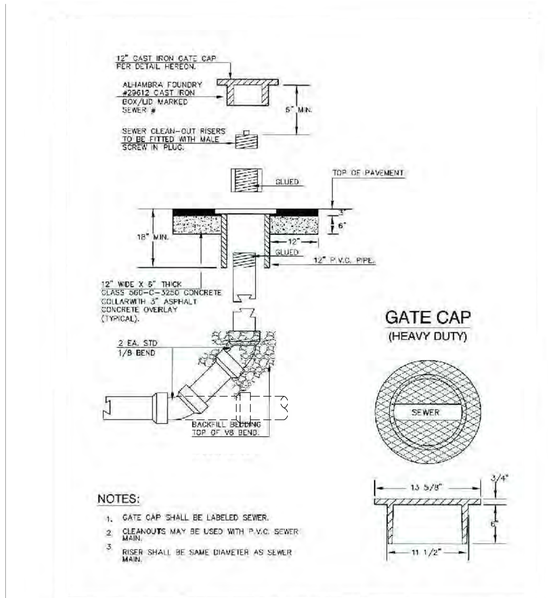
NOTES:

1. BASED ON 225 PSI TEST PRESSURE AND BEARING VALUES OF DRY SOILS.
2. VALUES FROM CURVES ARE FOR TEES AND DEADENDS, I.E., STRAIGHT LINE THRUST.
   FOR 90° BEND: 1.4 VALUE FROM CURVE.
   FOR 45° BEND: 0.8 VALUE FROM CURVE.
   FOR 22 1/2° BEND: 0.4 VALUE FROM CURVE.
3. FOR CONDITIONS NOT COVERED BY CURVES, SPECIAL THRUST WALLS, THRUST BLOCKS AND ANCHORS MUST BE CALCULATED AND APPROVED.

	4" PIPE	6" PIPE	8" PIPE	10" PIPE
90° BEND	3.5 SF	6.6 SF	10.5 SF	15.7 SF
45° BEND	2.0 SF	3.8 SF	6.0 SF	9.0 SF
22.5° BEND	1.0 SF	1.9 SF	3.0 SF	4.5 SF

THRUST / SUPPORT BLOCK (A)
NOT TO SCALE

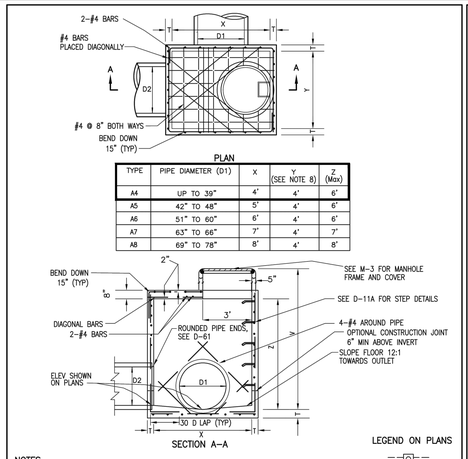
NOTES:
1. "BEARING AREA BASED ON SOIL BEARING VALUE OF 2500 PSF, AND A MIN. OF 4.0' COVER (PER MTGL, INC. GEOTECHNICAL INVESTIGATION, 08/30/2019, 5,000 SEAT STADIUM AND BUILDINGS AT MENIFEE VALLEY CAMPUS)



NOTES:

1. GATE CAP SHALL BE LABELED SEWER.
2. CLEANOUTS MAY BE USED WITH P.V.C. SEWER MAIN.
3. RISER SHALL BE SAME DIAMETER AS SEWER MAIN.

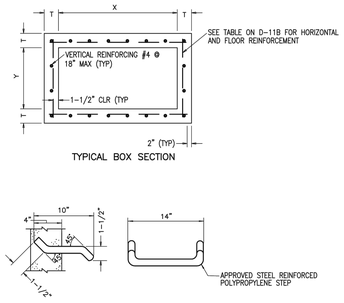
SEWER CLEANOUT (B)
NOT TO SCALE



TYPE	PIPE DIAMETER (D1)	X	Y (SEE NOTE 8)	Z (Max)
A4	UP TO 39"	4'	4'	6'
A5	42" TO 48"	5'	4'	6'
A6	51" TO 60"	6'	4'	6'
A7	63" TO 66"	7'	4'	7'
A8	69" TO 78"	8'	4'	8'

NOTES
1. SEE D-11A AND D-11B FOR ADDITIONAL NOTES AND DETAILS.
2. CONCRETE BASE SHALL BE 560-C-3250.
3. ALL PRECAST COMPONENTS SHALL BE REINFORCED WITH 1/4" DIAMETER STEEL, WOUND SPIRALLY ON 4" CENTERS.
4. ALL JOINTS SHALL BE SET IN CLASS C MORTAR.
5. MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE UNLESS OTHERWISE NOTED.
6. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A 1/2" RADIUS.
7. MANHOLE COVER TO BE MARKED "STORM DRAIN".
8. MODIFICATIONS TO "Y" DIMENSION IS REQUIRED IF PIPE (D2) EXCEEDS 39".
9. IF CONSTRUCTED ADJACENT TO SIDEWALK, TOP OF MANHOLE AND SLAB TO MATCH SIDEWALK SLOPE AND FINISH.

DETAIL D-11A



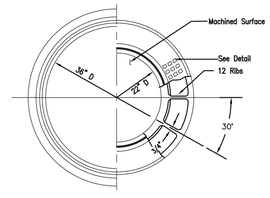
NOTES
1. CONCRETE SHALL BE 560-C-3250 UNLESS OTHERWISE NOTED.
2. REINFORCING STEEL SHALL COMPLY WITH THIS DRAWING (D-11A AND D-11B) UNLESS OTHERWISE SPECIFIED.
3. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE DEFORMED BARS CONFORMING TO LATEST ASTM SPECIFICATIONS.
4. BENDS SHALL BE IN ACCORDANCE WITH LATEST ACI CODE.
5. MINIMUM SPLICE LENGTH FOR REINFORCING SHALL BE 30 DIAMETERS.
6. FLOOR SHALL HAVE A WOOD TROWEL FINISH AND, EXCEPT WHERE USED AS JUNCTION BOXES, SHALL HAVE A MINIMUM SLOPE OF 1:12 TOWARD THE OUTLET.
7. DEPTH V IS MEASURED FROM THE TOP OF THE STRUCTURE TO THE FLOWLINE OF THE BOX.
8. WALL THICKNESS AND REINFORCING STEEL REQUIRED MAY BE DECREASED IN ACCORDANCE WITH TABLE ON D-11B.
9. WALL THICKNESS SHALL BE STEPPED ON THE OUTSIDE OF THE BOX.
10. WHEN THE STRUCTURE DEPTH V EXCEEDS 4', STEPS SHALL BE CAST INTO THE WALL AT 15" INTERVALS FROM 15" ABOVE FLOOR TO WITHIN 12" OF TOP OF STRUCTURE. WHERE POSSIBLE, PLACE STEPS IN WALL WITHOUT PIPE OPENING, OTHERWISE OVER OPENING OF SMALLEST DIAMETER.
11. ALTERNATE STEP MAY BE AN APPROVED STEEL REINFORCED POLYPROPYLENE STEP.
12. UPON APPROVAL OF THE AGENCY, THE USE OF PRECAST STORM STRUCTURES IS ACCEPTABLE AS AN ALTERNATE TO CAST-IN-PLACE. PRECAST UNITS SHALL CONFORM TO ASTM STANDARDS AND BE MANUFACTURED IN A PERMANENT FACILITY DESIGNED FOR THAT PURPOSE.

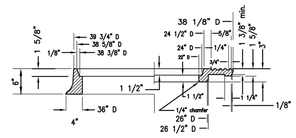
DETAIL D-11A

BOX SECTION REINFORCEMENT (HORIZONTAL AND FLOOR)

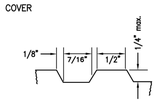
MAXIMUM SPAN X OR Y	DEPTH V	THICKNESS T	HORIZONTAL AND FLOOR REINFORCEMENT SIZE AND SPACING
3' TO 4'	4'	6"	#4 @ 18"
4'-1" TO 7'			#4 @ 12"
7'-1" TO 8'			#4 @ 8"
3' TO 4'	4'-1" TO 8'	6"	#4 @ 18"
4'-1" TO 5'			#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 8'			#4 @ 6"
3' TO 4'	8'-1" TO 12'	6"	#4 @ 15"
4'-1" TO 5'		8"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 8'			#4 @ 6"
3' TO 4'	12'-1" TO 16'	8"	#4 @ 12"
4'-1" TO 5'			#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'			#5 @ 8"
3' TO 4'	16'-1" TO 20'	8"	#4 @ 12"
4'-1" TO 5'		10"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'			#5 @ 8"
3' TO 4'	20'-1" TO 24'	8"	#4 @ 12"
4'-1" TO 5'		10"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'		12"	#5 @ 8"

DETAIL D-11B





NOTES
1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 35B.
2. Weights: Frame 314 lbs ~ 363 lbs.
   Outer Cover 285 lbs ~ 330 lbs.
   Inner Cover 147 lbs ~ 171 lbs.
3. Machine all matching surfaces and seats of frame and cover to prevent rocking.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.



DETAIL M-03

STORM DRAIN MANHOLE DETAIL (D)
NOT TO SCALE

LICENSED ARCHITECT
EDWARD E. NOWICKI
No. C28042
EXP. 8-30-21
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

PRELIMINARY-NOT FOR CONSTRUCTION

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

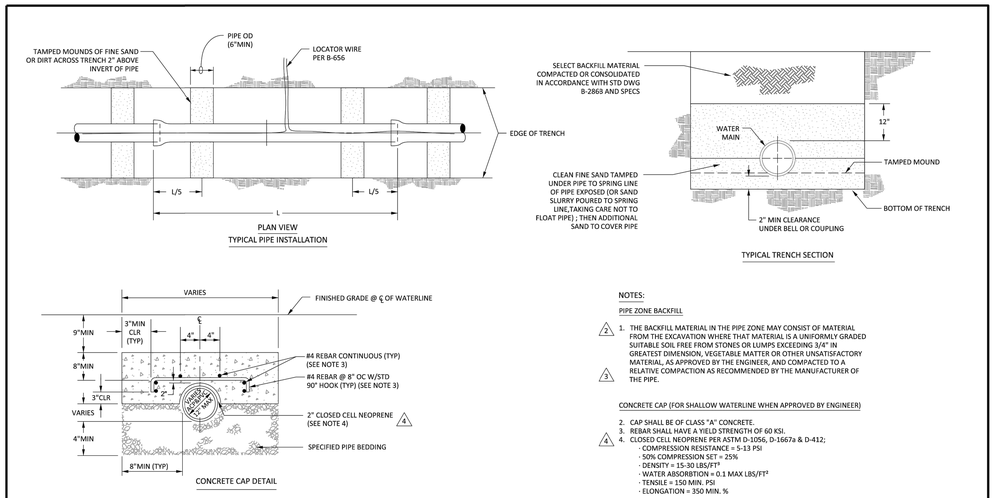
BakerNowicki designstudio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DETAILS

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C4.1R



NOTES:

PIPE ZONE BACKFILL

2. 1. THE BACKFILL MATERIAL IN THE PIPE ZONE MAY CONSIST OF MATERIAL FROM THE EXCAVATION WHERE THAT MATERIAL IS A UNIFORMLY GRADED SUITABLE SOIL FREE FROM STONES OR LUMPS EXCEEDING 3/4" IN GREATEST DIMENSION, VEGETABLE MATTER OR OTHER UNSATISFACTORY MATERIAL, AS APPROVED BY THE ENGINEER, AND COMPACTED TO A RELATIVE COMPACTION AS RECOMMENDED BY THE MANUFACTURER OF THE PIPE.

3

CONCRETE CAP (FOR SHALLOW WATERLINE WHEN APPROVED BY ENGINEER)

2. CAP SHALL BE OF CLASS "A" CONCRETE.
3. REBAR SHALL HAVE A YIELD STRENGTH OF 60 KSI.
4 4. CLOSED CELL NEOPRENE PER ASTM D-1056, D-1667a & D-412;
   - COMPRESSION RESISTANCE = 5-13 PSI
   - 50% COMPRESSION SET = 25%
   - DENSITY = 15-30 LBS/FT³
   - WATER ABSORBTION = 0.1 MAX LBS/FT²
   - TENSILE = 150 MIN. PSI
   - ELONGATION = 350 MIN. %

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
4	11/22/17	GS	UPDATED TITLE BLOCK, LOGO, FONT, ADDED CLOSED CELL NEOPRENE, REVISED NOTE 4	AGA	11/22/17
3	11/30/07	RE	REVISED NOTE 1		
2	5/20/02	JLG	REVISED NOTE 1	VJE	5/20/02
1	11/21/95	KER	REDRAWN W/CAD ON MYLAR	VJE	6/1/96

REFERENCES: SUPERCEDES A-537
FILE I.D.: \kaual\eng\std dwgs\B-408.dgn
SCALE: NONE
DRAWN BY: KER

APPROVALS		
	INITIAL	DATE
DESIGN		
CONSTRUCTION	VJE	5/8/96
INSPECTION	GM	5/10/96
OPERATIONS	JCW	6/11/96
SUBMITTED	MLF	5/9/96

RECOMMENDED Charlie J. Bachmann 6/11/96 — DIRECTOR OF ENGINEERING — DATE

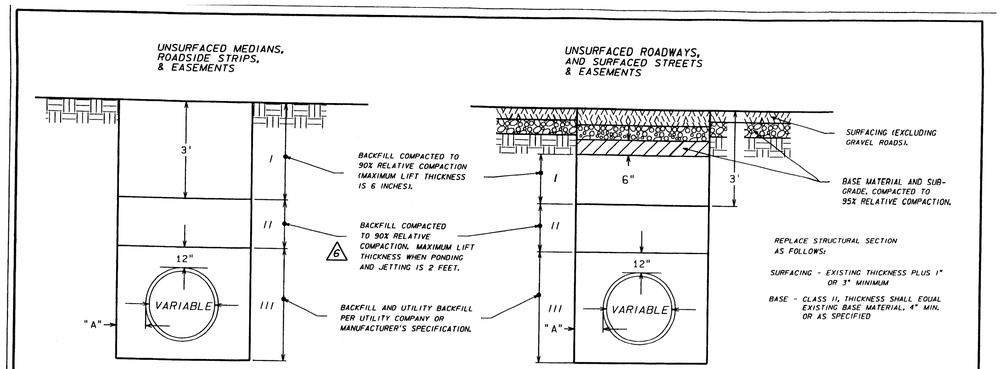
APPROVED G. Hoote Rugge 6/11/96 — CHIEF ENGINEER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

WATER PIPE INSTALLATION
ACP, PVC AND DIP

B-408

WATER MAIN PIPE TRENCH INSTALLATION AND BACKFILL
NOT TO SCALE



REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
6	7/9/98	KER	REVISED TO INCLUDE ALL PREVIOUS REVISIONS		
5	9/25/03	CM	REVISED COMPACTION REQUIREMENT		

REFERENCES: REFERENCE SA-408
FILE I.D.: \\nfogro ap\eng\sid drgs\b286b.dgn
SCALE: NTS
DRAWN BY: JJW

APPROVALS		
	INITIAL	DATE
DESIGN	JJW	12/29/94
CONSTRUCTION		
INSPECTION	JCW	12/30/94
OPERATIONS		
SUBMITTED		

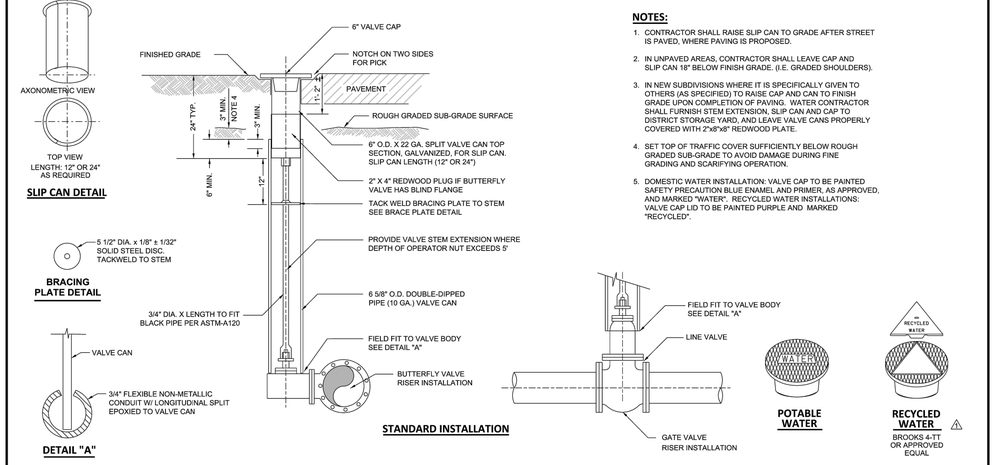
RECOMMENDED Joseph D. Van Sickle 12/29/94 — DIRECTOR OF ENGINEERING — DATE

APPROVED G. Hoote Rugge 12/30/94 — ASST GENERAL MANAGER, ENGINEERING — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

TRENCH BACKFILL

B-286B 6



NOTES:

1. CONTRACTOR SHALL RAISE SLIP CAN TO GRADE AFTER STREET IS PAVED, WHERE PAVING IS PROPOSED.
2. IN UNPAVED AREAS, CONTRACTOR SHALL LEAVE CAP AND SLIP CAN 18" BELOW FINISH GRADE. (I.E. GRADED SHOULDERS).
3. IN NEW SUBDIVISIONS WHERE IT IS SPECIFICALLY GIVEN TO OTHERS (AS SPECIFIED) TO RAISE CAP AND CAN TO FINISH GRADE UPON COMPLETION OF PAVING. WATER CONTRACTOR SHALL FURNISH STEM EXTENSION, SLIP CAN AND CAP TO DISTRICT STORAGE YARD, AND LEAVE VALVE CANS PROPERLY COVERED WITH 2"x8"x8" REDWOOD PLATE.
4. SET TOP OF TRAFFIC COVER SUFFICIENTLY BELOW ROUGH GRADED SUB-GRADE TO AVOID DAMAGE DURING FINE GRADING AND SCARIFYING OPERATION.
5. DOMESTIC WATER INSTALLATION: VALVE CAP TO BE PAINTED SAFETY PRECAUTION BLUE ENAMEL AND PRIMER, AS APPROVED, AND MARKED "WATER". RECYCLED WATER INSTALLATIONS: VALVE CAP LID TO BE PAINTED PURPLE AND MARKED "RECYCLED".

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	5/3/19	GS	RESTORED ORIGINAL TRIANGULAR CAP, UPDATED TITLE BLOCK, FONT AND LOGO	MJA	5/3/19

REFERENCES: SUPERCEDES A-492 & PA-2
FILE I.D.: \kaual\eng\std dwgs\B-668.dgn
SCALE: NONE
DRAWN BY: GS

APPROVALS		
	INITIAL	DATE
DESIGN		
CONSTRUCTION	MJ	11/10/14
INSPECTION	CD	11/3/14
OPERATIONS	KC	11/3/14
SUBMITTED	MJA	11/3/2014

RECOMMENDED Joe Mouawad 11/10/2014 — DIRECTOR OF ENGINEERING — DATE

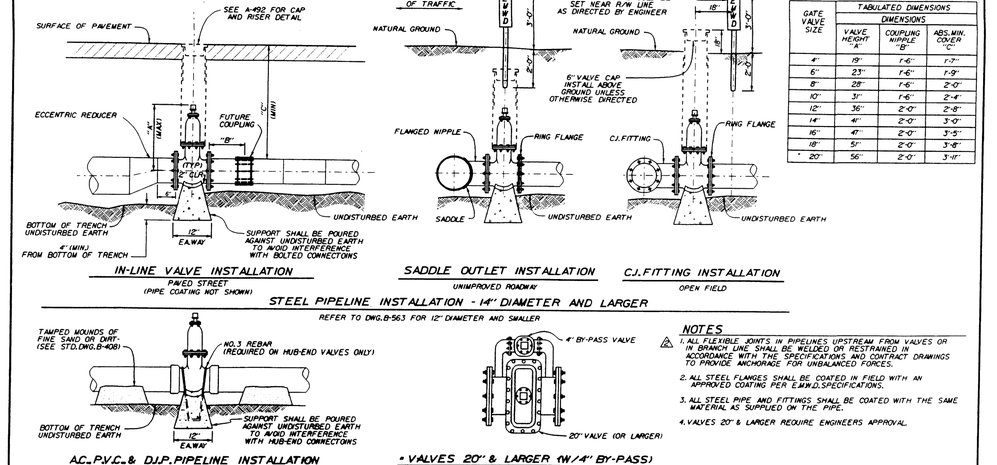
APPROVED Charlie Bachmann 11/12/2014 — ASSISTANT GENERAL MANAGER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

VALVE CAP & RISER DETAIL

B-668 1

GATE VALVE AND RISER DETAIL
NOT TO SCALE



GATE VALVE SIZE	TABULATED DIMENSIONS — DIMENSIONS: VALVE HEIGHT "A"	COUPLING NIPPLE "B"	ABS. MIN. COVER "C"
4"	19"	1'-6"	1'-7"
6"	23"	1'-6"	1'-9"
8"	28"	1'-6"	2'-0"
10"	31"	1'-6"	2'-4"
12"	36"	2'-0"	2'-8"
14"	41"	2'-0"	3'-0"
16"	47"	2'-0"	3'-5"
18"	51"	2'-0"	3'-8"
20"	56"	2'-0"	3'-11"

STEEL PIPELINE INSTALLATION - 14" DIAMETER AND LARGER

REFER TO DWG.B-563 FOR 12" DIAMETER AND SMALLER

NOTES

1. ALL FLEXIBLE JOINTS IN PIPELINES UPSTREAM FROM VALVES OR IN BRANCH LINE SHALL BE WELDED OR RESTRAINED IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS TO PROVIDE ANCHORAGE FOR UNBALANCED FORCES.
2. ALL STEEL FLANGES SHALL BE COATED IN FIELD WITH AN APPROVED COATING PER E.M.W.D. SPECIFICATIONS.
3. ALL STEEL PIPE AND FITTINGS SHALL BE COATED WITH THE SAME MATERIAL AS SUPPLIED ON THE PIPE.
4. VALVES 20" & LARGER REQUIRE ENGINEERS APPROVAL.

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	8/6/96	KER	REDRAWN W/CADD ON MYLAR	VJE	8/7/96
2	7/29/97	KER	REVISED NOTE NO.1	VJE	8/1/97

REFERENCES: ORIGINAL STD.DWG.B-255, DRAWN 11/20/72
FILE I.D.: D:\STANDARDS\B255.DGN
SCALE: NONE
DRAWN BY: K.E.R.

APPROVALS		
	INITIAL	DATE
DESIGN	WLW	9/20/72
CONSTRUCTION		
INSPECTION		
OPERATIONS		
SUBMITTED	JFW	9/21/72

RECOMMENDED — DIRECTOR OF ENGINEERING — DATE

APPROVED Doyle F. Boen 11/72 — CHIEF ENGINEER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

INSTALLATION OF VERTICAL GATE VALVES
STEEL PIPE 14" & LARGER /A.C., P.V.C., & D.I. 4" & LARGER

B-255 2

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

PRELIMINARY-NOT FOR CONSTRUCTION

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 09/04/19
PLOTTED: 12:56 P
WSP PROJECT NO.: WA31600003
DESIGN BY: AAK, SLL
DRAWN BY: SLL
REVIEWED BY: AAK

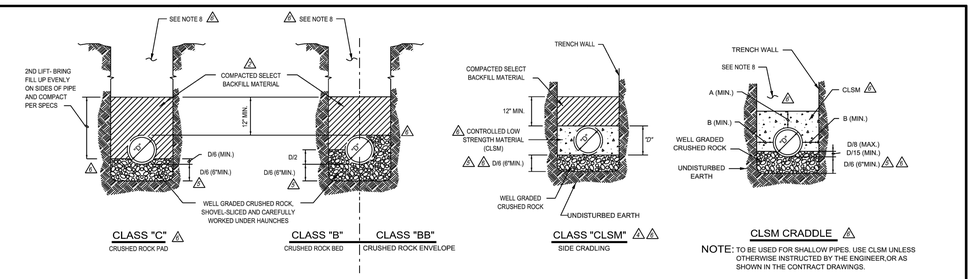
BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DETAILS

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C4.2R



PIPE I.D.	DIMENSIONS "A"	"B"
6"	5"	6"
8"	5"	6"
10"	5"	6"
12"	5"	6"
15"	5"	6"
18"	5"	6"
21"	6"	6"
24"	6"	6"
27"	7"	7"
30"	8"	8"
33"	9"	9"
36"	9"	9"
39"	10"	10"
42"	11"	11"

CRUSHED ROCK SIEVE ANALYSIS PER ASTM C33, SIZE NO. 67	
100% PASSING	1"
90-100% PASSING	3/4"
20-55% PASSING	3/8"
0-10% PASSING	#4
0-5% PASSING	#8

NOTES
1. CLSM CRADLE AND ARCHES SHALL BE INSTALLED AS REQUIRED BY THE SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.
2. ALL CLSM SHALL BE PER EMWD STANDARD SPECIFICATIONS.
3. ALL CRUSHED ROCK SHALL MEET THE REQUIREMENTS OF ASTM C33, SIZE NO. 67.
4. TWO APPROVED FLEXIBLE JOINTS SHALL BE USED AT EACH END OF SEWER PIPE ENCASEMENTS PURSUANT TO STD. DWG. SB-63.
5. CLSM CAN BE POURED AGAINST TRENCH WALL OR MAY BE FORMED.
7. CONSOLIDATING BACKFILL MATERIAL BY WATER FLOODING NOT PERMITTED IN CLAY SOILS.
8. ALL COMPACTION ABOVE THE PIPE ZONE, WITHIN A ROAD RIGHT-OF-WAY, TO BE PER THE REGULATORY ROAD AGENCY AND STD. DWG. SB-158

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
4	4/11/13	GS	REVISE ROCK BEDDING, NOTES, AND REMOVED CLASS "A" & "AA"	MJA	6/5/13
3	6/4/99	KER	REVISE ROCK THICKNESS UNDER PIPE TO 6"	CB	6/299
2	11/4/98	KER	CLARIFY CLASS "A" CONCRETE SIDE CRADLING	VJR	11/498
1	2/19/97	KER	REDRAWN TO INCLUDE ALL PREVIOUS REVISIONS	VJR	2/2697
0	1/31/95	KER	REVISED CALLOUT FOR TRENCH BACKFILL	VJR	1/3/95

REFERENCES: SUPERCEDES SB-76 — SCALE: NONE
FILE I.D.: KAUAI/ENGINEERING/STDDWG — DRAWN BY: KER

APPROVALS	INITIAL	DATE
INSPECTIONS		
OPERATIONS		
SUBMITTED	VJR	3/4/93

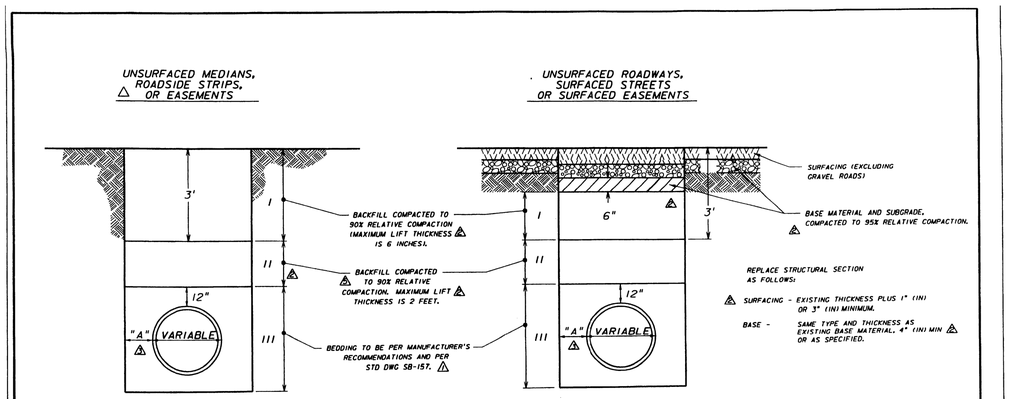
RECOMMENDED Joseph D. Van Sickle 3/5/93 — DIRECTOR OF ENGINEERING — DATE
APPROVED William E. Plummer 3/8/93 — CHIEF ENGINEER — DATE

EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

PIPE ZONE BEDDING FOR SEWER PIPE

SB-157 6

SEWER PIPE TRENCH INSTALLATION AND BACKFILL
NOT TO SCALE A



CLEARANCE "A"
1. CLAY PIPE: SEE STD. DWG. SB-159
2. PLASTIC PIPE: PIPE SIZES THROUGH 12" - "A"=6"-9" PIPE SIZES OVER 12" - "A"=1'-0" MIN.

I. STRUCTURAL ZONE
II. INTERMEDIATE ZONE
III. PIPE AND UTILITY ZONE

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
7	7/15/93	CFW	ADDED STD DWG NO TO ZONE C	VJR	7/22/93
6	1/31/95	KER	ADDED PIPE TO TRENCH CLEARANCE REQ	VJR	2/3/95
5	7/11/95	KER	REV'D TO COMPLY W/CURRENT GREEN BOOK	VJR	7/13/95
4	2/19/97	KER	REV'D TO INCLUDE ALL PREVIOUS REVISIONS	VJR	2/26/97
3	0/15/03	CM	REVISED COMPACTION REQUIREMENT	VJR	10/11/03

REFERENCES: SUPERCEDES SB-76 — SCALE: NONE
FILE I.D.: m:\grapnics\vista\mainlstandard dwg\sb158.dgn — DRAWN BY KER

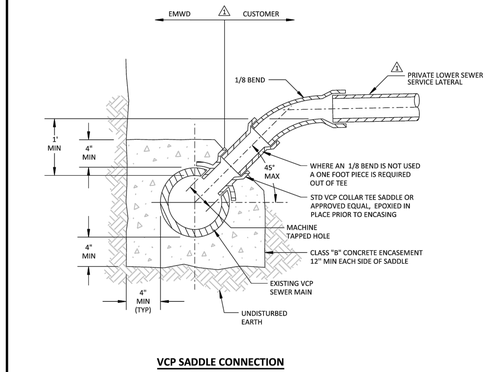
APPROVALS	INITIAL	DATE
DESIGN		
CONSTRUCTION		
INSPECTION		
OPERATIONS		
SUBMITTED	VJR	3/4/93

RECOMMENDED Joseph D. Van Sickle 3/5/93 — DIRECTOR OF ENGINEERING — DATE
APPROVED William E. Plummer 3/8/93 — CHIEF ENGINEER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

TRENCH BACKFILL FOR SEWER PIPE

SB-158 5



REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	6/28/19	GS	REVISED FONT, TITLE BLOCK AND ADDED PRIVATE CUSTOMER SERVICE	KLM	6/28/19

REFERENCES: SUPERCEDES SA-44 & SA-86 — SCALE: NONE
FILE I.D.: \kauai\eng\std dwgs\SB-176.dgn — DRAWN BY: KER

APPROVALS	INITIAL	DATE
DESIGN		
CONSTRUCTION		
INSPECTION	KLM	4/24/97
OPERATIONS		
SUBMITTED	VJR	4/23/97

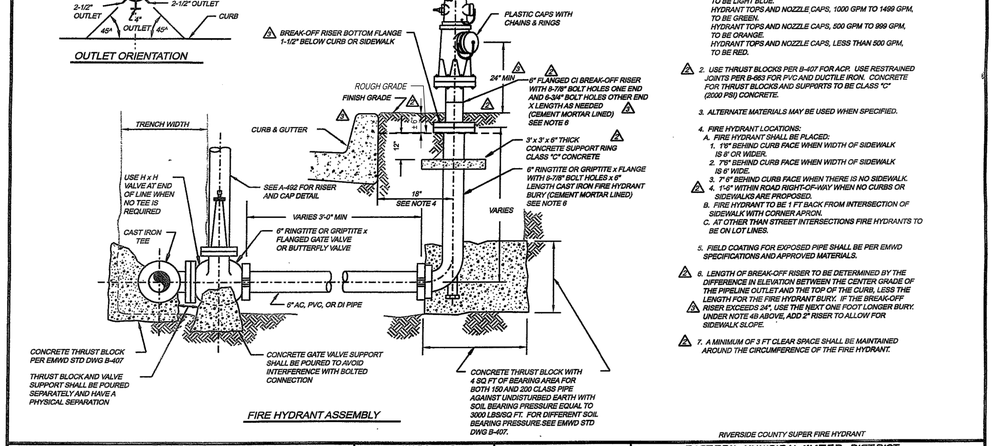
RECOMMENDED DIRECTOR OF ENGINEERING — DATE
APPROVED Charles J. Bachmann 4/25/97 — ASSISTANT GENERAL MANAGER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

PRIVATE LOWER SEWER SERVICE LATERAL CONNECTION VCP & PLASTIC PIPE

SB-176 1

SEWER LATERAL CONNECTION
NOT TO SCALE B



GENERAL NOTES
1. PAINTS:
HYDRANT TOPS AND NOZZLE CAPS, 1500 GPM OR GREATER, TO BE LIGHT BLUE.
HYDRANT TOPS AND NOZZLE CAPS, 1000 GPM TO 1499 GPM, TO BE GREEN.
HYDRANT TOPS AND NOZZLE CAPS, 500 GPM TO 999 GPM, TO BE ORANGE.
HYDRANT TOPS AND NOZZLE CAPS, LESS THAN 500 GPM, TO BE RED.
2. USE THRUST BLOCKS PER B-407 FOR ACP. USE RESTRAINED JOINTS PER B-663 FOR PVC AND DUCTILE IRON. CONCRETE FOR THRUST BLOCKS AND SUPPORTS TO BE CLASS "C" (2000 PSI) CONCRETE.
3. ALTERNATE MATERIALS MAY BE USED WHEN SPECIFIED.
4. FIRE HYDRANT LOCATIONS:
A. FIRE HYDRANT SHALL BE PLACED:
1. 15" BEHIND CURB FACE WHEN WIDTH OF SIDEWALK IS 6' OR WIDER.
2. 7'6" BEHIND CURB FACE WHEN WIDTH OF SIDEWALK IS 6' WIDE.
3. 7'6" BEHIND CURB FACE WHEN THERE IS NO SIDEWALK.
4. 1'6" WITHIN ROAD RIGHT-OF-WAY WHEN NO CURBS OR SIDEWALKS ARE PROPOSED.
B. FIRE HYDRANT TO BE 1 FT BACK FROM INTERSECTION OF SIDEWALK WITH CORNER APRON.
C. AT OTHER THAN STREET INTERSECTIONS FIRE HYDRANTS TO BE ON LOT LINES.
5. FIELD COATING FOR EXPOSED PIPE SHALL BE PER EMWD SPECIFICATIONS AND APPROVED MATERIALS.
6. LENGTH OF BREAK-OFF RISER TO BE DETERMINED BY THE DIFFERENCE IN ELEVATION BETWEEN THE CENTER GRADE OF THE PIPELINE OUTLET AND THE TOP OF THE CURB, LESS THE LENGTH FOR THE FIRE HYDRANT BURY. IF THE BREAK-OFF RISER EXCEEDS 24", USE THE NEXT ONE FOOT LONGER BURY. UNDER NOTE 4B ABOVE, ADD 2" RISER TO ALLOW FOR SIDEWALK SLOPE.
7. A MINIMUM OF 3 FT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT.

RIVERSIDE COUNTY SUPER FIRE HYDRANT

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
3	3/30/93		REDRAWN W/CADD ON MYLAR	VJR	7/2/93
2	3/7/00	GR	REV NOTES 1,2,4A,7,ADD CONC SUPPORT &DIMS	VJR	5/19/00
1	10/2/06	RE	REVISED F.H. DIMENSION, GRADE & BREAK-OFF NOTES		10/10/06

REFERENCES: ORIG DRAWN 8/75 — SCALE: NONE
FILE I.D.: KAUAI/ENGINEERING/STD/DWG — DRAWN BY

APPROVALS	INITIAL	DATE
DESIGN		
CONSTRUCTION		
INSPECTION		
OPERATIONS	DR	5/18/93
SUBMITTED	VJR	5/19/93

RECOMMENDED Joseph D. Van Sickle 6/1/93 — DIRECTOR OF ENGINEERING — DATE
APPROVED G. Hoolie Rugge 7/2/93 — CHIEF ENGINEER — DATE

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

6" x 2-2 1/2" x 1-4" FIRE HYDRANT INSTALLATION-AC, PVC, DI PIPE

B-517 3

FIRE HYDRANT DETAIL
NOT TO SCALE C

LICENSED ARCHITECT — RICHARD E. NOWICKI — NO. C28042 — EXP. 8-30-21 — STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

PRELIMINARY-NOT FOR CONSTRUCTION

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 09/04/19
PLOTTED: 12:56 P.
WSP PROJECT NO.: WA31600003
DESIGN BY: AAK, SLL
DRAWN BY: SLL
REVIEWED BY: AAK

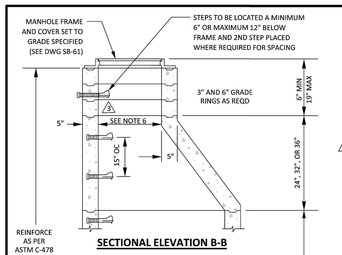
BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DETAILS

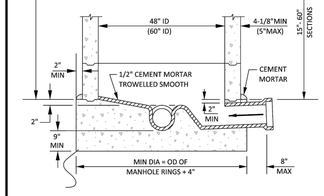
NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C4.3R



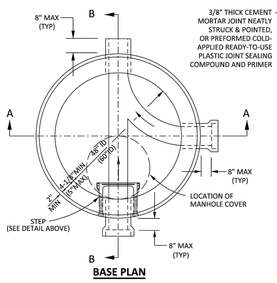
SECTIONAL ELEVATION B-B



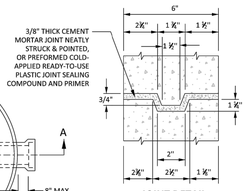
SECTIONAL ELEVATION A-A

NOTES

1. PRECAST REINFORCED CONCRETE MANHOLES SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ASTM C-478 AND:
   A. SHALL BE DESIGNED FOR AASHO H-20 LOADING.
   B. CONCRETE SHALL BE COMPACTLY VIBRATED, CENTRIFUGALLY SPUN, OR MECHANICALLY TAMPED.
2. SEWER MAINS ARE TO BE LAID THRU THE MANHOLE WHERE POSSIBLE AND USED AS A FORM FOR THE INVERT. THE TOP 1/2 DIAMETER OF THE PIPE IS TO BE BROKEN OUT TO A NEAT LINE. BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CEMENT MORTAR.
3. CONCRETE BASE SHALL BE OF CLASS "A" CONCRETE AND PLACED IN ONE OPERATION. CONCRETE INVERTS SHALL BE TO GRADE AND ALIGNMENT AND FINISHED WITH A SMOOTH SURFACE. SPECIAL CARE SHALL BE USED IN FORMING ALL CHANNELS TO FACILITATE THE FLOWOF SEWAGE.
4. ALL MANHOLE TOPS SHALL BE INSTALLED WITH THE MANHOLE COVER OVER THE UPSTREAM INLET, EXCEPT AS OTHERWISE SPECIFIED.
5. SEE DRAWING SB-61 FOR DETAILS AND INSTALLATION OF MANHOLE COVER AND FRAME.
6. CONTRACTOR TO USE MANHOLES WITH A 24" CLEAR OPENING FOR SEWERS 24" DIA AND SMALLER AND 36" CLEAR OPENING FOR SEWERS LARGER THAN 24" DIA UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
7. STANDARD 48" & 60" MANHOLES AS SHOWN HEREON TO BE INSTALLED WHEN DEPTH TO PIPE SHELF IS GREATER THAN 5' FROM FINISHED STREET GRADE.
8. MANHOLE STEPS SHALL BE EITHER CAST IN PLACE OR M.A. INDUSTRIES STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC DRIVE-IN STEP. INSTALLATION TO BE BY MANHOLE MANUFACTURER. ALL STEPS ORIENTED 180° FROM MANHOLE OUTLET. GRADE RING STEPS SHALL BE PLACED BETWEEN GRADE RINGS AND GROUTED IN PLACE. BOTTOM STEP SHALL BE CAST IN PLACE TO BE USED AS CLEANING HOOK AND SHALL BE PLACED 6" MIN AND 12" MAX FROM TOP OF SHELF.
9. DIMENSIONS PERTAINING TO 60" ID REINFORCED MANHOLES SHOWN IN PARENTHESES (X").
10. JOINT SHALL BE 3/8" THICK CEMENT MORTAR NEATLY STRUCK AND POINTED OR PREFORMED COLD-APPLIED READY-TO-USE PLASTIC JOINT SEALING COMPOUND AND PRIMER.
11. ALL MATERIALS TO BE PER EMWD APPROVED MATERIALS LIST.



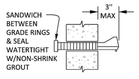
BASE PLAN



JOINT DETAIL

MANHOLE STEP DETAILS 3

STD STEP 2 3



GRADE RING STEP

REVISIONS					
NO.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
6	7/2/19	GS	UPDATED TITLE BLOCK, FONT, LOGO AND PAGE LAYOUT	ACA	7/2/19
5	1/9/03	CM	REVISED NOTE 8, M.A. IND. DRIVE-IN STEP	VJB	10/15/03
4	12/11/96	KER	REVISED STEP DETAIL AND NOTE 8	VJB	12/16/96
3	11/13/96	KER	REVISED STEP DETAIL AND NOTE 8	VJB	11/14/96
2	8/6/96	KER	REDRAWN W/CADD ON MYLAR	VJB	8/7/96
REFERENCES: SUPERCEDES B-XXX				SCALE: NONE	
FILE I.D.: \kauai\eng\std dwgs\SB-53.dgn				DRAWN BY: KER	

APPROVALS		
	INITIAL	DATE
DESIGN	MM	1/31/07
CONSTRUCTION		
INSPECTION		
OPERATIONS		
SUBMITTED	DM	

emwd EASTERN MUNICIPAL WATER DISTRICT

EASTERN MUNICIPAL WATER DISTRICT
STANDARD DRAWING

PRECAST REINFORCED CONCRETE STANDARD
48" & 60" I.D. MANHOLE

RECOMMENDED _____ DIRECTOR OF ENGINEERING DATE

APPROVED Dwight T. Bunn 1/31/07 ASSISTANT GENERAL MANAGER DATE

SB-53 5

SEWER MANHOLE
NOT TO SCALE A

LICENSED ARCHITECT
EDWARD E. NOWICKI
No. C-28042
EXP. 8-30-21
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

PRELIMINARY-NOT FOR CONSTRUCTION

WSP USA
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(951) 471-1625 Fax: (951) 471-1635

DATE: 09/04/19
PLOTTED: 12:56 P
WSP PROJECT NO. WA31600003
DESIGN BY: AAK, SLL
DRAWN BY: SLL
REVIEWED BY: AAK

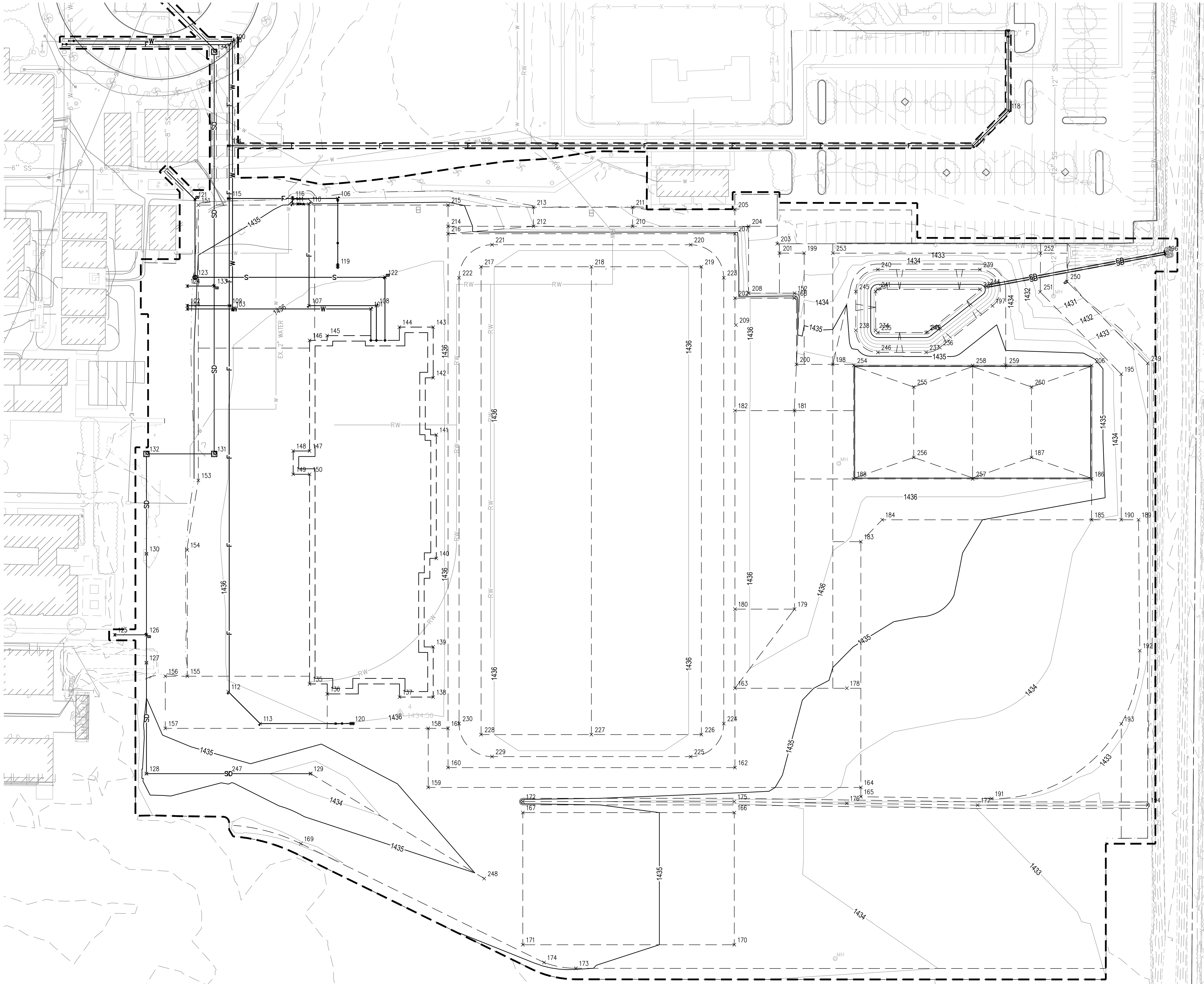
BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DETAILS

NO. DATE ISSUE

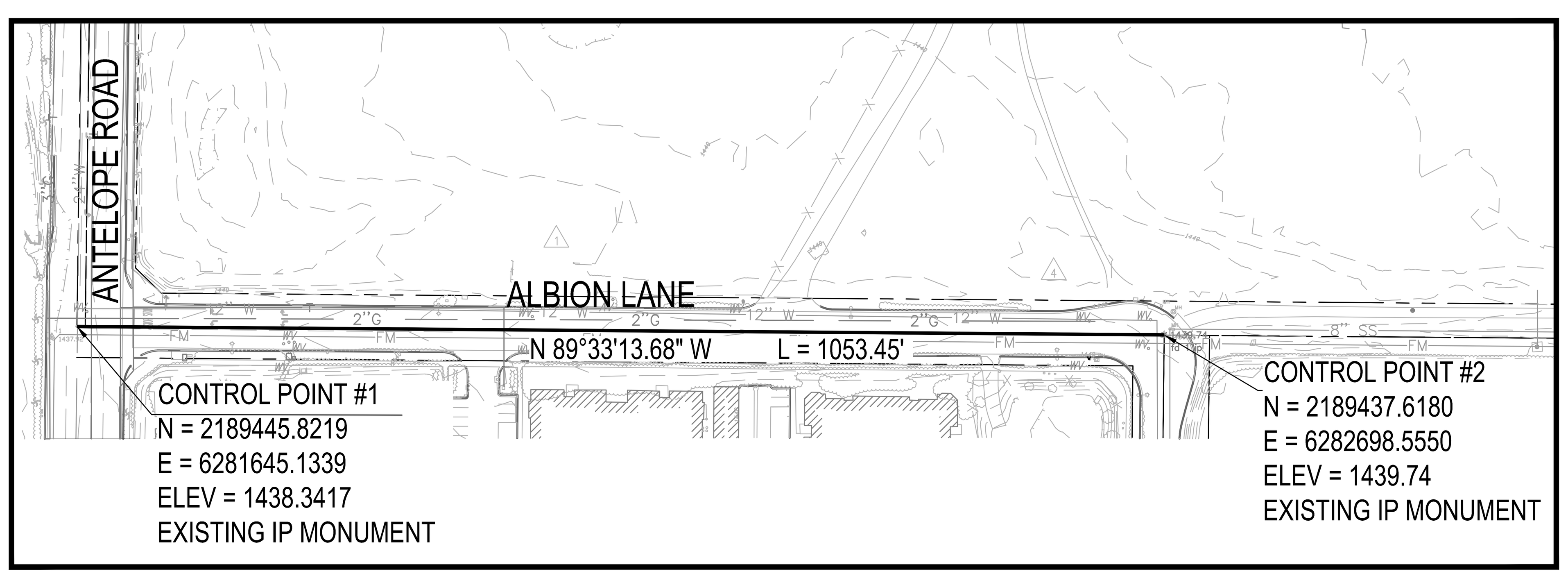
PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C4.4R



HORIZONTAL CONTROL PLAN

SCALE: 1" = 40'



CONTROL POINTS, BASIS OF BEARING

SCALE: 1" = 100'

BENCH MARK:

CONTROL POINT #1, EXISTING IP MONUMENT (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE.
N = 2189445.82
E = 6281645.13
ELEV: 1438.34

BASIS OF BEARINGS:

N 89°33'13.68" W, L=1053.45'
BETWEEN CONTROL POINT #1 (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE) AND CONTROL POINT #2 (LOCATED AT INTERSECTION OF ALBION LANE AND HANOVER LANE)

COORDINATE LIST

PT. NO.	NORTHING	EASTING	DESCRIPTION
100	2190662.9479	6282975.6665	WATER ANGLE
101	2190419.9582	6283101.2706	WATER ANGLE
102	2190422.9582	6282934.6082	FIREWATER ENDCAP
103	2190419.9582	6282975.6665	WATER TEE
104	2190419.9582	6282934.6082	WATER ENDCAP
105	2190659.9563	6282972.6665	FIREWATER ANGLE
106	2190520.2847	6283071.1747	FIREWATER ANGLE
107	2190422.9582	6283045.1039	FIREWATER ANGLE
108	2190422.9582	6283106.2706	FIREWATER ANGLE
109	2190422.9582	6282972.6665	FIREWATER TEE
110	2190515.2847	6283045.1039	FIREWATER ANGLE
111	2190515.2847	6283030.1039	FIREWATER ANGLE
112	2190072.4382	6282971.7643	FIREWATER ANGLE
113	2190043.4582	6283000.7443	FIREWATER ANGLE
114	2190568.1708	6282972.6665	FIREWATER TEE
115	2190520.2847	6282972.6665	FIREWATER TEE
116	2190520.2847	6283030.1039	FIREWATER TEE
117	2190568.1708	6283648.1990	FIREWATER ANGLE
118	2190599.8686	6283679.8968	FIREWATER ANGLE
119	2190458.9421	6283071.1747	FIRE HYDRANT
120	2190043.4582	6283084.1319	FIRE HYDRANT
121	2190519.4596	6282941.5966	SEWER CLEANOUT
122	2190448.6909	6283114.0860	SEWER CLEANOUT
123	2190448.6909	6282941.5966	SEWER MANHOLE
124	2190440.7592	6282934.6082	SD ENCAP
125	2190124.0694	6282868.6293	SD ENDCAP
126	2190124.0694	6282897.5061	SD CLEANOUT
127	2190098.7460	6282897.5061	SD CATCH BASIN
128	2189998.0215	6282897.5061	SD CATCH BASIN
129	2189998.0215	6283046.5061	SD CATCH BASIN
130	2190197.6574	6282897.5061	SD CATCH BASIN
131	2190288.3551	6282959.0061	SD CLEANOUT
132	2190288.3760	6282897.5061	SD MANHOLE
133	2190440.7592	6282959.0061	SD MANHOLE
134	2190653.4945	6282959.0061	SD MANHOLE
135	2190079.4582	6283045.6039	BLDG OVEREX
136	2190070.3801	6283061.6872	BLDG OVEREX
137	2190067.5207	6283127.2766	BLDG OVEREX
138	2190067.5207	6283157.8542	BLDG OVEREX
139	2190113.0915	6283157.8542	BLDG OVEREX
140	2190193.5272	6283160.6783	BLDG OVEREX
141	2190305.6760	6283160.6664	BLDG OVEREX
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143	2190403.4925	6283157.8539	BLDG OVEREX
144	2190403.4925	6283127.1166	BLDG OVEREX
145	2190395.7916	6283061.6039	BLDG OVEREX
146	2190391.4582	6283045.6039	BLDG OVEREX
147	2190291.0150	6283045.6039	BLDG OVEREX
148	2190291.0150	6283030.7345	BLDG OVEREX
149	2190269.8483	6283030.7345	BLDG OVEREX
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151	2190514.2847	6282944.6082	GRADE BREAK
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155	2190086.4582	6282934.6039	GRADE BREAK
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160	2190003.4582	6283171.2989	GRADE BREAK
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196	2190470.6060	6283822.3962	HEADWALL
197	2190422.7910	6283665.6066	GRADE BREAK
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228	2190033.4582	6283201.2989	GRADE BREAK
229	2190013.4582	6283211.2989	GRADE BREAK
230	2190043.4582	6283181.2989	GRADE BREAK
231	2190435.7896	6283559.5344	BASIN
232	2190437.7896	6283654.1157	BASIN
234	2190400.5479	6283559.5344	BASIN
235	2190398.5479	6283561.5344	BASIN
236	2190384.8737	6283617.7647	BASIN
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240	2190455.7896	6283561.5344	BASIN
241	2190437.7896	6283561.5344	BASIN
242	2190398.9805	6283606.5844	BASIN
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244	2190440.5618	6283660.2678	CATCH BASIN
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247	2189998.0215	6282972.0061	GRADE HIGH POINT
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255	2190349.1153	6283594.1063	GRADE BREAK
256	2190285.1153	6283594.1063	GRADE BREAK
257	2190265.5688	6283647.5803	GRADE BREAK
258	2190368.6618	6283647.5803	GRADE BREAK
259	2190368.6618	6283677.6157	GRADE BREAK
260	2190349.1153	6283701.0543	GRADE BREAK

1" = 40'
40 0 40 80
scale feet

LICENSED ARCHITECT
RICHARD E. NOWICKI
NO.C28042
EXP 9-30-21
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
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DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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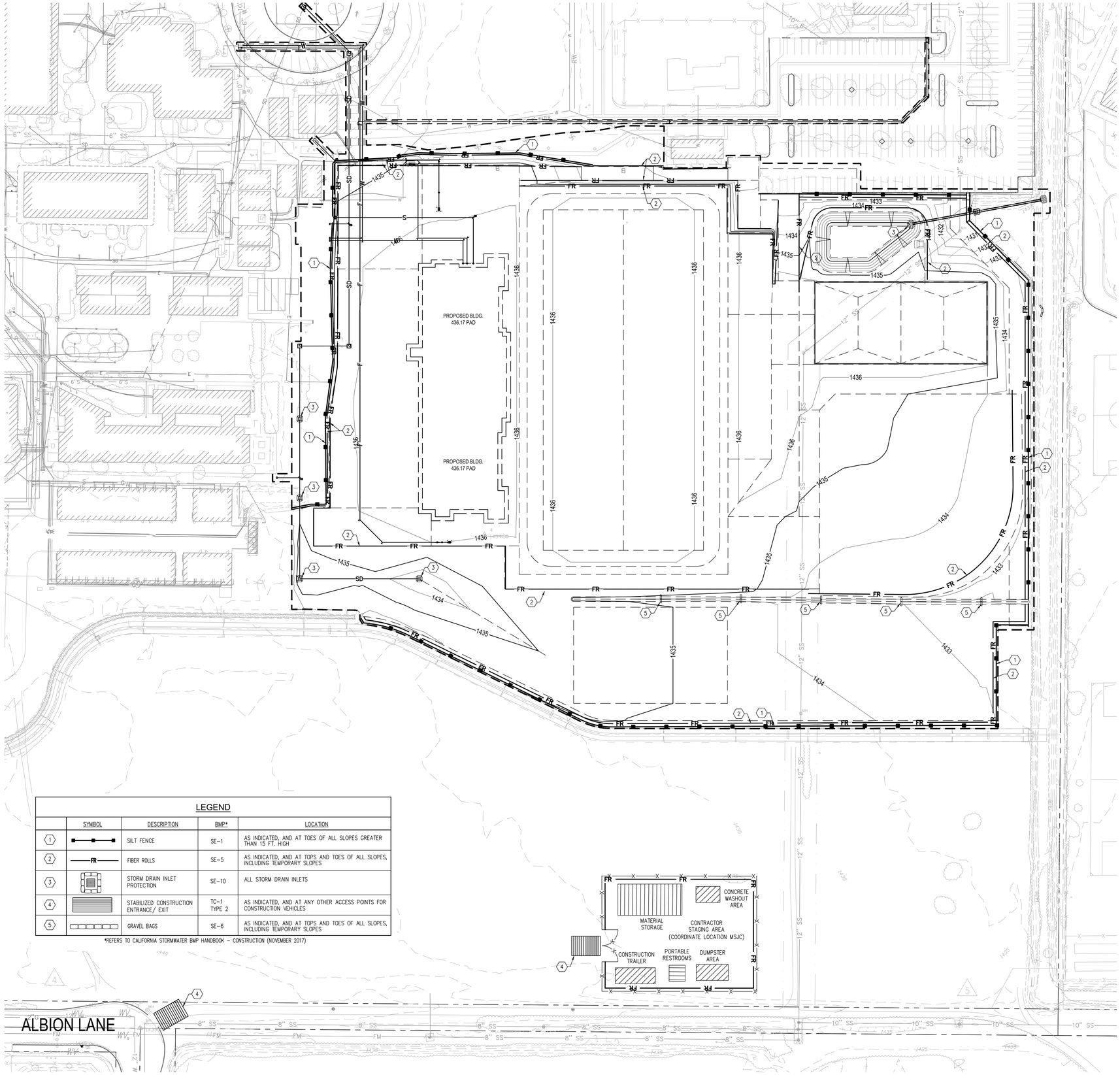
DSA INCREMENTAL SUBMITTAL #1
HORIZONTAL CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER
AHMAD ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C5.0R



LEGEND

	SYMBOL	DESCRIPTION	BMP*	LOCATION
1		SILT FENCE	SE-1	AS INDICATED, AND AT TOES OF ALL SLOPES GREATER THAN 15 FT. HIGH
2	FR	FIBER ROLLS	SE-5	AS INDICATED, AND AT TOPS AND TOES OF ALL SLOPES, INCLUDING TEMPORARY SLOPES
3		STORM DRAIN INLET PROTECTION	SE-10	ALL STORM DRAIN INLETS
4		STABILIZED CONSTRUCTION ENTRANCE/ EXIT	TC-1 TYPE 2	AS INDICATED, AND AT ANY OTHER ACCESS POINTS FOR CONSTRUCTION VEHICLES
5		GRAVEL BAGS	SE-6	AS INDICATED, AND AT TOPS AND TOES OF ALL SLOPES, INCLUDING TEMPORARY SLOPES

*REFERS TO CALIFORNIA STORMWATER BMP HANDBOOK – CONSTRUCTION (NOVEMBER 2017)

EROSION CONTROL PLAN
SCALE: 1" = 40'

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E	– ELECTRICAL	– ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	– ELECTRICAL DRAWINGS
G	– GAS	– PLUMBING DRAWINGS

EROSION CONTROL NOTES

1. IN CASE OF EMERGENCY, CALL (RESPONSIBLE PERSON) AT (24 HOUR TELEPHONE).
2. ALL PUBLIC STREETS SHALL BE MAINTAINED FREE OF DUST AND SEDIMENT CAUSED BY GRADING OPERATIONS
3. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE BUILDING AND SAFETY/PUBLIC WORKS INSPECTOR IF THE GRADING OPERATION HAS PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
7. ALL LOOSE SOIL AND DEBRIS WHICH MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.
8. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
9. IMPLEMENT FUGITIVE DUST CONTROL MEASURES DUST BY WATERING OR OTHER APPROVED METHODS IN COMPLIANCE WITH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 403.

NPDES NOTES

1. CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THE REQUIREMENTS OF THE ONSITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN ALL TEMPORARY BEST MANAGEMENT PRACTICES (BMPS), SHOWN IN THE APPROVED EROSION CONTROL PLANS, THROUGHOUT THE TIME OF CONSTRUCTION. A COPY OF THE SWPPP AND THE APPROVED EROSION CONTROL PLANS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES. THE IMPLEMENTATION AND MAINTENANCE OF SITE BMPS IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. BMPS SHALL BE REQUIRED TO REMAIN IN PLACE THROUGHOUT THE YEAR TO MINIMIZE EROSION AND SEDIMENTATION.
3. IMPLEMENT AND MAINTAIN EROSION CONTROL BMPS TO MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOIL AREAS ON CONSTRUCTION SITES.
4. IMPLEMENT AND MAINTAIN YEAR ROUND SEDIMENT CONTROL BMPS TO MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
5. PHASE GRADING TO LIMIT THE AMOUNT OF DISTURBED AREAS EXPOSED TO THE EXTENT FEASIBLE.
6. LIMIT AREAS THAT ARE CLEARED AND GRADED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. MANAGE THE CONSTRUCTION SITE TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
7. AT ANY TIME DURING THE YEAR, STABILIZE SLOPES PRIOR TO A PREDICTED STORM EVENT. ONCE DISTURBED, STABILIZE SLOPES (TEMPORARY OR PERMANENT) IF THEY WILL NOT BE WORKED WITHIN 14 DAYS. RE-VEGETATE CONSTRUCTION SITES AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
8. CONTAIN STOCKPILES OF SOIL TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE VIA RUNOFF, VEHICLE TRACKING, OR WIND.
9. MAINTAIN CONSTRUCTION SITES TO ENSURE THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY.
10. CONTAIN RUNOFF FROM EQUIPMENT AND VEHICLE WASHING AT CONSTRUCTION SITE TO PREVENT DISCHARGING TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.
11. IMPLEMENT BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
12. ENSURE CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNEL ARE AWARE OF THE REQUIRED BMPS, MAINTENANCE, AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
13. MAINTAIN BMPS AT ALL TIMES. INSPECT BMPS PRIOR TO PREDICTED STORM EVENTS, DURING AND FOLLOWING STORM EVENTS.
14. COLLECT AND PROPERLY DISPOSE OF IN TRASH OR RECYCLE BINS AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, CONSTRUCTION DEBRIS AND WASTE MATERIALS.
15. 24 HOUR EMERGENCY NPDES

CONTACT: FOR THE PERSON RESPONSIBLE FOR IMPLEMENTING, INSPECTING, AND MAINTAINING THE SITE'S EROSION CONTROL BMP'S.

NAME: _____ ADDRESS: _ PHONE: ____

CHANGE OF SUCH PERSON, ADDRESS OR PHONE NUMBER SHALL BE FILED WITHIN 24 HOURS WITH THE CITY OF MENIFEE ENGINEERING DEPARTMENT AND THE PROJECT INSPECTOR, AND SHALL INCLUDE THE GRADING PERMIT NUMBER.

FIBER ROLL INSTALLATION

- LOCATE FIBER ROLLS ON LEVEL CONTOURS SPACED AS FOLLOWS:
  - SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 20FEET.
  - SLOPE INCLINATION OF 4:1 AND 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
  - SLOPE INCLINATION OF 2:1 (H:V) OR GREATER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 10 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
- PREPARE THE SLOPE BEFORE BEGINNING INSTALLATION.
- DIG SMALL TRENCHES ACROSS THE SLOPE ON THE CONTOUR. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.

LAYDOWN AREA

LAYDOWN AREA INCLUDES AS FOLLOWING:

-LOCATION(S) OF SOIL OR WATER STORAGE
-CONSTRUCTION MATERIAL LOADING AND UNLOADING
-EQUIPMENT AND VEHICLE STORAGE, CLEANING AND MAINTENANCE
-PORTABLE TOILETS
-SPILL CONTROL DEVICES AND CONTAINMENT MATERIALS
-SPILLS OR NON STORM WATER DISCHARGES
-WASTE MATERIALS
-PORTABLE RESTROOM(S)
-CONCRETE WASHOUT AREA
-EQUIPMENT AND WORKER VEHICLE PARKING

IN ADDITION TO THE BMPS LISTED IN THE LEGEND THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING BMPS:

EC-1 SCHEDULING
EC-2 PRESERVATION OF EXISTING VEGETATION
SE-7 STREET SWEEPING/VACUUMING
WE-1 WIND EROSION CONTROLS (DUST CONTROL BMPS)
NS-1 WATER CONSERVATION PRACTICES
NS-3 PAVING & GRINDING OPERATIONS
NS-6 ILLICIT CONNECTION/DISCHARGE
NS-7 POTABLE WATER/IRRIGATION
NS-12 CONCRETE CURING
NS-13 CONCRETE FINISHING
WM-1 MATERIAL DELIVERY & STORAGE
WM-2 MATERIAL USE
WM-3 STOCKPILE MANAGEMENT
WM-4 SPILL PREVENTION & CONTROL
WM-5 SOLID WASTE MANAGEMENT
WM-8 CONCRETE WASTE MANAGEMENT
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT
EMPLOYEE AND SUBCONTRACTOR TRAINING

1" = 50' scale: 50 0 50 100 feet

REGISTERED PROFESSIONAL ENGINEER — ALAN A. KITE — NO. 77283 — Expires 6/30/2021 — CIVIL — STATE OF CALIFORNIA

LICENSED ARCHITECT — RICHARD E. NOWICKI — NO. C28042 — EXP. 9-30-21 — STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED PIV, FDC ASSEMBLY	
PROPOSED FIRE HYDRANT	
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

WSP USA
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DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
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DSA INCREMENTAL SUBMITTAL #1
EROSION CONTROL PLAN

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C6.0R

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

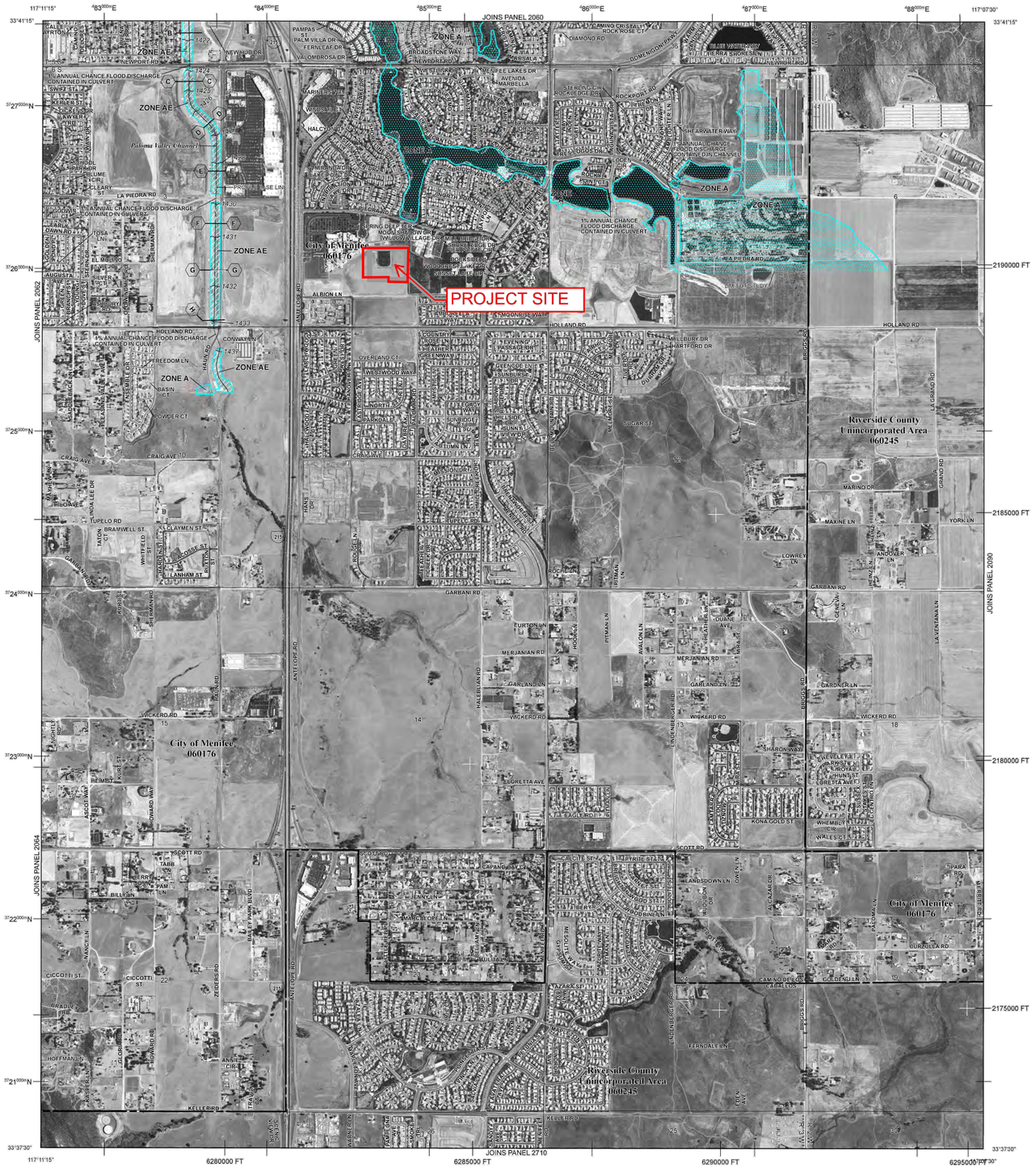
Base map information shown on this FIRM was derived from multiple sources including the Riverside County, CA effective database, and the National Geodetic Survey. Base map imagery for Riverside County, CA is a mosaic of the NAIP 2009 images, 1 meter resolution.

The **"profile base lines"** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988
A — A — Cross section line
23 — 23 — Transect line
97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4275000mE — 1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 FT — 5000-foot grid values: California State Plane coordinate system, Zone VI (FIPSZONE = 406), Lambert projection
DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 18, 2014: for a description of revisions, see Notice to Users page in the Flood Insurance Study report.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 500 1,000 1,500 2,000 FEET
150 0 150 300 450 600 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2070H

FIRM

FLOOD INSURANCE RATE MAP
RIVERSIDE COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 2070 OF 3805
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MENIFEE, CITY OF	060176	2070	H
RIVERSIDE COUNTY UNINCORPORATED AREAS	060245	2070	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06065C2070H

MAP REVISED
AUGUST 18, 2014

Federal Emergency Management Agency

LICENSED ARCHITECT RICHARD E. NOWICKI NO. C28042 EXP. 8-30-21 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki designstudio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

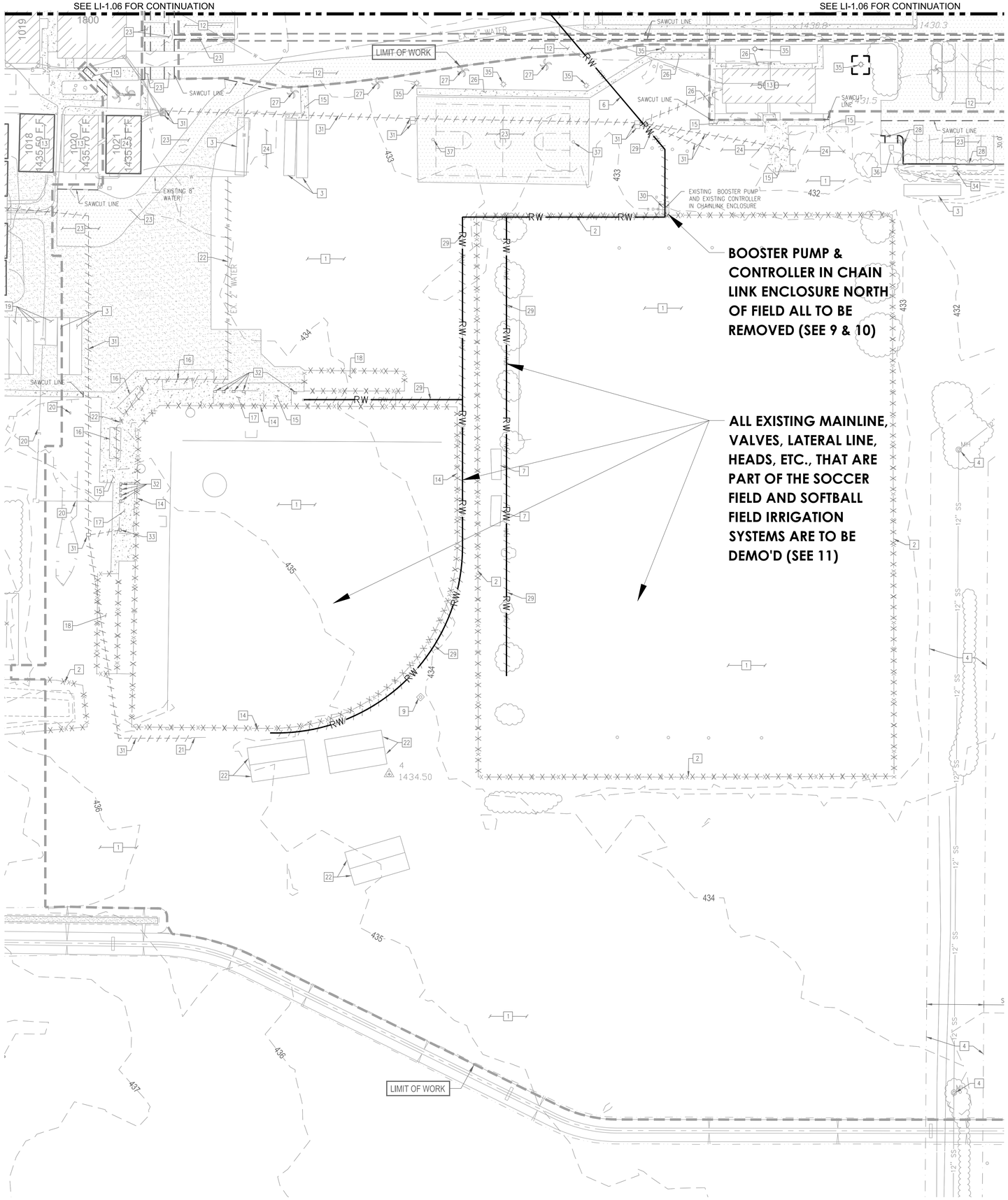
DSA INCREMENTAL SUBMITTAL #1
FEMA FLOOD MAP

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 12/11/19

DRAWING
C7.0R

STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER RICHARD ASLAN KHOURY NO. 77283 Expires 6/30/2021 CIVIL



1 OVERALL SITE PLAN
1" = 80'-0"

EXISTING CONDITIONS AND DEMOLITION PLAN
SCALE: 1" = 30'

LICENSED ARCHITECT
CLAUDIO E. NOWICKI
NO. C28042
EXP. 9-30-21
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

LICENSED LANDSCAPE ARCHITECT
BRAD LENAHAN
4470
01.06.2020
DATE
EXP. 9-31-21
STATE OF CALIFORNIA

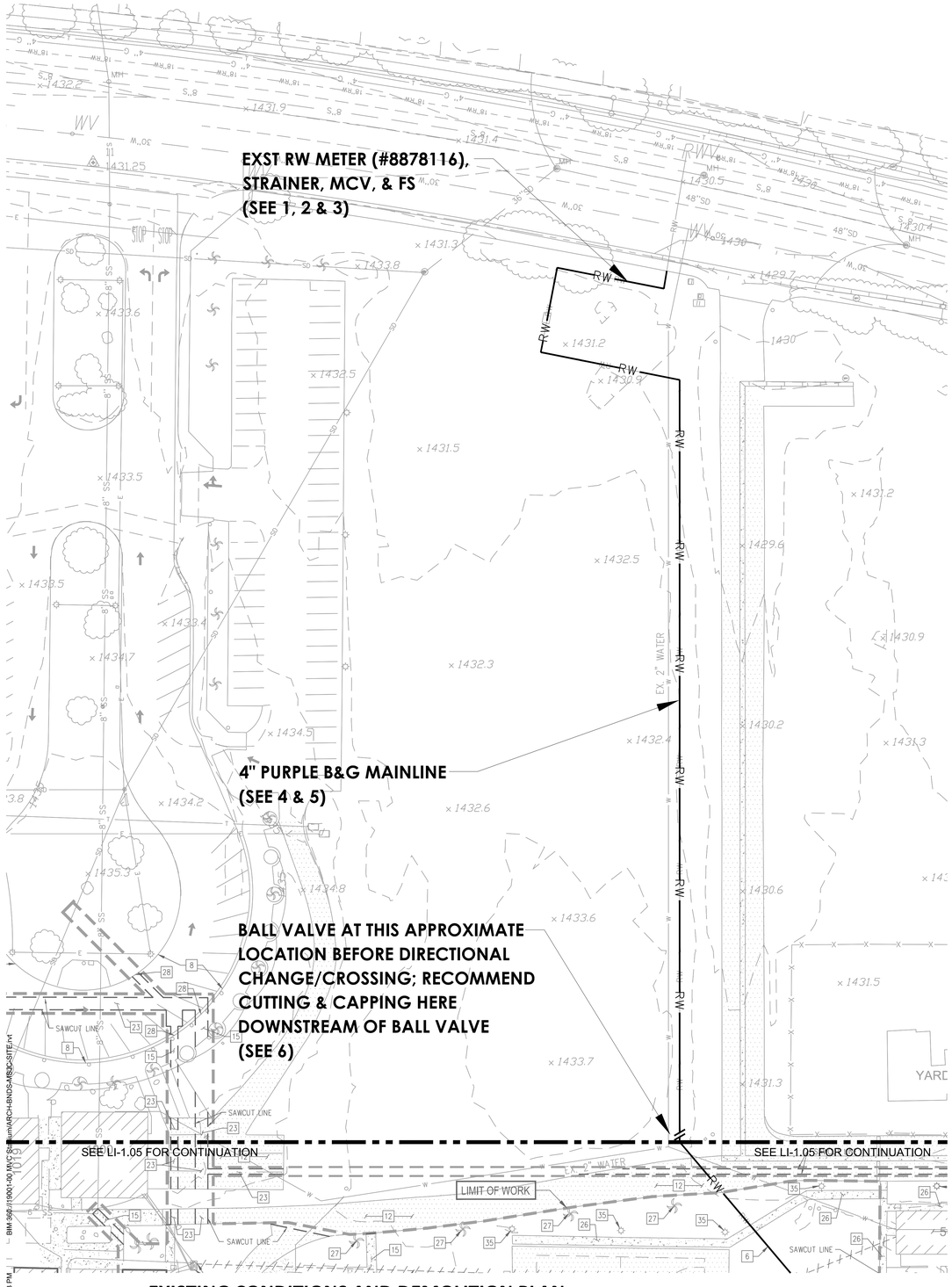
BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA INCREMENTAL SUBMITTAL #1
IRRIGATION DEMO PLAN

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 01/14/2020

DRAWING
LI-1.05



EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 30'

1 OVERALL SITE PLAN

1" = 80'-0"

1

2

3

4

5

6

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 01.16.20

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA INCREMENTAL SUBMITTAL #1
IRRIGATION DEMO PLAN

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 01/14/2020

DRAWING
LI-1.06

12/5/2019 4:52:23 PM BIM 360://19001-00 MVC Stadium\ARCH-BNDS-ARBSC-SITE.rvt

MOUNT SAN JACINTO COLLEGE

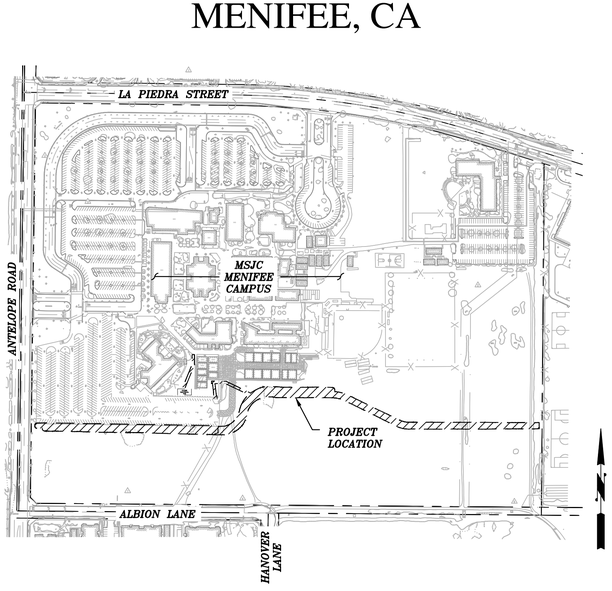
RIVERSIDE COUNTY, CALIFORNIA

MSJC

Mt. San Jacinto College

DRAINAGE IMPROVEMENTS AT MOUNT SAN JACINTO COLLEGE MENIFEE CAMPUS

28237 LA PIEDRA ROAD, MENIFEE, CA

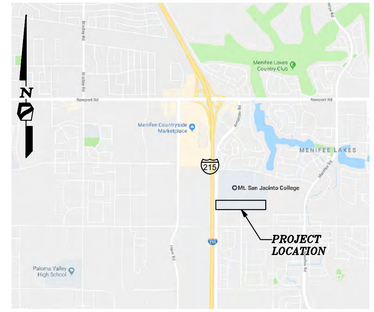


LOCATION MAP

SCALE: 1"=300'

ENGINEER'S NOTICE

1. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
2. ALL UNDERGROUND UTILITIES OR STRUCTURES, REPORTED OR FOUND ON PUBLIC RECORDS, ARE INDICATED WITH THEIR APPROXIMATE MATE LOCATION AND EXTENT. THE OWNER, BY ACCEPTING THESE PLANS OR PROCEEDING WITH THE IMPROVEMENTS HEREON, AGREES TO ASSUME LIABILITY AND HOLD THE ENGINEER HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED OR INDICATED ON PUBLIC RECORDS, OR THOSE CONSTRUCTED AT VARIANCE WITH REPORTED OR RECORD LOCATIONS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF ALL UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK.
3. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.



SHEET INDEX

SHT. NO.	DWG. NO.	DRAWING TITLE
1	C-0.1	TITLE SHEET
2	C-1.0	OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN
3	C-1.1	EXISTING CONDITIONS AND DEMOLITION PLAN
4	C-1.2	EXISTING CONDITIONS AND DEMOLITION PLAN
5	C-2.0	OVERALL GRADING AND DRAINAGE PLAN
6	C-2.1	GRADING AND DRAINAGE PLAN
7	C-2.2	GRADING AND DRAINAGE PLAN
8	C-2.3	GRADING SECTIONS
9	C-3.0	DRAINAGE SWALE PROFILE
10	C-4.0	DETAILS
11	C-4.1	DETAILS
12	C-5.0	OVERALL EROSION CONTROL PLAN
13	C-5.1	EROSION CONTROL PLAN
14	C-5.2	EROSION CONTROL PLAN

OWNER/APPLICANT

MOUNT SAN JACINTO COLLEGE
28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SITE ADDRESS

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

TOPOGRAPHY SOURCE:

ARIAL TOPOGRAPHIC SURVEY BY ROBERT J. LUNG & ASSOCIATES, DATED 06/30/10

BENCH MARK:

CONTROL POINT #1, EXISTING IP MONUMENT (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE.
N = 2189445.82
E = 6281645.13
ELEV: 1438.34

BASIS OF BEARINGS:

N 89°33'42.27" W, L=1053.41'
BETWEEN CONTROL POINT #1 (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE) AND CONTROL POINT #2 (LOCATED AT INTERSECTION OF ALBION LANE AND HANOVER LANE)

PROJECT LOCATION:

LATITUDE: 33°40'25.05"N
LONGITUDE: 117°10'01.98"W

UTILITY NOTIFICATIONS

THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AGENCIES AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION:

CITY OF MENIFEE – GENERAL	(951) 672-6777
CITY OF MENIFEE – FIRE DEPT.	(951) 940-6900
UNDERGROUND SERVICE ALERT	811
SOUTHERN CALIFORNIA GAS COMPANY	(951) 928-2808
GENERAL TELEPHONE COMPANY	(951) 929-9436
SOUTHERN CALIFORNIA EDISON COMPANY	(951) 928-8323
EASTERN MUNICIPAL WATER DISTRICT	(951) 928-3777

PROJECT AREA: 1.28 AC

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

IMPORTANT NOTICE
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	10/18/19
PLOTTED:	8:39 A
WSP PROJECT NO.	WA31600017
DESIGN BY:	SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

MARK	REVISIONS	APPR.	DATE

MSJC
Mt. San Jacinto College

MOUNT SAN JACINTO COLLEGE
DRAINAGE IMPROVEMENTS
AT
MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMAD ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

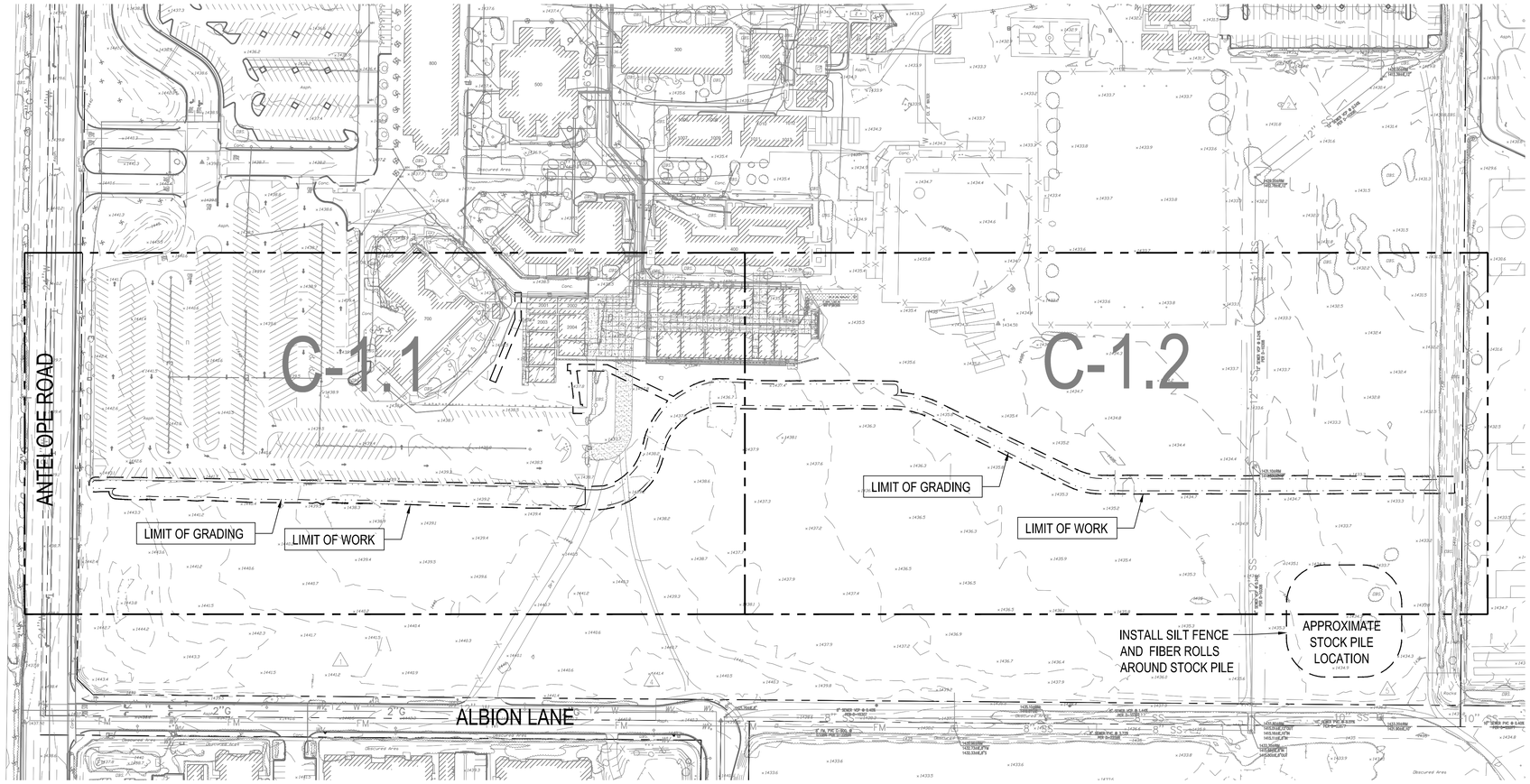
SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

TITLE SHEET

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-0.1
1 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1"=100'

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING TREE	
EXISTING BRUSH	
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

DEMOLITION NOTES

1.	DEMOLISH AND REMOVE ALL EXISTING IMPROVEMENTS WITHIN LIMITS OF WORK UNLESS INDICATED OTHERWISE. KEYNOTES REFER TO TYPICAL ITEMS OF DEMOLITION AND ARE NOT ALL-INCLUSIVE.
2.	THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
3.	PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
4.	THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
5.	COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS, MECHANICAL/ELECTRICAL FACILITIES, AND OTHER INSTALLATIONS. REFER TO LANDSCAPE, PLUMBING, ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
6.	ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
7.	REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

IMPORTANT NOTICE
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

1" = 100'
100 0 100 200
scale feet

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 10/18/19
PLOTTED: 8:40 A
WSP PROJECT NO. WA.31600017
DESIGN BY: SLL
DRAWN BY: SLL
REVIEWED BY: AAK

MARK	REVISIONS	APPR.	DATE

MSJC
Mt. San Jacinto College

MOUNT SAN JACINTO COLLEGE
DRAINAGE IMPROVEMENTS AT MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMED ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

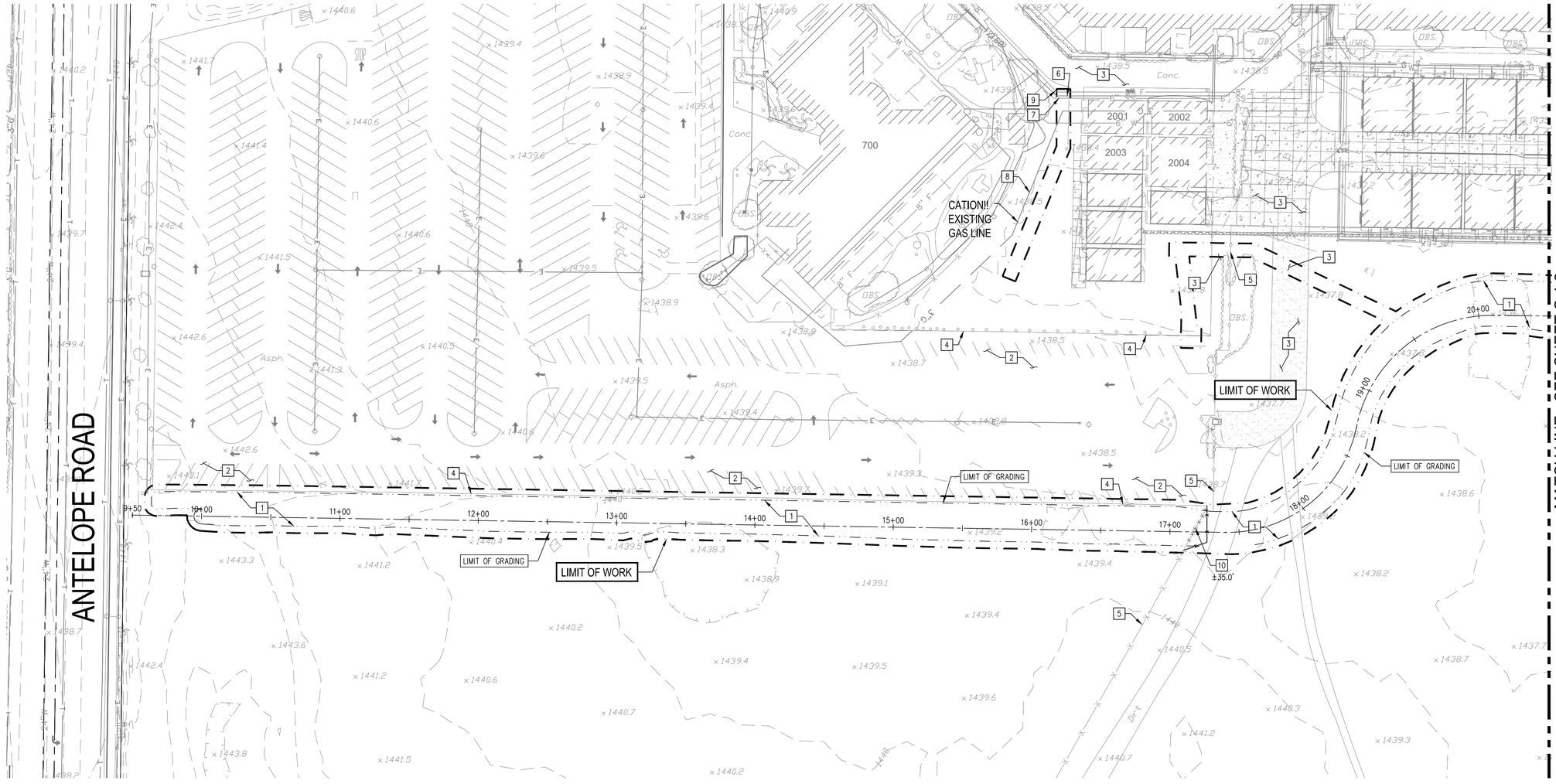
SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-1.0
2 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



REFER TO SHEET C-1.0 FOR KEYNOTES, GENERAL NOTES AND LEGEND

DEMOLITION LEGEND

- APPROX. LIMITS OF WORK
- x x x x x x x x x x x DEMOLISH EXISTING FENCE

DEMOLITION KEY NOTES

1	REMOVE EXISTING VEGETATION AND 6" TOP SOIL AND STOCK PILE AT THE LOCATION SHOWN ON C-1.0, CLEAN AND GRUB WITHIN LIMIT OF GRADING.
2	PROTECT IN-PLACE EXISTING AC PAVEMENT.
3	PROTECT IN-PLACE EXISTING P.C.C. HARDSCAPE.
4	PROTECT IN-PLACE EXISTING AC DIKE.
5	PROTECT IN-PLACE EXISTING CHAINLINK FENCE.
6	PROTECT IN-PLACE EXISTING STORM DRAIN LINE.
7	PROTECT IN-PLACE EXISTING SEWER LINE AND INFRASTRUCTURE.
8	PROTECT IN-PLACE EXISTING GAS LINE.
9	PROTECT IN-PLACE EXISTING WATER LINE.
10	DEMOLISH AND REMOVE PORTION OF EXISTING CHAINLINK FENCE, AND ASSOCIATED FOOTINGS

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1"=40'

1" = 40' scale 40 0 40 80 feet

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

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MSJC
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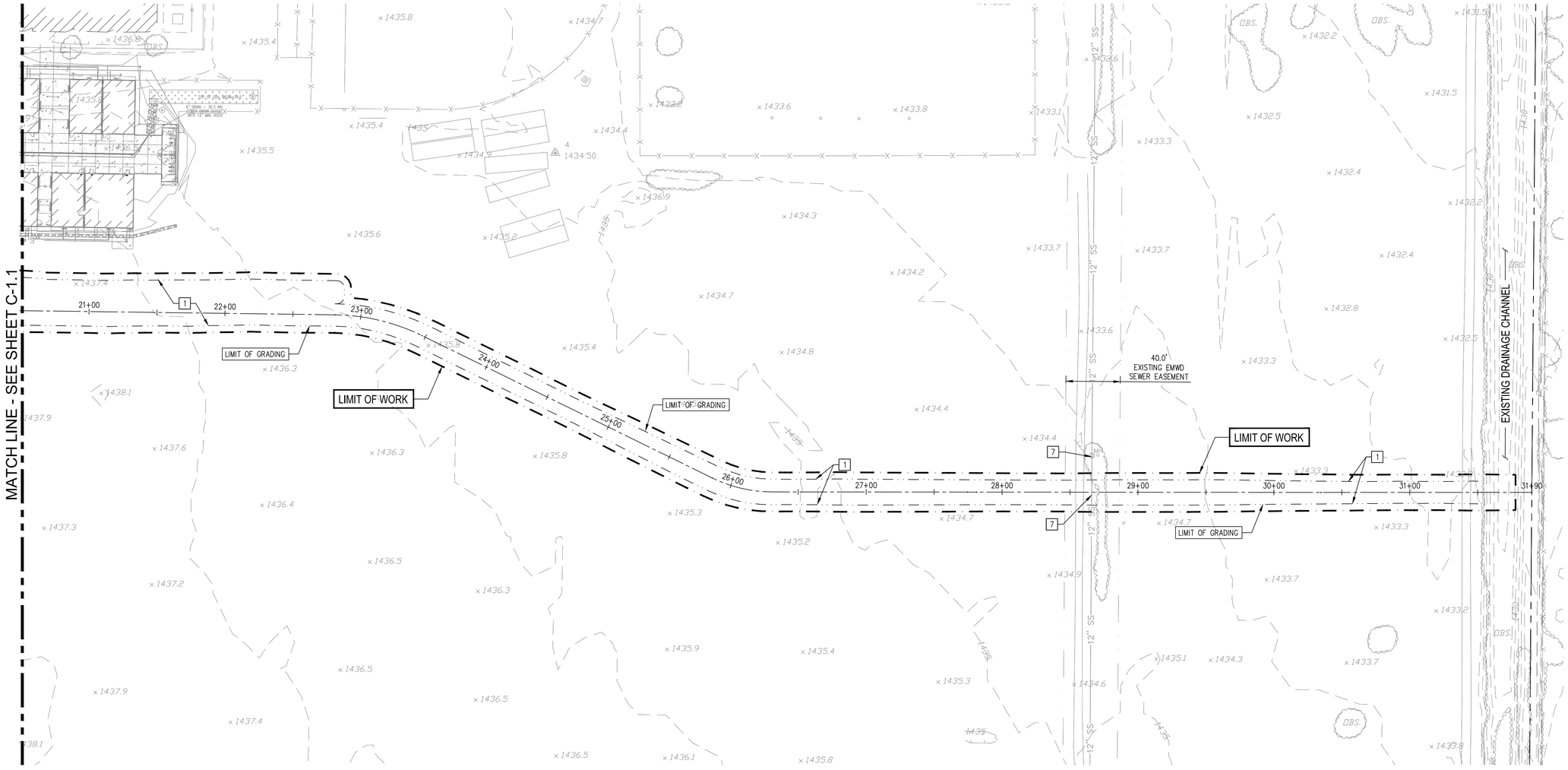
EXISTING CONDITIONS AND DEMOLITION PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-1.1
3 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



REFER TO SHEET C-1.0 FOR KEYNOTES, GENERAL NOTES AND LEGEND

DEMOLITION LEGEND

APPROX. LIMITS OF WORK

DEMOLITION KEY NOTES

1	REMOVE EXISTING VEGETATION AND 6" TOP SOIL AND STOCK PILE AT THE LOCATION SHOWN ON C-1.0, CLEAN AND GRUB WITHIN LIMIT OF GRADING.
7	PROTECT IN-PLACE EXISTING SEWER LINE AND INFRASTRUCTURE.

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1"=40'

1" = 40' scale 40 0 40 80 feet

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

IMPORTANT NOTICE
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	10/18/19
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WSP PROJECT NO.	WA.31600017
DESIGN BY:	SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

MARK	REVISIONS	APPR.	DATE

MSJC
Mt. San Jacinto College

MOUNT SAN JACINTO COLLEGE
DRAINAGE IMPROVEMENTS AT MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMAD ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA

CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

SCALE: AS SHOWN ON PLAN

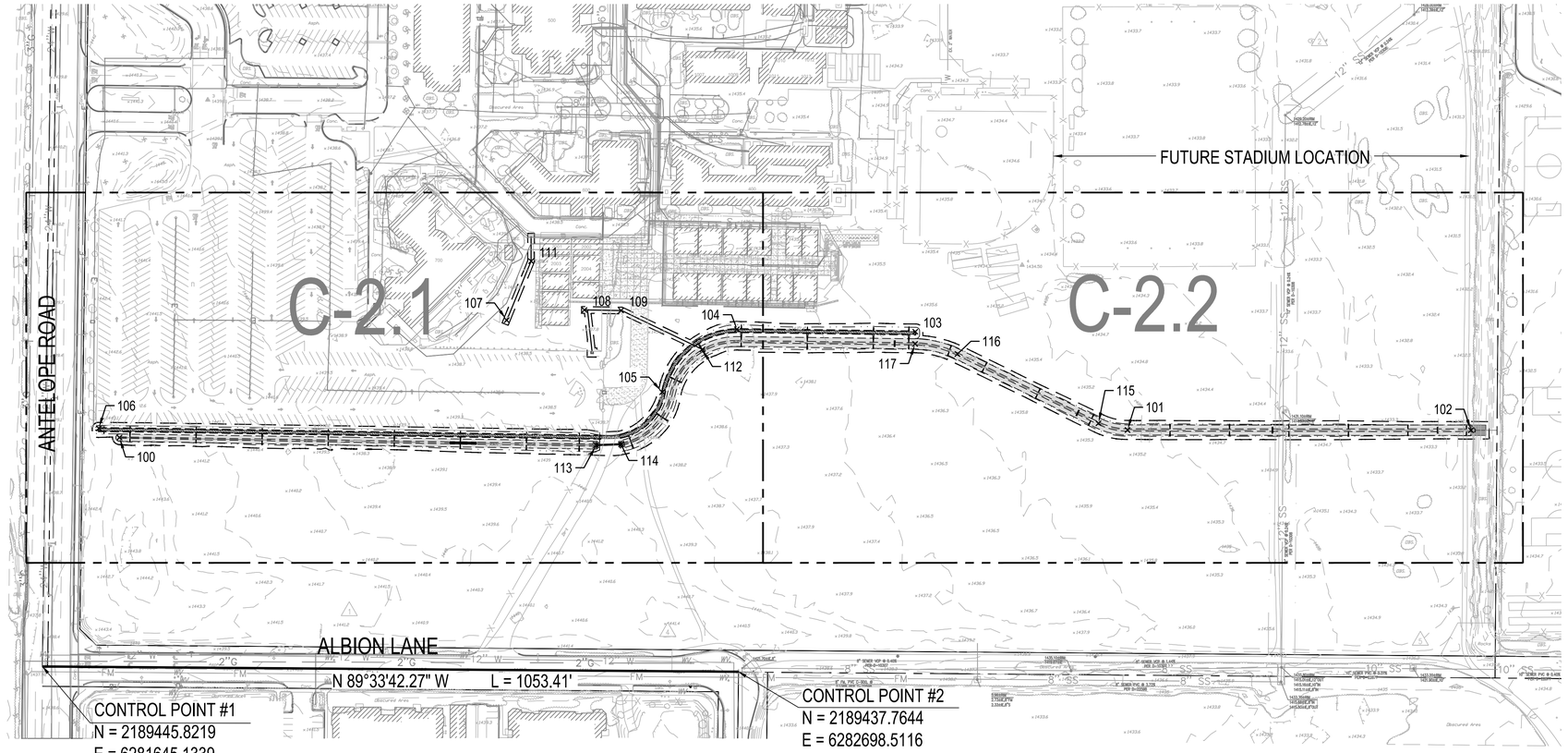
DATE: 10-18-2019

EXISTING CONDITIONS AND DEMOLITION PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-1.2
4 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



OVERALL GRADING AND DRAINAGE PLAN

SCALE: 1"=100'

NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES (UTILITY PIPES, STRUCTURES, ETC.) SHOWN ON THESE PLANS (MAIN LINES ONLY – NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY THE UTILITY AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. LOCATIONS OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SPECIAL NOTICE TO CONTRACTOR

PRIOR TO STARTING ANYWORK, CONTRACTOR TO POTHOLE, FIELD VERIFY AND RECORD ALL UTILITY POINT OF CONNECTIONS AND CROSSINGS AND CONFIRM EXISTING PIPE SIZES AND DEPTHS OF EXISTING PIPES TO MAKE SURE GRAVITY CONNECTIONS OF THE PROPOSED SEWER AND DRAINAGE LATERALS DO NOT HAVE CONFLICT AND THAT THE GRAVITY CONNECTIONS WILL WORK. NOTIFY THE SCHOOL DISTRICT REPRESENTATIVE IMMEDIATELY OF ANY CONFLICT.

DIGALERT

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TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
2. PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
3. THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
4. COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
5. ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GRADING NOTES

1. NOTIFY UNDERGROUND SERVICE ALERT, (800) 227-2600, AND ALL CONCERNED UTILITY COMPANIES AT LEAST TWO WORKING DAYS IN ADVANCE OF EXCAVATION.
2. LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY CONDITIONS ON THE JOB SITE PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH HIS PRIVATE DEVELOPMENT CONSTRUCTION.
4. FILL AREAS SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, SCARIFIED, AND INSPECTED BY THE OWNERS INSPECTOR AND SOILS ENGINEER PRIOR TO THE PLACING OF FILL.
5. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
6. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL.
7. FILLS SHALL BE PLACED IN THIN LIFTS 8 INCH COMPACTED AND TESTED AS GRADING PROGRESSES UNTIL FINAL GRADES ARE ATTAINED.
8. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES IN ANY DIMENSION SHALL BE BURIED OR PLACED IN FILLS.

COORDINATE LIST

PT. NO.	NORTHING	EASTING	DESCRIPTION
100	2189792.0242	6281761.7575	SWALE STA:10+00
101	2189803.4941	6283287.3193	SWALE STA: 26+30.70
102	2189803.0954	6283807.0273	SWALE STA: 31+50
103	2189952.2439	6282966.0710	DG WALKWAY
104	2189955.8148	6282696.1449	DG WALKWAY
105	2189860.7333	6282583.0728	DG WALKWAY
106	2189805.9891	6281730.4486	DG WALKWAY
107	2189969.5278	6282347.7527	CATCH BASIN
108	2189985.0619	6282465.4390	CATCH BASIN
109	2189984.1893	6282520.7905	CATCH BASIN
111	2190058.8098	6282384.7346	SD ANGLE
112	2189925.3757	6282644.1537	SD OUTLET
113	2189780.6069	6282483.1586	SD HEADWALL
114	2189781.9165	6282520.8193	SD HEADWALL
115	2189813.7145	6283243.3768	SWALE STA: 25+85.19
116	2189918.4279	6283029.9149	SWALE STA: 23+47.43
117	2189933.7454	6282965.8373	SWALE STA: 22+81.01

1" = 100' scale (100 0 100 200 feet)

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E	– ELECTRICAL	– ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	– ELECTRICAL DRAWINGS
G	– GAS	– PLUMBING DRAWINGS

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REVIEWED BY: AAK

MARK	REVISIONS	APPR.	DATE

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Mt. San Jacinto College

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DRAINAGE IMPROVEMENTS
AT
MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMAD ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

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BENCH MARK:
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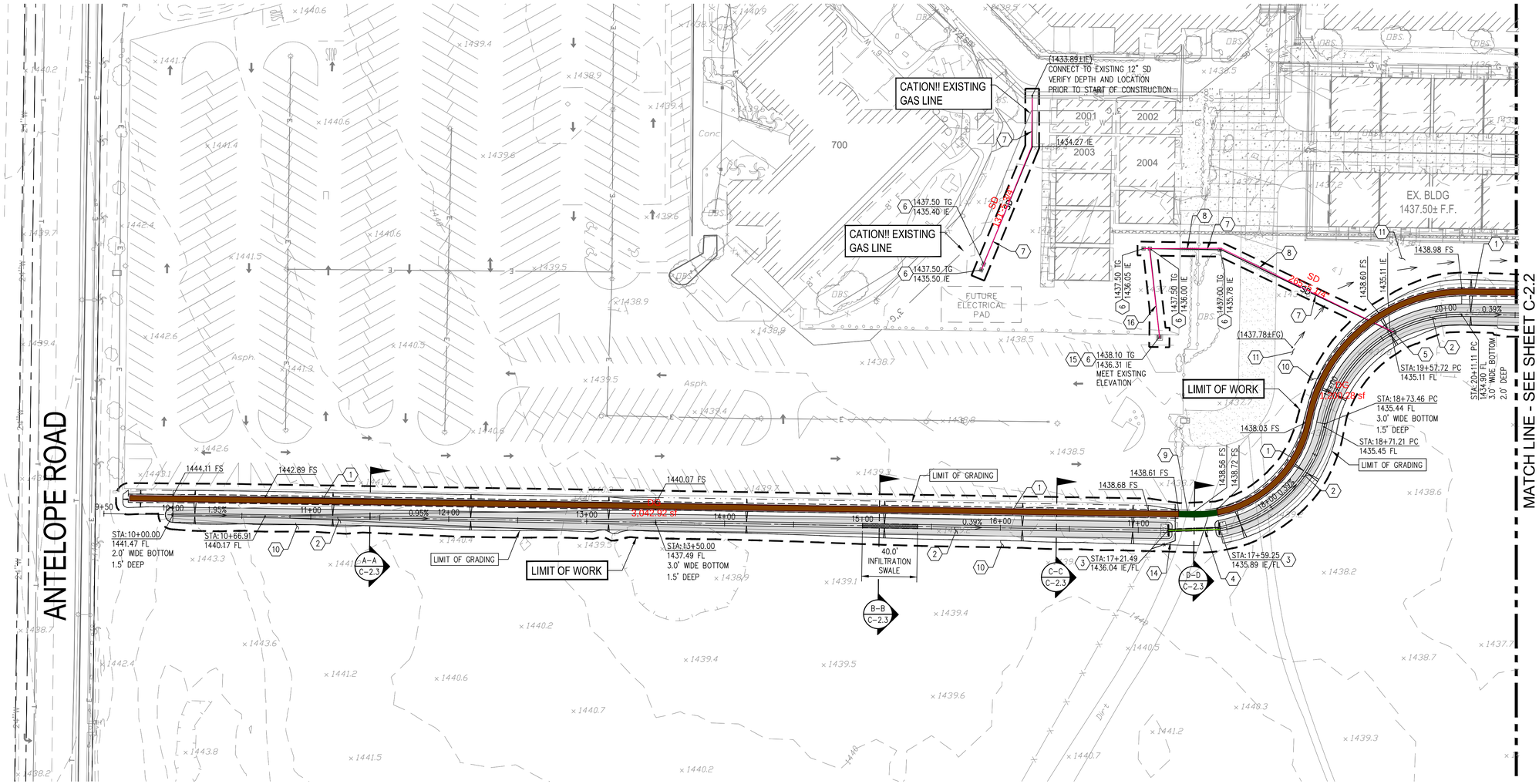
OVERALL GRADING AND DRAINAGE PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-2.0
5 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



GRADING AND DRAINAGE PLAN
SCALE: 1"=40'

REFER TO SHEET C-2.0 FOR GENERAL NOTES AND LEGEND

GRADING AND DRAINAGE KEY NOTES

1	3" THICK, 48" WIDE STABILIZED DECOMPOSED GRANITE WALKWAY WITH 2"X8" REDWOOD HEADER ON BOTH SIDES UNDERLAIN BY WEED PROTECTION FILTER FABRIC.	B C–4.0
2	EARTHEN SWALE, WIDTH AND DEPTH VARIES PER PLAN, SEE SHEET C–3.0 FOR WIDTHS AND DEPTHS. SWALE TO STABILIZED WITH NATIVE SEED MIX. CONTRACTOR TO PROVIDE WATERING TILL THE SEEDS FIRST GERMINATE AND THEN GRASSES TAKE HOLD.	E C–4.0
3	DOUBLE PIPE STRAIGHT HEADWALL WITH 8" THICK CONCRETE APRON PER DETAIL	F C–4.0
4	2 – 12" DIA. PARALLEL RCP, D–2000, STORM DRAIN PIPE, SLOPE PER PLAN. CASE 1 BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	D C–4.0
5	5' x 5' x 8" THICK PC.C. CONCRETE WITH 4"–6" DIA. EMBEDDED RIP–RAP, ENERGY DISSIPATER AT PIPE DISCHARGE, PER DETAIL	G C–4.0
6	24" SQUARE PRECAST CATCH BASIN WITH 6" THICK CONCRETE BOTTOM, SLOPED TOWARDS OUTLET @ 2% GALVANIZED STEEL GRATE & FRAME, BOLT DOWN & CBC COMPLIANT, PER DETAIL. RE–GRADE AROUND CATCH BASIN TO PROVIDE POSITIVE DRAINAGE TOWARDS CATCH BASIN.	C C–4.0
7	10" DIA. SDR–35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	D C–4.0
8	INSTALL STORM DRAIN PIPE UNDER EXISTING CONCRETE UTILIZING HORIZONTAL BORING AND FILL TRENCH WITH 2–SACK CEMENT SLURRY.	
9	6" THICK, (±40' LONG), P.C.C. HARDSCAPE OVER 90% RELATIVE COMPACTED NATIVE ACROSS ACCESS DRIVEWAY. SEE DETAIL	A C–4.0
10	CONTRACTOR SHALL STABILIZE ALL GRADED AREA AROUND THE NEW SWALE WITH BIO DEGRADABLE FIBER MIX, (EARTHGUARD FIBER MATRIX OR APPROVED EQUAL) AFTER MAJOR GRADING OPERATIONS HAVE CEASED.	
11	MAINTAIN EXISTING DRAINAGE DIRECTION BETWEEN PORTABLE CLASSROOMS AND PROPOSED SWALE.	
14	CHAIN LINK FENCE, MATCH EXISTING IN KIND.	
15	4" P.C.C. HARDSCAPE OVER NATIVE. SEE DETAIL	X C–X.X
16	8" DIA. SDR–35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	D C–4.0

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Mt. San Jacinto College

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DRAINAGE IMPROVEMENTS AT MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMED ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
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SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

GRADING AND DRAINAGE PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-2.1
6 OF 14 SHEETS
FILE No.

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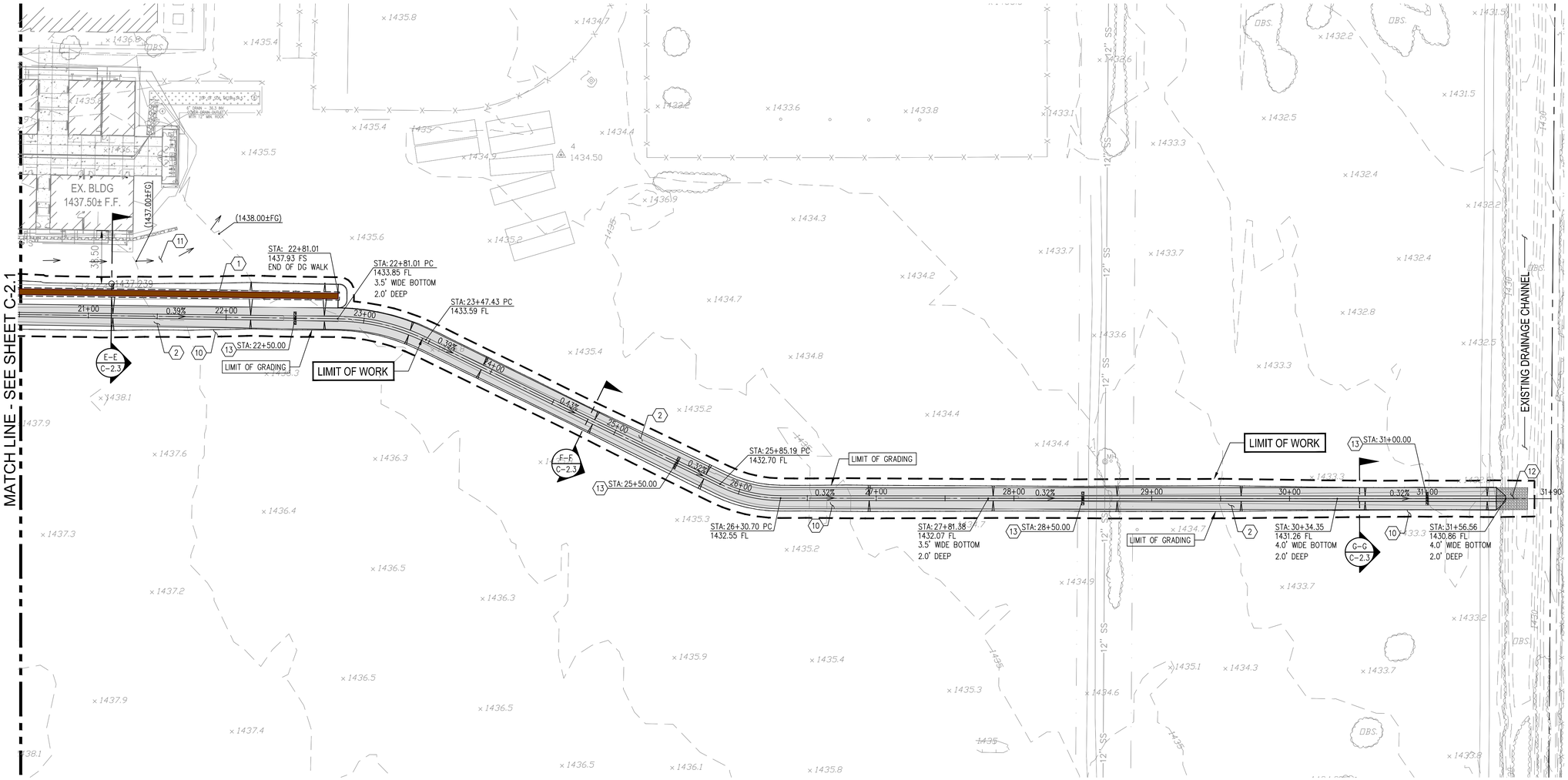

REFER TO SHEET C-2.0 FOR GENERAL NOTES AND LEGEND

GRADING AND DRAINAGE KEY NOTES

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2	EARTHEN SWALE, WIDTH AND DEPTH VARIES PER PLAN, SEE SHEET C-3.0 FOR WIDTHS AND DEPTHS. SWALE TO STABILIZED WITH NATIVE SEED MIX. CONTRACTOR TO PROVIDE WATERING TILL THE SEEDS FIRST GERMINATE AND THEN GRASSES TAKE HOLD.	E C-4.0
10	CONTRACTOR SHALL STABILIZE ALL GRADED AREA AROUND THE NEW SWALE WITH BIO DEGRADABLE FIBER MIX, (EARTHGUARD FIBER MATRIX OR APPROVED EQUAL) AFTER MAJOR GRADING OPERATIONS HAVE CEASED.	
11	MAINTAIN EXISTING DRAINAGE DIRECTION BETWEEN PORTABLE CLASSROOMS AND PROPOSED SWALE.	
12	DISCHARGE INTO EXISTING CHANNEL. PROVIDE 12' X 16' RIP-RAP AT OUTLET, PER DETAIL	A C-4.1
13	CHECK DAM, 6"-8" DIA. IRREGULAR ROCKS, 24" WIDE X 12" HIGH, PER DETAIL	I C-4.0

GRADING AND DRAINAGE PLAN

SCALE: 1"=40'

1" = 40' scale — 40 0 40 80 feet

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GRADING AND DRAINAGE PLAN

28237 LA PIEDRA ROAD,
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SHEET C-2.2
7 OF 14 SHEETS
FILE No.

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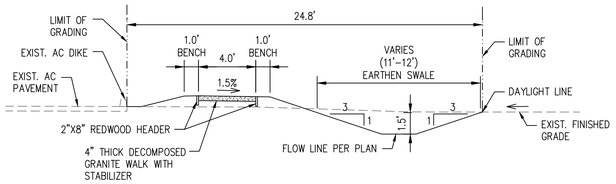

SECTION A-A
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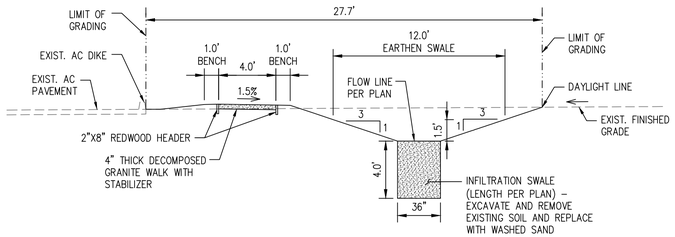

SECTION B-B
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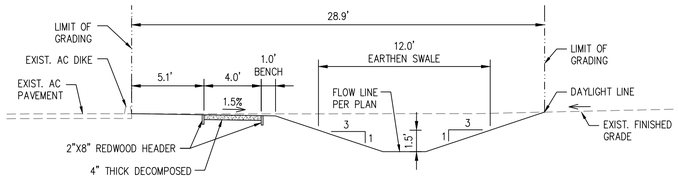

SECTION C-C
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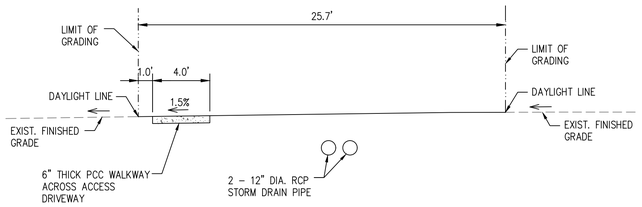

SECTION D-D
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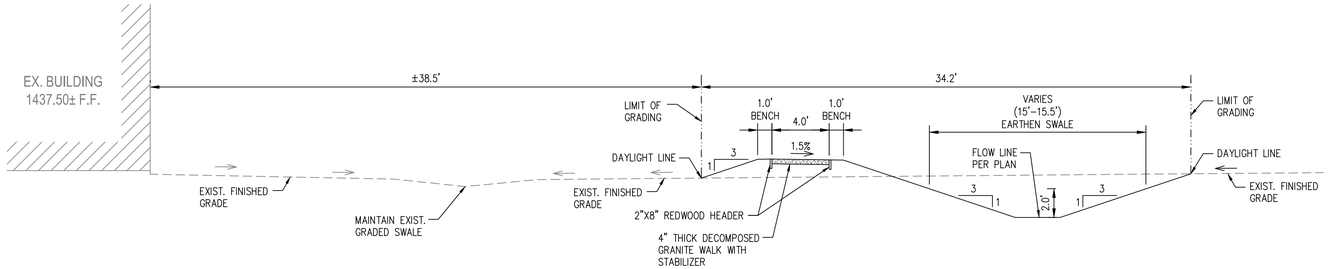

SECTION E-E
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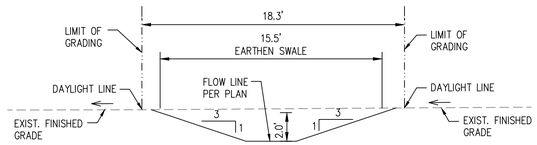

SECTION F-F
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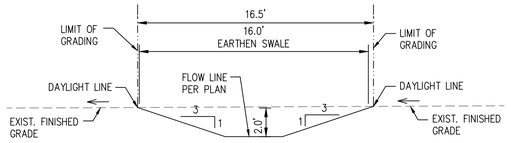

SECTION G-G
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SECTIONS

28237 LA PIEDRA ROAD,
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SHEET C-2.3
8 OF 14 SHEETS
FILE No.

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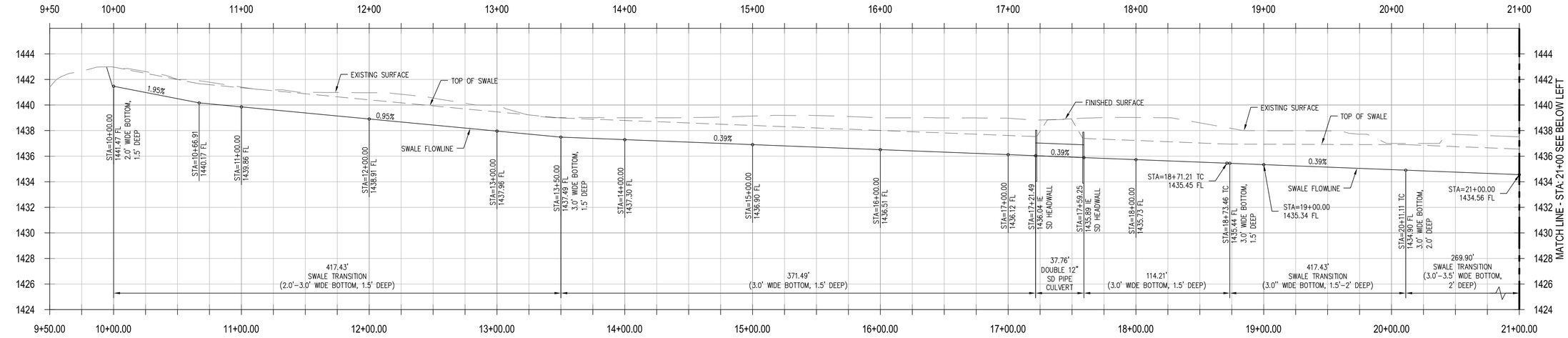
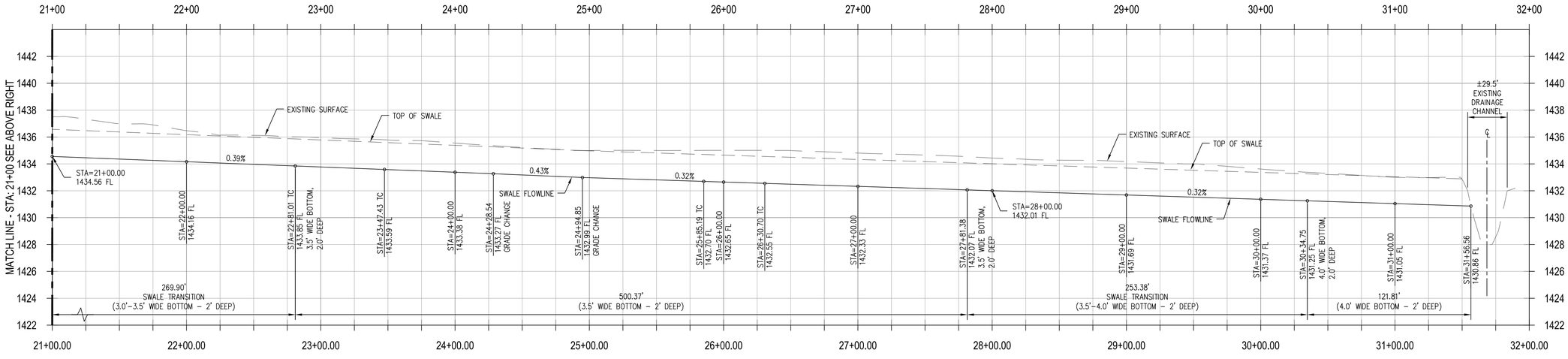


DRAINAGE SWALE CENTERLINE PROFILE

SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



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TOLL FREE 1–800–422–4133
TWO WORKING DAYS BEFORE YOU DIG

1" = 40' scale 40 0 40 80 feet

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	10/18/19
PLOTTED:	8:42 A
WSP PROJECT NO.	WA31600017
DESIGN BY:	SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

MARK	REVISIONS	APPR.	DATE

MSJC
Mt. San Jacinto College

MOUNT SAN JACINTO COLLEGE
DRAINAGE IMPROVEMENTS AT MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMAD ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

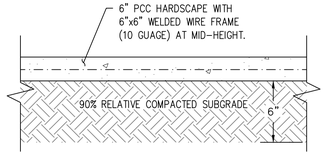
SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

DRAINAGE SWALE PROFILE

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

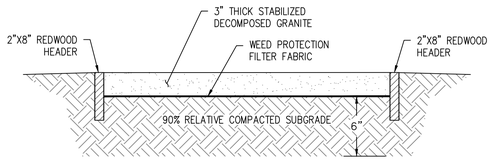
SHEET C-3.0
9 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL

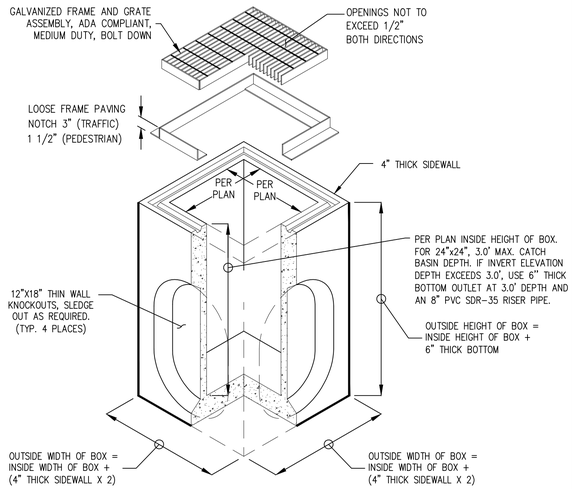


NOTE 1:
MINIMUM REMEDIAL REMOVAL AND RECOMPACTION TO 90% OF 12" BELOW EXISTING GRADE OR 12" BELOW SUBGRADE (WHICHEVER IS DEEPER), AND A MINIMUM OF 2 FEET BEYOND THE LIMIT OF PAVEMENT/HARDSCAPE.

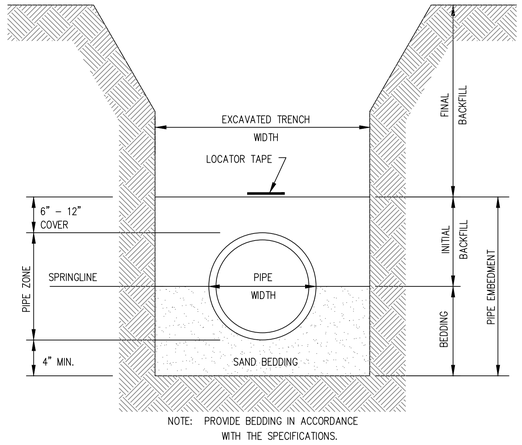
P.C.C. HARDSCAPE (A)
NOT TO SCALE



STABILIZED DECOMPOSED GRANITE (B)
NOT TO SCALE

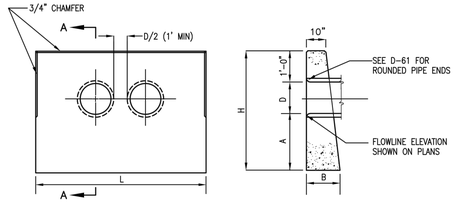


STORM DRAIN CATCH BASIN (C)
NOT TO SCALE



NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.

TRENCH FOR STORM DRAIN (D)
NOT TO SCALE



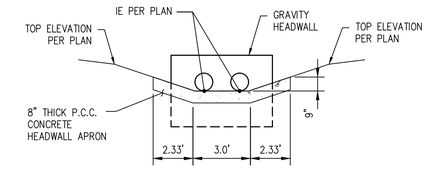
DOUBLE PIPE ELEVATION

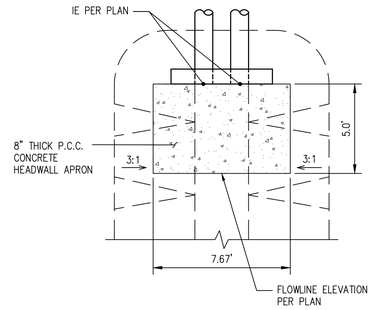
SECTION A–A

D	A	B	H	SINGLE L	SINGLE CONCRETE (C.Y.)	DOUBLE L	DOUBLE CONCRETE (C.Y.)
12"	2'	1'	4'	4'	0.46	5'-8"	.62

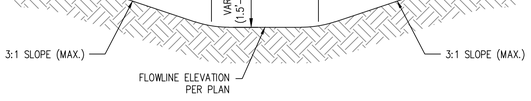
NOTES
1. CONCRETE SHALL BE 560-C-3250.
2. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

LEGEND ON PLANS

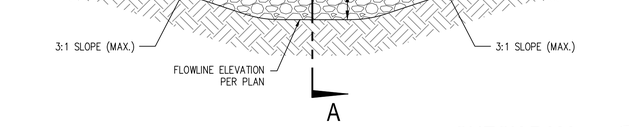




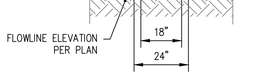
HEADWALL DETAIL (F)
NOT TO SCALE



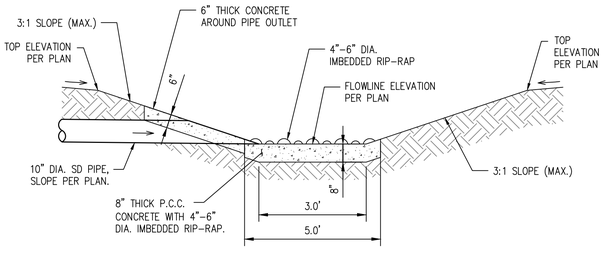
EARTHEN SWALE (E)
NOT TO SCALE



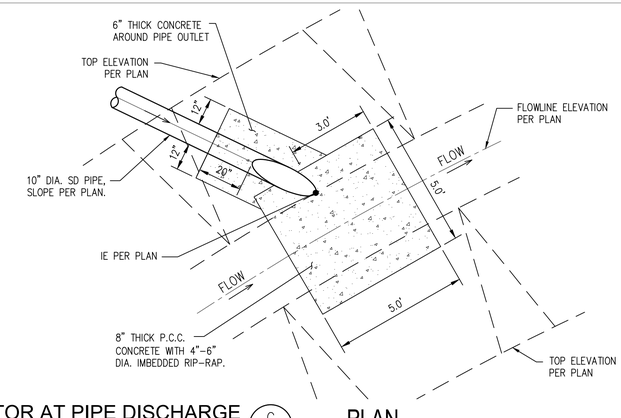
CHECK DAM (I)
NOT TO SCALE



SECTION A-A



PROFILE



PLAN

RIP-RAP ENERGY DISSIPATOR AT PIPE DISCHARGE (G)
NOT TO SCALE

DIGALERT
CALL TOLL FREE
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SHEET C-4.0
10 OF 14 SHEETS
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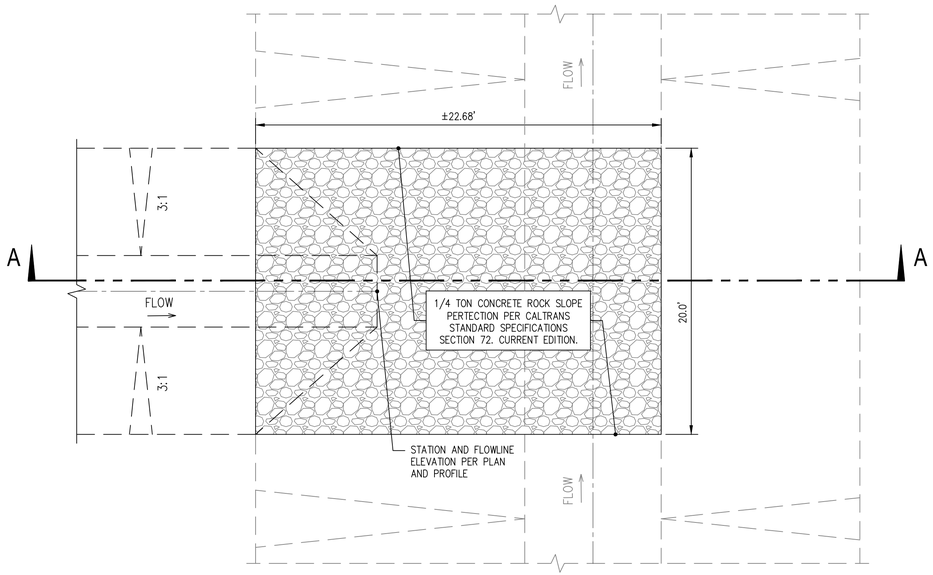
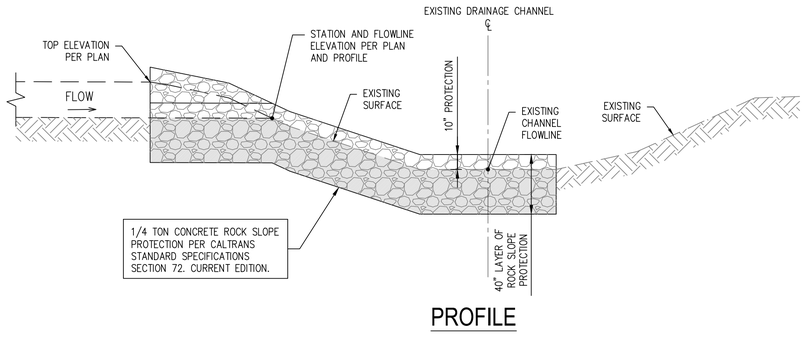
PRE-BID SUBMITTAL



PLAN



PROFILE

CHANNEL DISCHARGE RIP-RAP ENERGY DISSIPATOR (A)

NOT TO SCALE

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SHEET C-4.1
11 OF 14 SHEETS
FILE No.

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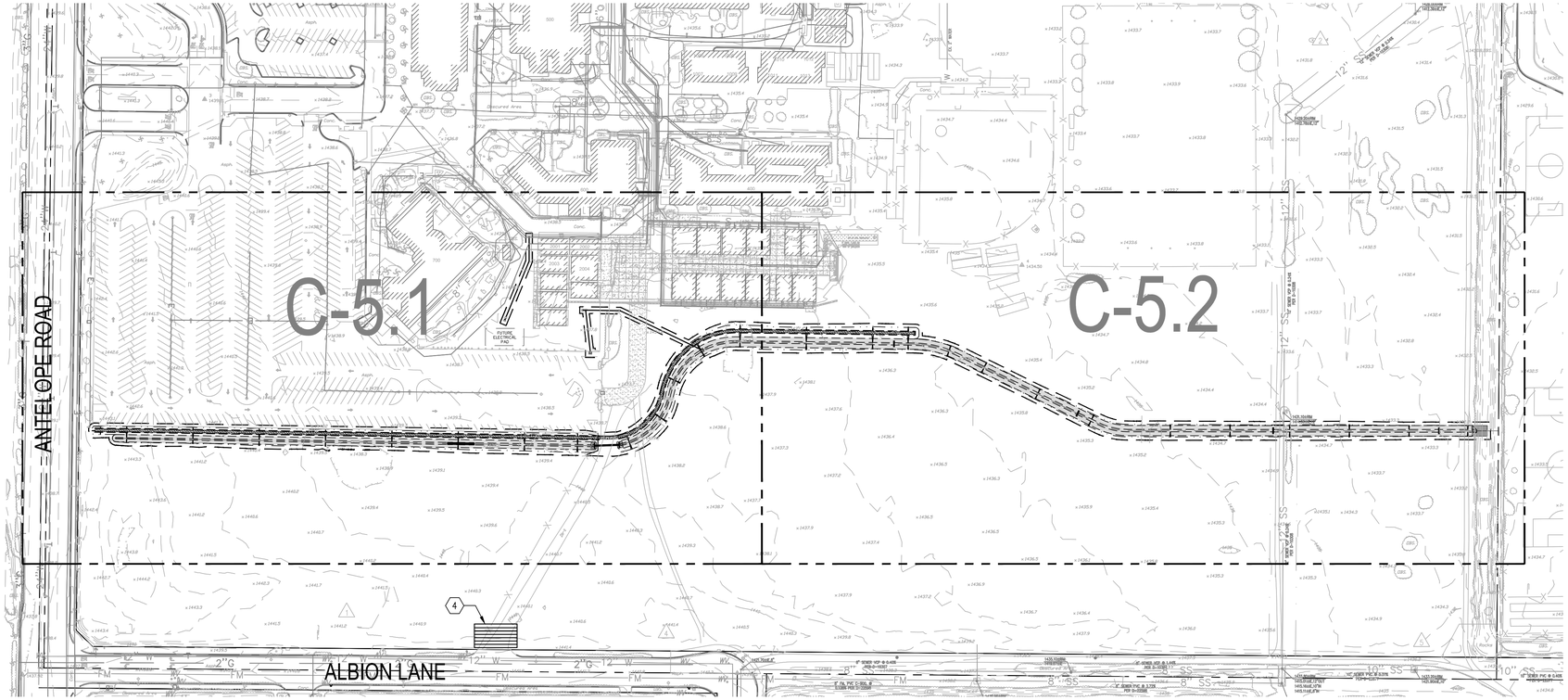

OVERALL EROSION CONTROL PLAN

SCALE: 1"=100'

EROSION CONTROL NOTES

1. IN CASE OF EMERGENCY, CALL (RESPONSIBLE PERSON) AT (24 HOUR TELEPHONE).
2. ALL PUBLIC STREETS SHALL BE MAINTAINED FREE OF DUST AND SEDIMENT CAUSED BY GRADING OPERATIONS
3. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE BUILDING AND SAFETY/PUBLIC WORKS INSPECTOR IF THE GRADING OPERATION HAS PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
7. ALL LOOSE SOIL AND DEBRIS WHICH MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.
8. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
9. IMPLEMENT FUGITIVE DUST CONTROL MEASURES DUST BY WATERING OR OTHER APPROVED METHODS IN COMPLIANCE WITH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 403.

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NPDES NOTES

1. CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THE REQUIREMENTS OF THE ONSITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN ALL TEMPORARY BEST MANAGEMENT PRACTICES (BMPS), SHOWN IN THE APPROVED EROSION CONTROL PLANS, THROUGHOUT THE TIME OF CONSTRUCTION. A COPY OF THE SWPPP AND THE APPROVED EROSION CONTROL PLANS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES. THE IMPLEMENTATION AND MAINTENANCE OF SITE BMPS IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. BMPS SHALL BE REQUIRED TO REMAIN IN PLACE THROUGHOUT THE YEAR TO MINIMIZE EROSION AND SEDIMENTATION.
3. IMPLEMENT AND MAINTAIN EROSION CONTROL BMPS TO MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOIL AREAS ON CONSTRUCTION SITES.
4. IMPLEMENT AND MAINTAIN YEAR ROUND SEDIMENT CONTROL BMPS TO MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
5. PHASE GRADING TO LIMIT THE AMOUNT OF DISTURBED AREAS EXPOSED TO THE EXTENT FEASIBLE.
6. LIMIT AREAS THAT ARE CLEARED AND GRADED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. MANAGE THE CONSTRUCTION SITE TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
7. AT ANY TIME DURING THE YEAR, STABILIZE SLOPES PRIOR TO A PREDICTED STORM EVENT. ONCE DISTURBED, STABILIZE SLOPES (TEMPORARY OR PERMANENT) IF THEY WILL NOT BE WORKED WITHIN 14 DAYS. RE-VEGETATE CONSTRUCTION SITES AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
8. CONTAIN STOCKPILES OF SOIL TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE VIA RUNOFF, VEHICLE TRACKING, OR WIND.
9. MAINTAIN CONSTRUCTION SITES TO ENSURE THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY.
10. CONTAIN RUNOFF FROM EQUIPMENT AND VEHICLE WASHING AT CONSTRUCTION SITE TO PREVENT DISCHARGING TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.

NPDES NOTES (CONTINUED)

11. IMPLEMENT BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
12. ENSURE CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNEL ARE AWARE OF THE REQUIRED BMPS, MAINTENANCE, AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
13. MAINTAIN BMPS AT ALL TIMES. INSPECT BMPS PRIOR TO PREDICTED STORM EVENTS, DURING AND FOLLOWING STORM EVENTS.
14. COLLECT AND PROPERLY DISPOSE OF IN TRASH OR RECYCLE BINS AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, CONSTRUCTION DEBRIS AND WASTE MATERIALS.
15. 24 HOUR EMERGENCY NPDES

CONTACT: FOR THE PERSON RESPONSIBLE FOR IMPLEMENTING, INSPECTING, AND MAINTAINING THE SITE'S EROSION CONTROL BMP'S.

NAME: _____ ADDRESS: _ PHONE:
_____

CHANGE OF SUCH PERSON, ADDRESS OR PHONE NUMBER SHALL BE FILED WITHIN 24 HOURS WITH THE CITY OF MENIFEE ENGINEERING DEPARTMENT AND THE PROJECT INSPECTOR, AND SHALL INCLUDE THE GRADING PERMIT NUMBER.

LEGEND

	SYMBOL	DESCRIPTION	BMP*	LOCATION
1		SILT FENCE	SE-1	AS INDICATED, AND AT TOES OF ALL SLOPES GREATER THAN 15 FT. HIGH
2	FR	FIBER ROLLS	SE-5	AS INDICATED, AND AT TOPS AND TOES OF ALL SLOPES, INCLUDING TEMPORARY SLOPES
3		STORM DRAIN INLET PROTECTION	SE-10	ALL STORM DRAIN INLETS
4		STABILIZED CONSTRUCTION ENTRANCE/ EXIT	TC-1 TYPE 2	AS INDICATED, AND AT ANY OTHER ACCESS POINTS FOR CONSTRUCTION VEHICLES

*REFERS TO CALIFORNIA STORMWATER BMP HANDBOOK - CONSTRUCTION (NOVEMBER 2017)

FIBER ROLL INSTALLATION

- LOCATE FIBER ROLLS ON LEVEL CONTOURS SPACED AS FOLLOWS:
  - SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 20FEET.
  - SLOPE INCLINATION OF 4:1 AND 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
  - SLOPE INCLINATION OF 2:1 (H:V) OR GREATER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 10 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
- PREPARE THE SLOPE BEFORE BEGINNING INSTALLATION.
- DIG SMALL TRENCHES ACROSS THE SLOPE ON THE CONTOUR. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.

LAYDOWN AREA

LAYDOWN AREA INCLUDES AS FOLLOWING:

-LOCATION(S) OF SOIL OR WATER STORAGE
-CONSTRUCTION MATERIAL LOADING AND UNLOADING
-EQUIPMENT AND VEHICLE STORAGE, CLEANING AND MAINTENANCE
-PORTABLE TOILETS
-SPILL CONTROL DEVICES AND CONTAINMENT MATERIALS
-SPILLS OR NON STORM WATER DISCHARGES
-WASTE MATERIALS
-PORTABLE RESTROOM(S)
-CONCRETE WASHOUT AREA
-EQUIPMENT AND WORKER VEHICLE PARKING

IN ADDITION TO THE BMPS LISTED IN THE LEGEND THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING BMPS:

EC-1 SCHEDULING
EC-2 PRESERVATION OF EXISTING VEGETATION
SE-7 STREET SWEEPING/VACUUMING
WE-1 WIND EROSION CONTROLS (DUST CONTROL BMPS)
NS-1 WATER CONSERVATION PRACTICES
NS-3 PAVING & GRINDING OPERATIONS
NS-6 ILLICIT CONNECTION/DISCHARGE
NS-7 POTABLE WATER/IRRIGATION
NS-12 CONCRETE CURING
NS-13 CONCRETE FINISHING
WM-1 MATERIAL DELIVERY & STORAGE
WM-2 MATERIAL USE
WM-3 STOCKPILE MANAGEMENT
WM-4 SPILL PREVENTION & CONTROL
WM-5 SOLID WASTE MANAGEMENT
WM-8 CONCRETE WASTE MANAGEMENT
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT
EMPLOYEE AND SUBCONTRACTOR TRAINING

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E - ELECTRICAL - ELECTRICAL DRAWINGS
T - TELECOMMUNICATIONS - ELECTRICAL DRAWINGS
G - GAS - PLUMBING DRAWINGS

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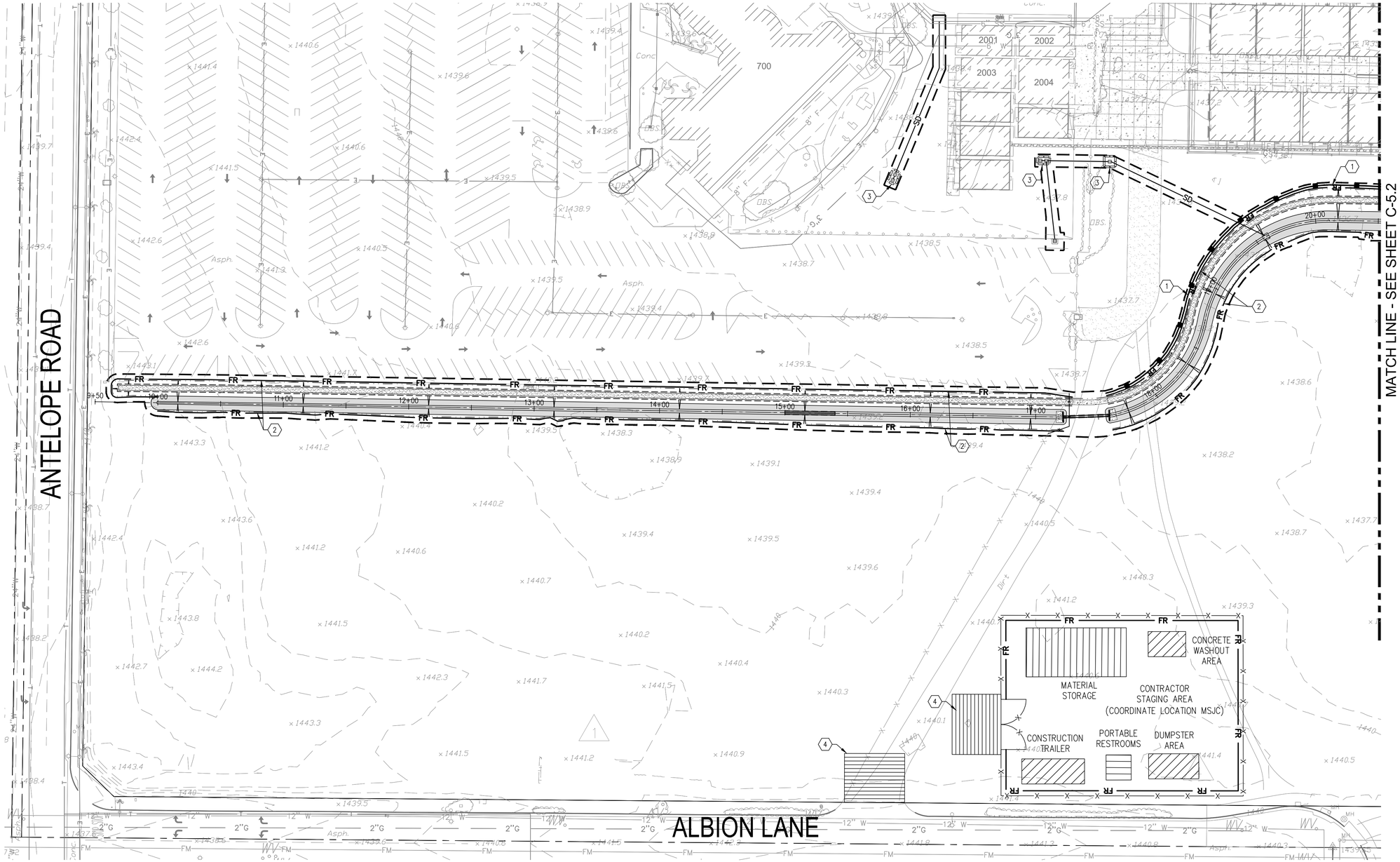

REFER TO SHEET C-5.0 FOR GENERAL NOTES, KEYNOTES AND LEGEND

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40 0 40 80
scale feet

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CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

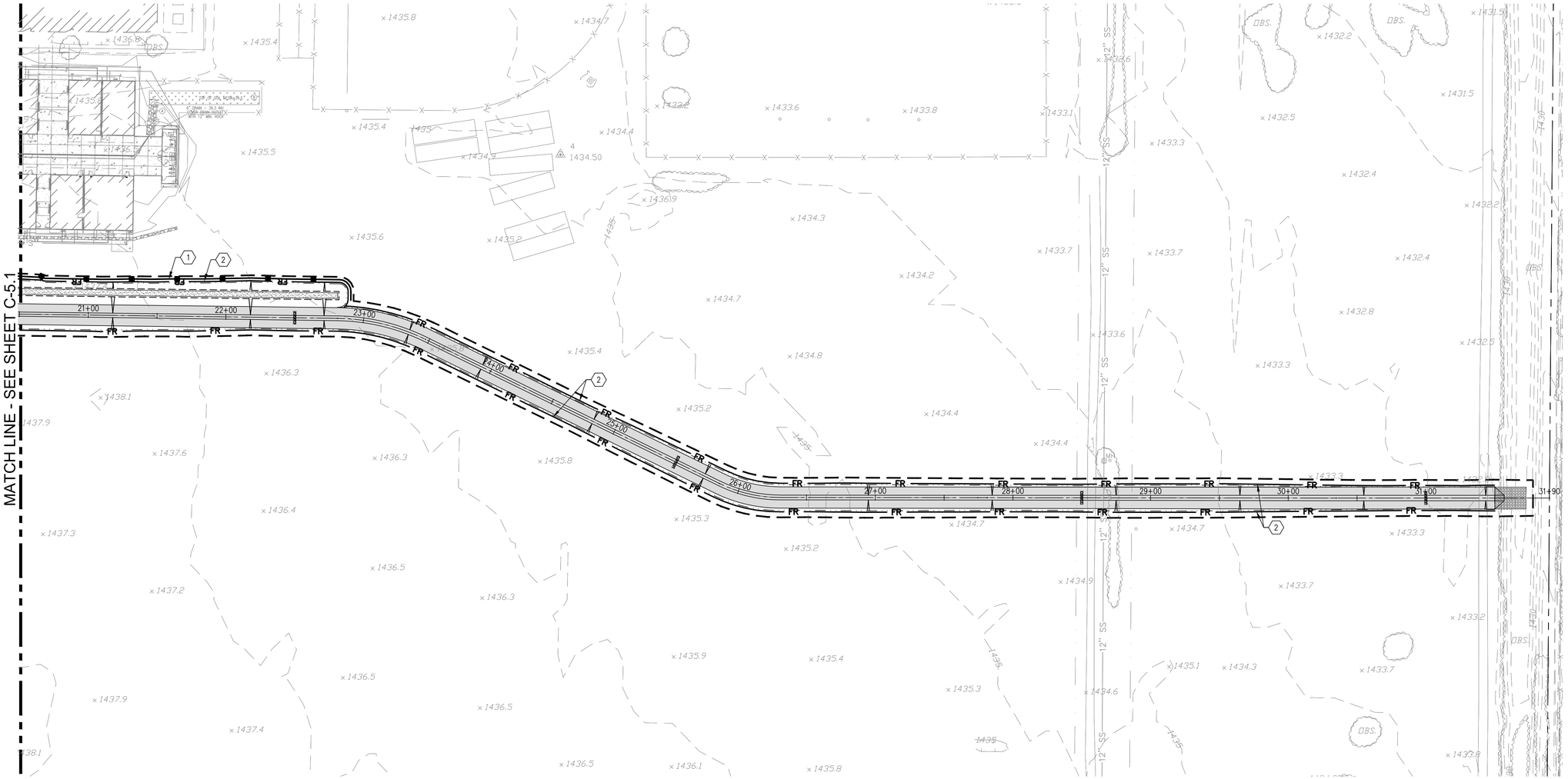
SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

EROSION CONTROL PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-5.1
13 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL



REFER TO SHEET C-5.0 FOR GENERAL NOTES, KEYNOTES AND LEGEND

EROSION CONTROL PLAN

SCALE: 1"=40'

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

IMPORTANT NOTICE
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

1" = 40'
40 0 40 80
scale feet

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 10/18/19
PLOTTED: 8:43 A
WSP PROJECT NO. WA31600017
DESIGN BY: SLL
DRAWN BY: SLL
REVIEWED BY: AAK

MARK	REVISIONS	APPR.	DATE

MSJC
Mt. San Jacinto College

MOUNT SAN JACINTO COLLEGE
DRAINAGE IMPROVEMENTS
AT
MOUNT SAN JACINTO COLLEGE, MENIFEE CAMPUS

REGISTERED PROFESSIONAL ENGINEER
AHMED ASLAM KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA
CONSULTANT STAMP

10-18-2019
DATE

BENCH MARK:
NGS PID: XXX
ELEV: XXX
DATUM: XXX

SCALE: AS SHOWN ON PLAN
DATE: 10-18-2019

EROSION CONTROL PLAN

28237 LA PIEDRA ROAD,
MENIFEE, CA 92584

SHEET C-5.2
14 OF 14 SHEETS
FILE No.

PRE-BID SUBMITTAL

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☑ No ☐)

Deferred Submittal ☐	Addendum Number: 01	Revision Number: -	CCD Number: -	Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Mt. San Jacinto Community College District	DSA File Number: 04-118898
Project Name/School: Menifee Valley Campus Stadium	DSA Application Number 04

3. APPLICANT INFORMATION:

Date Subi 3/16/2020	Attached Pages? No ☐ Yes ☑ Number of pages? 19		
Firm Name: Baker Nowicki Design Studio	Contact Name: Karyn Shore		
Work Email: KShore@BNdesignstudio.com	Work Phone: (619) 795-2450		
Firm Address: 731 Ninth Ave	City: San Diego	State: CA	Zip Code: 92101

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction.

☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Richard Nowicki

Professional License Number: C28042 | Discipline: Architect

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☐ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

Contractor requested clarification and corrections to the approved DSA INC 1 Rough Grading drawings for their bid packages. This included minor changes to the fencing and boundaries shown for the scope of work, the future location of the wet utilities and corrections to the Civil's elevations and vertical controls.

List of DSA-approved drawings affected by this post-approval document:

INC 1 Drawing Set: COVER, G1.1.1A, C1.0R, C1.1R, C1.2R, C2.0R, C2.1R, C2.2R, C2.3R, C3.0R, C3.1R, C4.0R, C5.0R, C6.0R, LI 1.05, P1.0.1

DSA USE ONLY

SSS AB Date 03/19/2020 ☒Approved ☐Disapproved ☐Not Required

Comments: _____

FLS DS Date 03/12/2020 ☒Approved ☐Disapproved ☐Not Required

Comments: _____

ACS DF Date 03/06/2020 ☒Approved ☐Disapproved ☐Not Required

Comments: _____

Returned
Date: 03/19/2020
By: DP

DSA STAMP

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

INC 1 ADDENDUM #1

March 4, 2020

Mt. San Jacinto Community College
Menifee Valley Campus Stadium
App. # 04-118898

BakerNowicki Design Studio
731 Ninth Avenue, Suite A
San Diego, CA 92101

PART 1 - GENERAL

1.1 The following revisions and/or clarifications shall be made to the Bidding Requirements and Contract Documents. Revise and amend the Documents for the above named project in accordance with this Addendum. The bid shall reflect these addendum changes and each bidder shall make reference in their bid to this addendum.

1.2 All Bidding Requirements and Contract Documents shall apply to this addendum as originally indicated in the applicable portions of the contract documents, unless otherwise modified by this addendum.

1.3 The following additions and clarifications to the approved DSA INC 1 drawings will be issued to all bidders as information for use in preparing bids.

PART 2 - ENCLOSURES

This Addendum to the Menifee Valley Campus Stadium-Inc 1 consists of (16) 30” x 42” drawings, as follows:

2.1 DRAWINGS

A. Revised Drawings:

The following (13) drawings have (clouded) revisions and are issued in the Addendum:

1. Drawing G1.1.0A: Replace currently issued drawing per AD1-G1.0.A which reflects the change to the Cover Sheet for the Addendum.
2. Drawing G1.1.1A: Replace currently issued drawing per AD1-G1.1.A which reflects the change to the Sheet Index for the Addendum.
3. Drawing C1.0R: Replace currently issued drawing per AD1- C1.0R (Clarification of scope of work and demolition plan for bid package)
4. Drawing C1.1R: Replace currently issued drawing per AD1- C1.1R (Clarification of scope of work for the demolition plan for bid package)
5. Drawing C1.2R: Replace currently issued drawing per AD1-C1.2R (Clarification of scope of work for bid package)

6. Drawing C2.0R: Replace currently issued drawing per AD1-C2.0R (Clarification of scope of work, grading, and hydroseeding areas for bid package)
7. Drawing C2.1R: Replace currently issued drawing per AD1-C2.1R (Clarification of scope of work and section numbering for bid package)
8. Drawing C2.2R: Replace currently issued drawing per AD1-C2.2R (Correction of RG elevations and control points shown in Sections G-G, F-F, H-H for bid package)
9. Drawing C3.0R: Replace currently issued drawing per AD1-C3.0R (Clarification of scope of work, clarification of location of existing and new wet utilities, for bid package)
10. Drawing C4.0R: Replace currently issued drawing per AD1-C4.0R (Elimination of detail A, clarification of detail F)
11. Drawing C5.0R: Replace currently issued drawing per AD1-C2.3R (Clarification of scope of work and horizontal control elevations for bid package)
12. Drawing C6.0R: Replace currently issued drawing per AD1-C6.0R (Clarification of scope of work and contractors construction plans for erosion control for bid package)
13. Drawing LI 1.05: Replace currently issued drawing per AD1-L1 1.05 (Clarification of location of irrigation line, for bid package)

B. New Drawings:

The following (3) drawings have been added to the set:

14. C2.3R STORM DRAIN PROFILE
15. C3.1R WET UTIITY PROFILES
16. P1.0.1 PLUMBING OVERALL SITE PLAN

PART 3 – OMITTED INFORMATION:

The following drawing (1) should be removed from the Increment 1 set:

LI 1.06: Please remove, due to redundancy of information.

END OF ADDENDUM #1

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

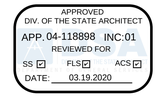
Richard Nowicki
C28042

Mt. San Jacinto Community College
Menifee Valley Campus Stadium
BNds # 19001-00

MENIFEE VALLEY CAMPUS STADIUM

MT. SAN JACINTO COMMUNITY COLLEGE

MENIFEE VALLEY CAMPUS



DSA 04-118898 - INC 1 ADDENDUM

ROUGH GRADING PACKAGE

ORIGINAL SUBMITTAL: INC 01_DWG_V1; 12/11/19

BACKCHECK: INC 01_DWG_V2; 1/12/20

APPROVED: INC 01_DWG_V2; 1/16/20

ADDENDUM: INC 01_ADD_01_DWG_V4; 3/19/20

BakerNowicki design studio
731 Ninth Avenue, Suite A
San Diego, California 92101
619.795.2450

MENIFEE VALLEY CAMPUS STADIUM
INC 1 ADDENDUM - ROUGH GRADING

MT. SAN JACINTO COMMUNITY COLLEGE

APPLICABLE CODES

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH:
2016 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(+ 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2014 NATIONAL ELECTRICAL CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R.
(2015 UNIFORM MECHANICAL CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2015 UNIFORM PLUMBING CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.

2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2015 INTERNATIONAL FIRE CODE AND 2016 CALIFORNIA AMENDMENTS)

2016 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.

2016 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

2013 ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS

2. ALL BARRIER FREE ITEMS SHALL COMPLY WITH TITLE 21 AND 24 OF THE CALIFORNIA CODE OF REGULATIONS, 2016.

3. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THESE CODES AND ALL APPLICABLE LOCAL ORDINANCES. WHERE CODES CONFLICT, THE MORE STRINGENT SHALL APPLY.

4. PROTECTION DURING WELDING: CONFORM TO TITLE 8, C.C.R. FURTHER PROTECT OCCUPANTS AND THE PUBLIC WITH PORTABLE SOLID VISION BARRICADES AROUND LOCATION WHERE WELDING IS BEING PERFORMED.PROVIDE SIGNS WARNING AGAINST LOOKING AT WELDING WITHOUT PROPER EYE PROTECTION OR EQUIVALENT. SEE C.F.C. FOR REQUIREMENTS FOR ON SITE WELDING.

5. DURING THE ENTIRE CONSTRUCTION PERIOD, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CONDITIONS AT THE PROJECT SITE TO MEET THE REQUIREMENTS OF D.S.A. AND THE CALIFORNIA OCCUPATIONAL REGULATIONS. THIS PROVISION SHALL COVER THE CONTRACTOR'S EMPLOYEES AND ALL OTHER PERSONS WORKING UPON OR VISITING THE SITE. THE CONTRACTOR SHALL BECOME FULLY INFORMED OF ALL APPLICABLE STANDARDS AND REGULATIONS AND INFORM ALL PERSONS AND REPRESENTATIVES RESPONSIBLE FOR WORK UNDER THIS CONTRACT.

APPLICABLE STANDARDS

NFPA 13	AUTOMATIC FIRE SPRINKLER SYSTEMS	2016 EDITION
NFPA 14	STANDPIPE AND HOSE SYSTEMS	2013 EDITION
NFPA 17	DRY CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 17A	WET CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 20	STATIONARY PUMPS FOR FIRE PROTECTION	2016 EDITION
NFPA 22	WATER TANKS FOR PRIVATE FIRE PROTECTION	2013 EDITION
NFPA 24	PRIVATE FIRE MAINS & THEIR APPURTENANCES	2016 EDITION
NFPA 25	STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS	2013 EDITION
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE	2016 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2015 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS	2015 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
ICC 300/ICC	STANDARDS ON BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRAND STANDS	2012 EDITION
UL 464	AUDIBLE SIGNAL APPLIANCES	2016 EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS- 2016 CBC (SFM) CHAPTER 35. SEE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

GENERAL NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDA OR A C.C.D. APPROVED BY THE OFFICE OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, C.C.R.

2. A DSA ACCEPTED TESTING LABORATORY, EMPLOYED DIRECTLY BY THE OWNER (DISTRICT) SHALL CONDUCT ALL THE TESTS AND INSPECTIONS FOR THE PROJECT.

3. ALL WORK SHALL CONFORM TO 2016 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

4. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

INSPECTOR OF RECORD

INSPECTOR OF RECORD (IOR) OF RECORD SHALL BE EMPLOYED BY THE OWNER AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA). DUTIES AND REQUIRED IOR, CLASSIFICATION PER SECTION 4-342, TITLE 24, PART 1 CCR AND IR A-7: CLASS 1 CERTIFIED BY DSA.

AGENCY REQUIREMENTS

1. COMPLIANCE WITH TITLE 24, CCR, PARTS 1–6 AND 9.
2. TITLE 24, CCR, PARTS 1–5 MUST BE KEPT ON SITE DURING CONSTRUCTION
3. ALL ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY DSA. (SECTION 4-338(b), PART (1)
4. ALL SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE CONSIDERED AS A CHANGE ORDER OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION. (IR A-6) (SECTION 4-338(c), PART 1) SUBSTITUTIONS SHALL BE FOR ANY MATERIAL, SYSTEM OR PRODUCT THAT WOULD OTHERWISE BE REGULATED BY DSA.
5. THE CHANGE ORDERS/CCD AND FIELD CHANGE DOCUMENTS (PRELIMINARY CHANGE ORDERS) (SECTION 4-338(c)(d), PART 1) MUST BE SIGNED BY ALL THE FOLLOWING:
   a. A/E OF RECORD
   b. OWNER (CHANGE ORDERS ONLY)
   c. STRUCTURAL ENGINEER (WHEN APPLICABLE)
   d. DELEGATED PROFESSIONAL ENGINEER (WHEN APPLICABLE)

   AND SHALL BE SUBMITTED TO AND APPROVED BY DSA.
6. THE PROJECT INSPECTOR AND TESTING LAB SHALL BE EMPLOYED AND PAID BY THE OWNER AND APPROVED BY ALL OF THE FOLLOWING:
   a. A/E OF RECORD
   b. STRUCTURAL ENGINEER (WHEN APPLICABLE)
   c. DSA
7. FOR ALTERATIONS, REHABILITATION OR RECONSTRUCTION AS STATED IN TITLE 24, PART 1 SECTION 4-317(c) OR SIMILAR MEANING: "THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NONCOMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK."

VICINITY MAP NOT TO SCALE

SCOPE OF WORK

DSA APP NUMBER: 04-118898
BNDS FILE NUMBER : 19001-03

THIS IS AN ADDENDUM SHOWING CHANGES TO DSA APPROVED INC 1 ROUGH GRADING PACKAGE FOR CONTRACTOR'S BID CLARIFICATION.

LEGAL DESCRIPTION

THIS IS AN ADDENDUM SHOWING CHANGES TO DSA-APPROVED INC 1 ROUGH GRADING PACKAGE FOR CONTRACTOR'S BID CLARIFICATION. THE LEGAL DESCRIPTION PERTAINS TO INC 3 - NEW STADIUM, VISITORS BLEACHERS, FOOTBALL/SOCCER FIELD AND MECHANICAL ENCLOSURE.

DEFERRED APPROVAL ITEMS

FABRICATION AND INSTALLATION OF DEFERRED APPROVAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER WHO HAS BEEN DELEGATED THE RESPONSIBILITY OF COVERING THE WORK SHOWN ON A PARTICULAR PLAN OR SPECIFICATION, AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT. DEFERRED ITEMS SHALL BE COMPLETED PRIOR TO OCCUPANCY OF BUILDINGS AFFECTED BY THE DEFERRED WORK.
ALL WORK SHALL CONFORM TO 2016 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

DEFERRED APPROVAL ITEMS ARE AS FOLLOWS:

NOT APPLICABLE FOR INCREMENT 1 ADDENDUM

THE PLANS AND SPECIFICATIONS SHALL BE STAMPED AND SIGNED BY THE ARCHITECT AND ENGINEER OF RECORD BEFORE SUBMITTAL TO DSA.

Statement of General Conformance
FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS,
INCLUDING BY NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS
(Application No. 04-118898 File No. INC 1)

☒ All drawings or sheets listed on the cover or index sheet (Civil, Landscape, Structural, Mechanical, Plumbing, Electrical)

☒ This drawing, page of specifications/calculations

have been prepared by other design professionals or consultants who are licensed and/or authorized to prepare such drawings in this state. It has been examined by me for:

1. design intent and appears to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2. coordination with my plans and specifications and is acceptable for incorporation into the construction of this project.

The Statement of General Conformance "shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344" of Title 24, Part 1. *(Title 24, Part 1, Section 4-317 (b))*

I find that: ☒ All drawings or sheets listed on the cover or index sheet
☒ This drawing or page

Architect or Engineer designated to be in general responsible charge	Architect or Engineer delegated responsibility for this portion of the work
☒ is/are in general conformance with the project design, and	☐ is/are in general conformance with the project design, and
☒ has/have been coordinated with the project plans and specifications	☐ has/have been coordinated with the project plans and specifications
Signature: [signature] Date: 3/12/2020	Signature: Date:
Print Name:	Print Name:
License Number: Exp. Date:	License Number: Exp. Date:

SYMBOLS

NORTH ARROW

ITEM / ELEVATION — SPOT ELEVATION

ITEM / ELEVATION — FINISH FLOOR LEVEL

A / 1 — STRUCTURAL GRID LINES

MATCH LINE

DTL # / SHT # — DETAIL REFERENCE TAG (DETAIL NUMBER, SHEET NUMBER)

DTL # / SHT # — BUILDING SECTION TAG (DETAIL NUMBER, SHEET NUMBER)

DTL# / SHT # — BUILDING ELEVATION TAG (DETAIL NUMBER, SHEET NUMBER)

ROOM / 101 / 9'-0" — ROOM NAME TAG (ROOM NUMBER, ROOM CEILING HEIGHT)

ELEV # A / ELEV # D / SHT # / ELEV # B / ELEV # C — INTERIOR ELEVATION TAG (DETAIL NUMBER, SHEET NUMBER)

X — WALLTYPE TAG (SEE SHEET G—)

X — WINDOW NUMBER TAG (SEE WINDOW SCHEDULE)

XXX — DOOR NUMBER TAG (SEE DOOR / FRAME SCHEDULE)

XXXXXX.XX — CONSTRUCTION KEYNOTE (SEE LEGEND EACH SHEET)

XXXXXX.XX — DEMOLITION KEYNOTE (SEE LEGEND EACH SHEET)

SHEET INDEX

Discipline	Sheet Number	Sheet Name
GENERAL		
GENERAL	-	COVER SHEET - INC 1 ADDENDUM
GENERAL	AD1 - G1.1.1A	INFO + SHEET INDEX - INC 1 ADDENDUM
CIVIL		
CIVIL	AD1 - C1.0 R	OVERALL EXISTING CONDITIONS AND DEMOLITION KEY MAP
CIVIL	AD1 - C1.1 R	EXISTING CONDITIONS AND DEMOLITION PLAN
CIVIL	AD1 - C1.2 R	EXISTING CONDITION AND SURVEY MAP
CIVIL	AD1 - C2.0 R	OVERALL GRADING AND DRAINAGE PLAN, GENERAL NOTES, LEGEND
CIVIL	AD1 - C2.1 R	ROUGH GRADING AND DRAINAGE PLAN
CIVIL	AD1 - C2.2 R	GRADING SECTIONS
CIVIL	AD1 - C3.0 R	WET UTILITY PLAN
CIVIL	AD1 - C4.0 R	DETAILS
CIVIL	AD1 - C5.0 R	HORIZONTAL CONTROL PLAN
CIVIL	AD1 - C6.0 R	EROSION CONTROL PLAN
CIVIL	C2.3 R	STORM DRAIN PROFILE
CIVIL	C3.1 R	WET UTILITY PROFILES
LANDSCAPE		
LANDSCAPE	AD1 - LI 1.05	IRRIGATION DEMO PLAN
PLUMBING		
PLUMBING	P1.0.1	PLUMBING SITE PLAN

TOTAL NO. SHTS = 16 SHEETS

PROJECT DIRECTORY

MT. SAN JACINTO COMMUNITY COLLEGE
MENIFEE VALLEY DISTRICT
1499 N. STATE ST.
SAN JACINTO, CA 92544
PHONE: (951) 639-5097
MANAGER: TODD FRANCO
EMAIL: TFRANCO@MSJC.EDU

ARCHITECT
BakerNowicki design studio, LLP
731 NINTH AVENUE, SUITE A
SAN DIEGO, CA 92101
PHONE: (619) 795-2450
MANAGER: RICHARD NOWICKI, AIA
EMAIL: RNOWICKI@BNDESIGNSTUDIO.COM
WEB: WWW.BNDESIGNSTUDIO.COM

CIVIL ENGINEER
WSP (formerly BergerABAM)
10625 VISTA SORRENTO PARKWAY, SUITE 350
SAN DIEGO, CA 92121
PHONE: (858) 500-4500
MANAGER: AHMAD KAHN
EMAIL: AHMAD.A.KAHN@WSP.COM
WEB: WWW.WSP.COM

LANDSCAPE ARCHITECT
GROUNDLEVEL
2605 STATE ST., SUITE B
SAN DIEGO, CA 92103
PHONE: (619) 325-1990
MANAGER: BRAD LENAHAN
EMAIL: BLENAHAN@GROUNDLEVELSD.COM
WEB: WWW.GroundLevelSD.com

PLUMBING ENGINEER
MA ENGINEERS
5180 CAROLL CANYON RD, SUITE 200
SAN DIEGO, CA 92121
PHONE: (858) 200-0030
MANAGER: BRAD LENAHAN
EMAIL: DNOJI@MA-ENGR.COM
WEB: -

LICENSED ARCHITECT — RICHARD E. NOWICKI — NO. C 28042 — EXP. 8-30-21 — STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MENIFEE VALLEY CAMPUS STADIUM

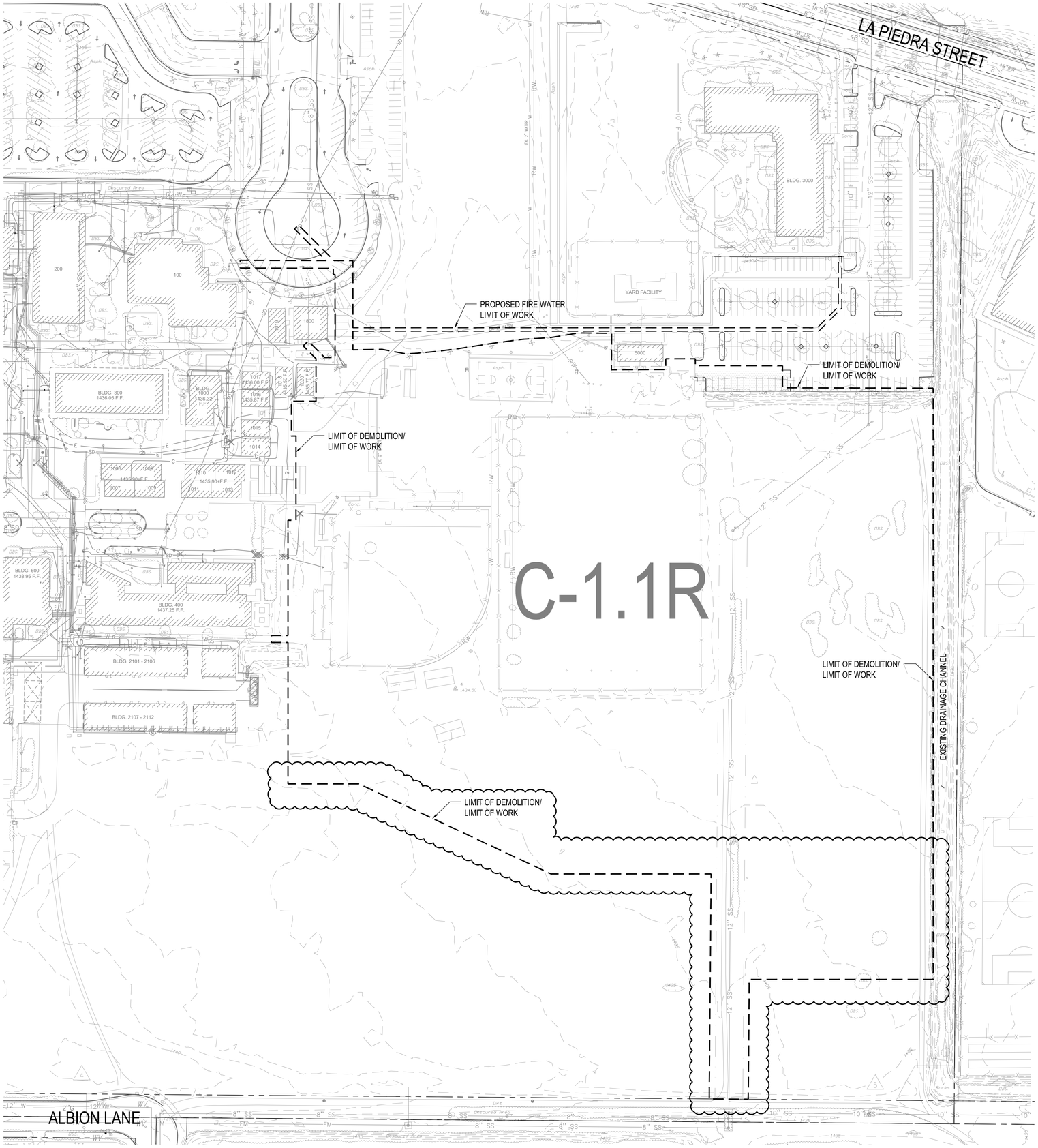
BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA 04-118898 - INC 1 ADD
INFO + SHEET INDEX - INC 1 ADDENDUM

BNDS PROJECT NO: 19001-001
DATE: 3/04/2020

DRAWING
AD1 - G1.1.1A

BIM 360://19001-00 MVC Stadium/ARCH-BNDS-MSJC-SITE.rvt.rvt
3/4/2020 3:54:52 PM



OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN
SCALE: 1" = 60'

NOTICE TO CONTRACTOR

1. CONTRACTOR TO LOCATE ALL IRRIGATION LINES WITHIN LIMIT OF WORK. ALL IRRIGATIONS LINE TO BE DEMOLISHED, REMOVED, AND END CAPPED WITHIN LIMIT OF CONSTRUCTION.
2. ELECTRICAL, GAS, WATER AND SEWER MAY BE REQUIRED OUTSIDE OF LIMIT LINE SHOWN ON THIS PLAN. REFER TO ELECTRICAL AND LOW VOLTAGE PLANS FOR WORK OUTSIDE OF LIMIT LINE.

1" = 60' (scale: 60 0 60 120 feet)

LICENSED ARCHITECT — AHMED E. ASHOUR — NO. C28042 — EXP. 9-30-21 — STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

DEMOLITION NOTES

1.	DEMOLISH AND REMOVE ALL EXISTING IMPROVEMENTS WITHIN LIMITS OF WORK UNLESS INDICATED OTHERWISE. KEYNOTES REFER TO TYPICAL ITEMS OF DEMOLITION AND ARE NOT ALL-INCLUSIVE.
2.	THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
3.	PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
4.	THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
5.	COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS, MECHANICAL/ELECTRICAL FACILITIES, AND OTHER INSTALLATIONS. REFER TO LANDSCAPE, PLUMBING, ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
6.	ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
7.	REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
LIMIT OF WORK LINE	
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING TREE	
EXISTING BRUSH	
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE: 09/04/19
PLOTTED: 12:56 P
WSP PROJECT NO.: WA31600003
DESIGN BY: AAK, SLL
DRAWN BY: SLL
REVIEWED BY: AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA 04-118898 - INC 1 ADDENDUM
OVERALL EXISTING CONDITIONS
AND DEMOLITION KEY MAP

NO. DATE ISSUE

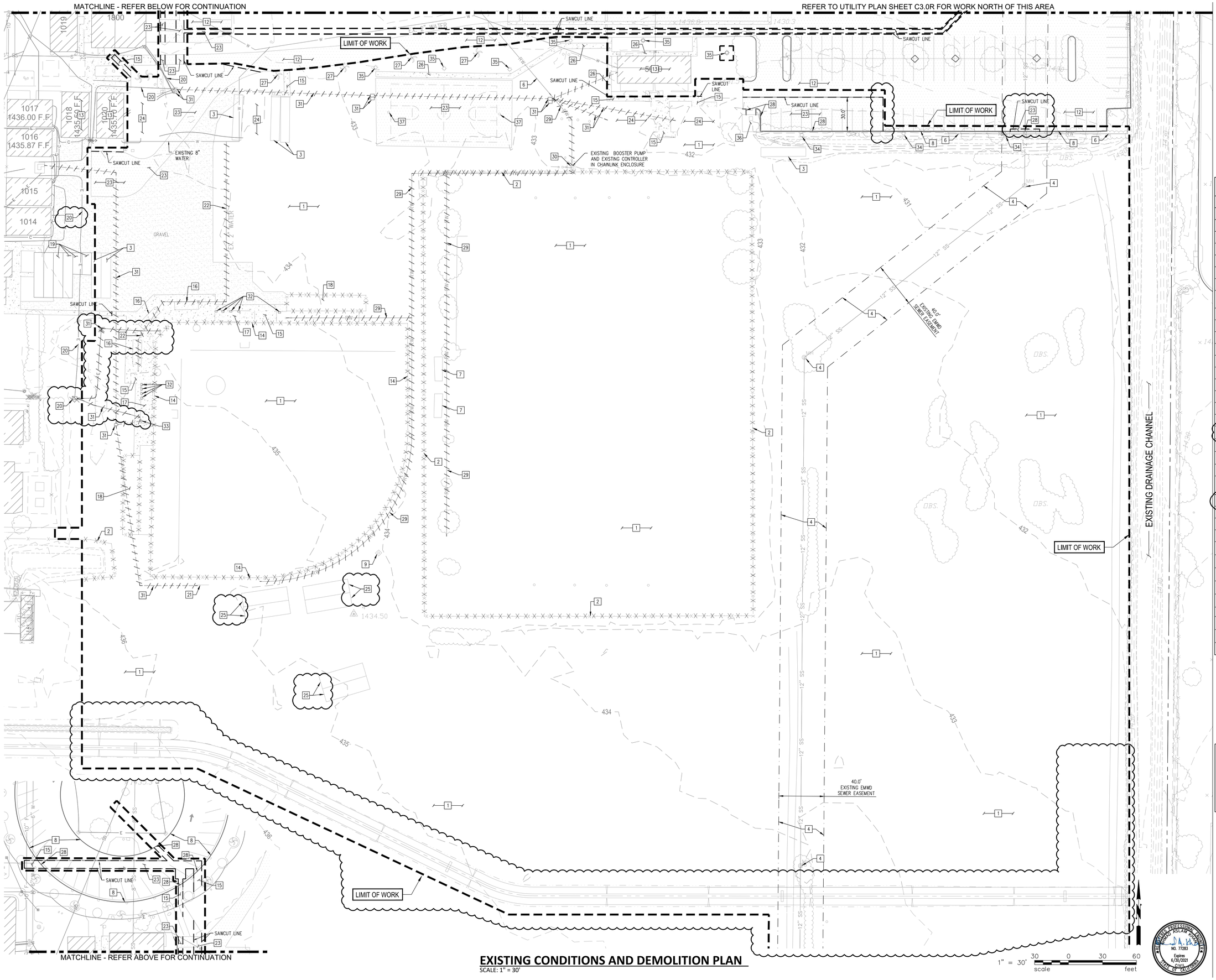
PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1-C1.0R

REGISTERED PROFESSIONAL ENGINEER — SHAHID ASLAM — NO. 77283 — Expires 6/30/2021 — CIVIL — STATE OF CALIFORNIA

MATCHLINE - REFER BELOW FOR CONTINUATION

REFER TO UTILITY PLAN SHEET C3.0R FOR WORK NORTH OF THIS AREA



MATCHLINE - REFER ABOVE FOR CONTINUATION

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 30'

1" = 30' scale 30 0 30 60 feet

LICENSED ARCHITECT — EDWARD E. ROBINSON — EXP. 9-30-21 — STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

DEMOLITION LEGEND

- DEMOLISH AND REMOVE FENCE AND ASSOCIATED FOOTINGS.
- DEMOLISH EXISTING UNDERGROUND UTILITIES
- APPROX. LIMITS OF WORK

DEMOLITION KEY NOTES

1	REMOVE EXISTING VEGETATION AND ANY DEBRIS, CLEAR AND GRUB WITHIN LIMIT OF GRADING.
2	DEMOLISH AND REMOVE EXISTING CHAINLINK FENCE AND ASSOCIATED FOOTINGS.
3	REMOVE AND SALVAGE EXISTING STORAGE CONTAINER AND RETURN TO OWNER.
4	PROTECT IN-PLACE EXISTING EMWD SEWER MAIN AND INFRASTRUCTURE.
5	PROTECT IN-PLACE EXISTING FENCE.
6	PROTECT IN-PLACE EXISTING RECLAIMED WATER LINE.
7	REMOVE AND SALVAGE EXISTING SOCCER GOAL AND RETURN TO OWNER.
8	PROTECT IN-PLACE EXISTING CURB.
9	REMOVE AND DIS-ASSEMBLY EXISTING FLAG POLE AND RETURN TO OWNER AND DEMOLISH AND REMOVE EXISTING ASSOCIATED CONCRETE FOOTING.
10	PROTECT IN-PLACE EXISTING DRAINAGE SWALE.
11	PROTECT IN-PLACE EXISTING DECOMPOSED GRANITE WALKWAY.
12	PROTECT IN-PLACE EXISTING AC PAVEMENT.
13	PROTECT IN-PLACE EXISTING BUILDING AND ASSOCIATED INFRASTRUCTURE.
14	DEMOLISH AND REMOVE EXISTING BALL FIELD FENCE.
15	SAWCUT, DEMOLISH AND REMOVE EXISTING PCC HARDSCAPE.
16	REMOVE AND SALVAGE EXISTING METAL BLEACHERS AND RETURN TO OWNER.
17	DEMOLISH AND REMOVE EXISTING BASEBALL DUGOUT.
18	DEMOLISH AND REMOVE EXISTING BASEBALL BATTING CAGES.
19	PROTECT IN-PLACE EXISTING STORAGE CONTAINER.
20	PROTECTED IN-PLACE EXISTING UNDERGROUND ELECTRICAL, COMMUNICATIONS HANDHOLES, ASSOCIATED CONDUIT AND WIRING.
21	DEMOLISH AND REMOVE EXISTING SCORE BOARD AND ASSOCIATED FOOTINGS.
22	DEMOLISH AND REMOVE EXISTING WATER LINE AND PROVIDE END CAP.
23	SAWCUT, DEMOLISH AND REMOVE EXISTING AC PAVEMENT.
24	DEMOLISH AND REMOVE ANY REMAINING FOOTINGS OR DEBRIS IN THIS AREA.
25	EXISTING PORTABLE BUILDING TO BE RELOCATED OUTSIDE LIMIT OF WORK, COORDINATE WITH OWNER.
26	PROTECT IN-PLACE EXISTING PCC HARDSCAPE.
27	PROTECT IN-PLACE EXISTING EXISTING TREE.
28	SAWCUT, DEMOLISH AND REMOVE EXISTING PCC CURB.
29	DEMOLISH AND REMOVE EXISTING RECLAIMED WATER LINE AND ASSOCIATED VALVES, ECT. AND PROVIDE END CAP.
30	DEMOLISH AND REMOVE EXISTING BOOSTER PUMP AND EXISTING CONTROLLER AND CHAINLINK ENCLOSURE.
31	EXISTING CONCRETE UNDERGROUND ELECTRICAL, COMMUNICATIONS HANDHOLES, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
32	EXISTING RECEPTACLES AND ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
33	EXISTING ELECTRICAL PANEL, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
34	PROTECT IN-PLACE EXISTING PARKING LOT LIGHT AND POLE.
35	EXISTING WALKWAY LIGHT/POLE, CONCRETE BASE, ASSOCIATED CONDUIT AND WIRING TO BE REMOVED.
36	SAWCUT, DEMOLISH AND REMOVE EXISTING TRASH ENCLOSURE SLAB, FOOTINGS AND MISCELLANEOUS ITEMS.
37	DEMOLISH AND REMOVE EXISTING BASKETBALL POLE AND ASSOCIATED FOOTING.

NOTICE TO CONTRACTOR

CONTRACTOR TO LOCATE ALL IRRIGATION LINES WITHIN LIMIT OF WORK. ALL IRRIGATIONS LINE TO BE DEMOLISHED, REMOVED, AND END CAPPED WITHIN LIMIT OF CONSTRUCTION.

REFER TO SHEET C1.0R FOR GENERAL NOTES AND LEGEND

WSP USA
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Lake Elsinore, CA 92530
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DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA 04-118898 - INC 1 ADDENDUM
EXISTING CONDITIONS AND DEMOLITION PLAN

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C1.1R

ARCHITECT — ANJUM ASLAM — NO. 77283 — Expires 6/30/2021 — CIVIL — STATE OF CALIFORNIA

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

LIMIT OF WORK

40.0' EXISTING EMWD SEWER EASEMENT

40.0' EXISTING EMWD SEWER EASEMENT

EXISTING DRAINAGE CHANNEL

EX. 12" WATER

1017
1436.00 F.F.

1018

1019

1020
1435.70 F.F.

1016
1435.87 F.F.

1015

1014

1800

5000

1430.3

1434.50

1" = 30'
scale
30 0 30 60
feet

EXISTING CONDITION AND SURVEY MAP
SCALE: 1" = 30'

LICENSED ARCHITECT
RICHARD E. NORTON
NO.C28042
EXP. 9-30-21
STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

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(951) 471-1625 Fax: (951) 471-1635

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WSP PROJECT NO:	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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619.795.2450
www.bndesignstudio.com

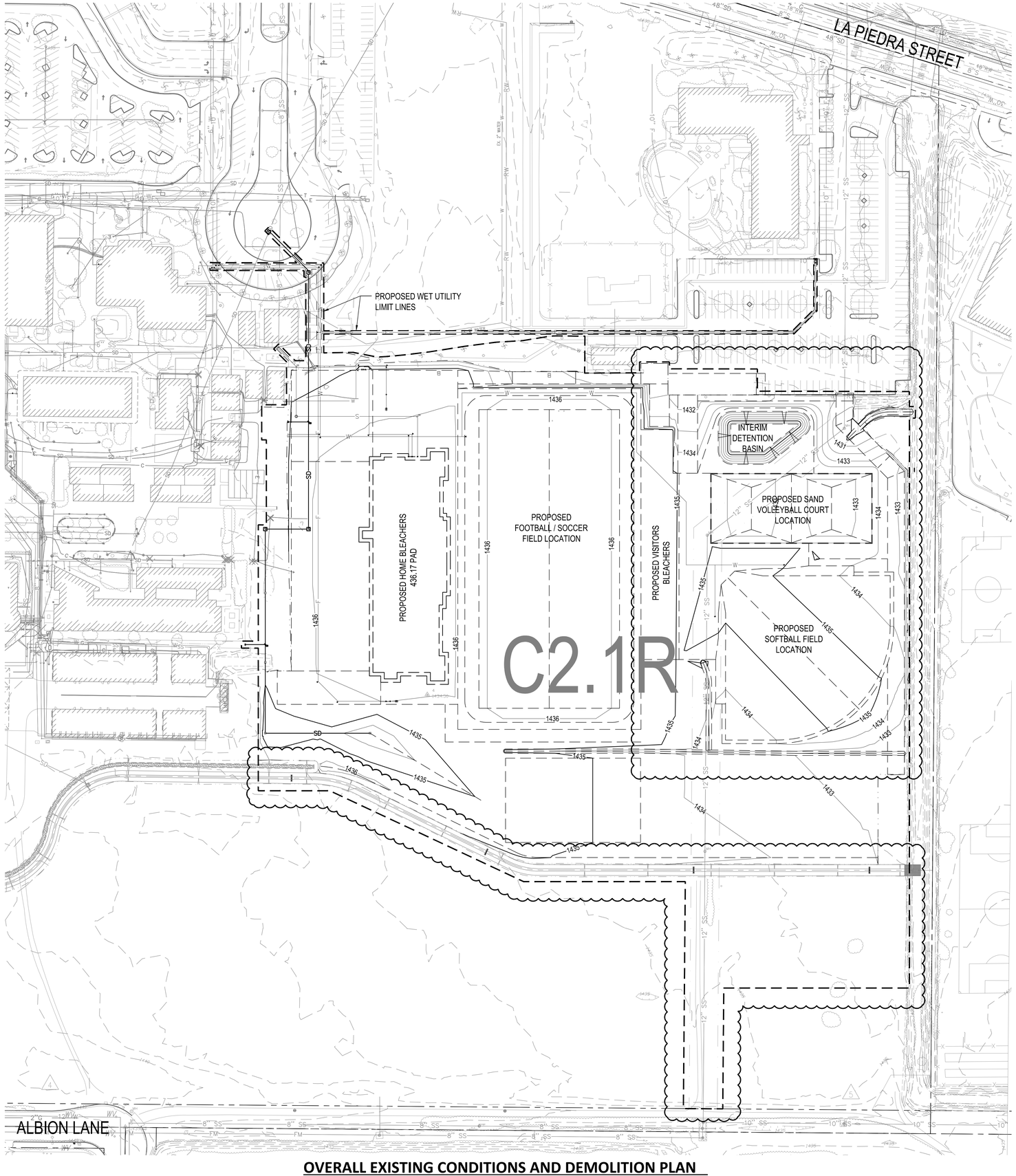
DSA 04-118898 - INC 1 ADDENDUM
EXISTING CONDITION AND SURVEY MAP

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C1.2R

REGISTERED PROFESSIONAL ENGINEER
SHANNON L. LABLANC
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 60'

GRADING NOTES

1.	NOTIFY UNDERGROUND SERVICE ALERT, (800) 227-2600, AND ALL CONCERNED UTILITY COMPANIES AT LEAST TWO WORKING DAYS IN ADVANCE OF EXCAVATION.
2.	LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY CONDITIONS ON THE JOB SITE PRIOR TO COMMENCING WORK.
3.	THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH HIS PRIVATE DEVELOPMENT CONSTRUCTION.
4.	FILL AREAS SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, SCARIFIED, AND INSPECTED BY THE OWNERS INSPECTOR AND SOILS ENGINEER PRIOR TO THE PLACING OF FILL.
5.	DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
6.	NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL.
7.	FILLS SHALL BE PLACED IN THIN LIFTS 8 INCH COMPACTED AND TESTED AS GRADING PROGRESSES UNTIL FINAL GRADES ARE ATTAINED.
8.	NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES IN ANY DIMENSION SHALL BE BURIED OR PLACED IN FILLS.

GENERAL NOTES

A.	THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
B.	PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
C.	THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
D.	COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
E.	ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
G.	REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

NOTE:
ALL GRADED AREAS WHERE GRADING HAS CEASED FOR 14 DAYS SHALL BE HYDROSEEDED, INCLUDING ALL SLOPES.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES (UTILITY PIPES, STRUCTURES, ETC.) SHOWN ON THESE PLANS (MAIN LINES ONLY - NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY THE UTILITY AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. LOCATIONS OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SPECIAL NOTICE TO CONTRACTOR

PRIOR TO STARTING ANYWORK, CONTRACTOR TO POTHOLE, FIELD VERIFY AND RECORD ALL UTILITY POINT OF CONNECTIONS AND CROSSINGS AND CONFIRM EXISTING PIPE SIZES AND DEPTHS OF EXISTING PIPES TO MAKE SURE GRAVITY CONNECTIONS OF THE PROPOSED SEWER AND DRAINAGE LATERALS DO NOT HAVE CONFLICT AND THAT THE GRAVITY CONNECTIONS WILL WORK. NOTIFY THE SCHOOL DISTRICT REPRESENTATIVE IMMEDIATELY OF ANY CONFLICT.

1" = 60' scale: 60 0 60 120 feet

LICENSED ARCHITECT RICHARD E. NORTON NO.C28042 EXP. 9-30-21 STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
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(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

DSA 04-118898 - INC 1 ADDENDUM
OVERALL GRADING AND DRAINAGE PLAN, GENERAL NOTES, LEGEND

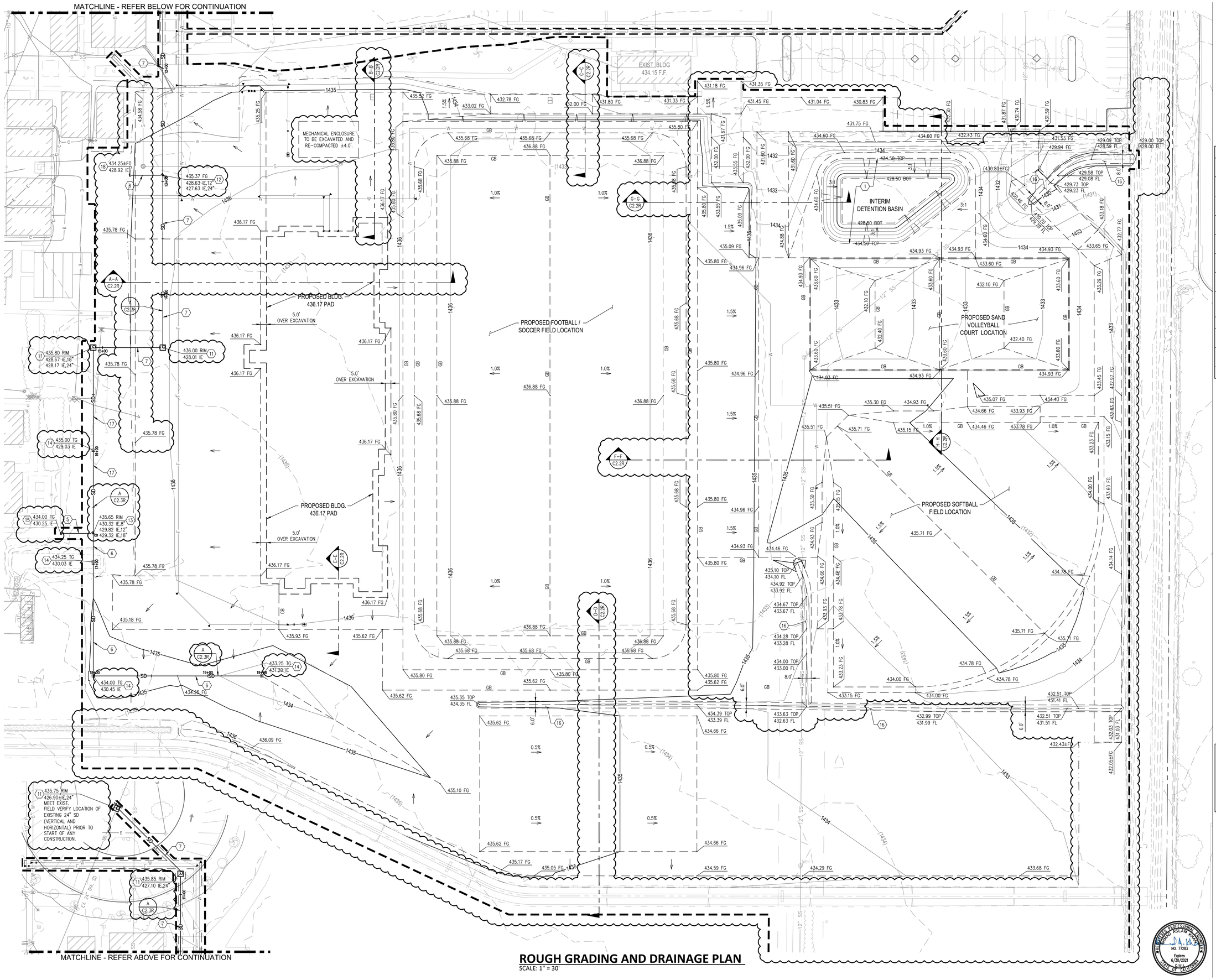
NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C2.0R

REGISTERED PROFESSIONAL ENGINEER RICHARD ASLAN KHOURY NO. 77283 Expires 6/30/2021 CIVIL STATE OF CALIFORNIA

MATCHLINE - REFER BELOW FOR CONTINUATION



MATCHLINE - REFER ABOVE FOR CONTINUATION

ROUGH GRADING AND DRAINAGE PLAN
SCALE: 1" = 30'

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

LICENSED ARCHITECT
RICHARD E. NORTON
NO.C28042
EXP. 9-30-21
STATE OF CALIFORNIA

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

GRADING AND DRAINAGE KEY NOTES

1	DETENTION BASIN, PER DETAIL	F C-4.0R
5	8" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
6	12" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
7	24" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
11	STORM DRAIN MANHOLE, PER DETAIL	D C-4.1R
12	STORM DRAIN CLEANOUT, COVER TO SAY "STORM", PER DETAIL. LEAVE RISER PIPE ±24" ABOVE ROUGH GRADE ELEVATION. RIM TO BE ADJUSTED DURING PRECISE GRADING PHASE.	B C-4.1R
13	STORM DRAIN CLEANOUT, COVER TO SAY "STORM", PER DETAIL.	B C-4.1R
14	24" SQUARE PRECAST CATCH BASIN WITH 6" THICK CONCRETE BOTTOM, SLOPED TOWARDS OUTLET @ 2% GALVANIZED STEEL GRATE & FRAME, BOLT DOWN & CBC COMPLIANT, PER DETAIL.	B C-4.0R
15	INSTALL 8" SDR-35 PVC GASKETED END CAP.	
16	EARTHEN SWALE, PER DETAIL	H C-4.0R
17	18" DIA. SDR-35, PVC, STORM DRAIN LINE, SLOPE PER PLAN. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS, PER DETAIL	C C-4.0R
18	INSTALL 12" SDR-35 PVC GASKETED END CAP.	

NOTE:
ALL GRADED AREAS WHERE GRADING HAS CEASED FOR 14 DAYS SHALL BE HYDROSEEDED, INCLUDING ALL SLOPES.

REFER TO SHEET C2.0R FOR GENERAL NOTES AND LEGEND

NOTE FOR SURVEYOR:
*ADD 1000' TO ELEVATIONS SHOWN ON PLANS

1" = 30'
30 0 30 60
scale feet

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki designstudio
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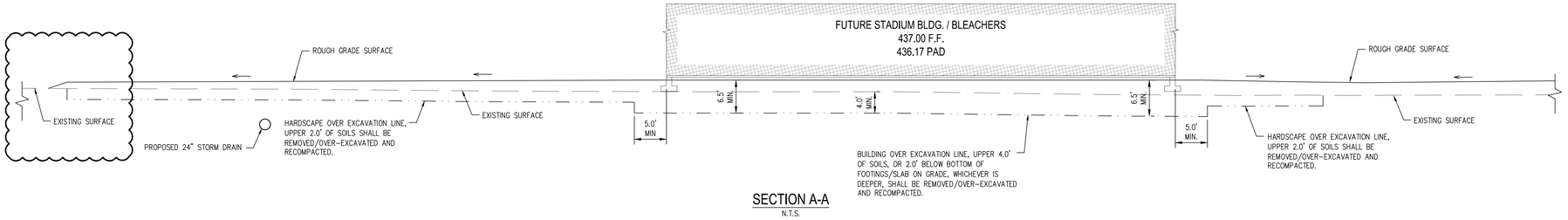
DSA 04-118898 - INC 1 ADDENDUM
ROUGH GRADING AND DRAINAGE PLAN

NO.	DATE	ISSUE

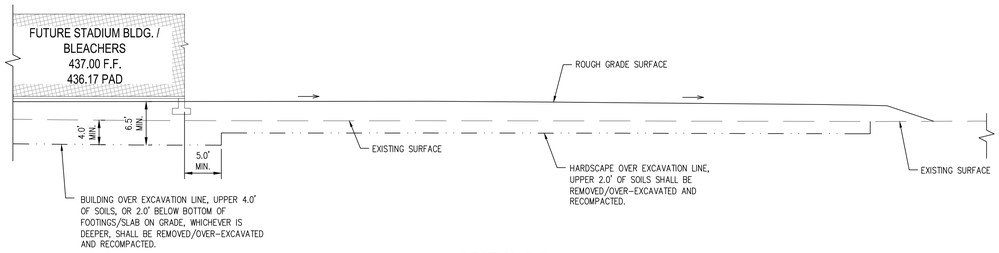
PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C2.1R

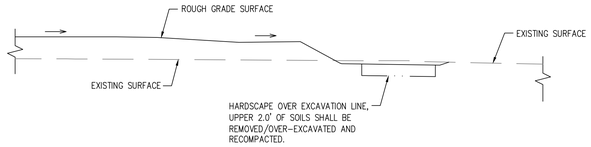
REGISTERED PROFESSIONAL ENGINEER
RICHARD D. KLEIN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



SECTION A-A
N.T.S.

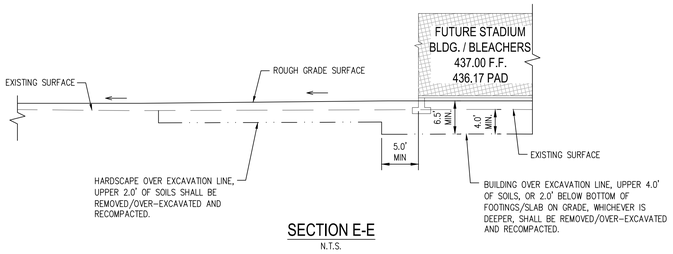


SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

SECTION D-D
N.T.S.



SECTION E-E
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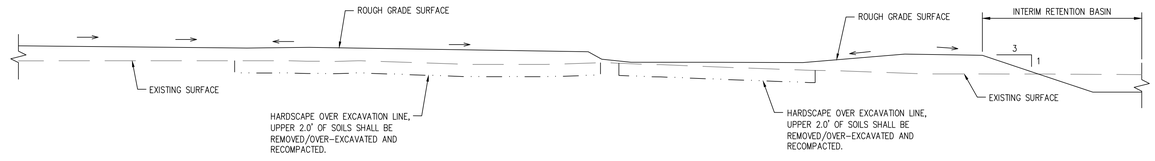
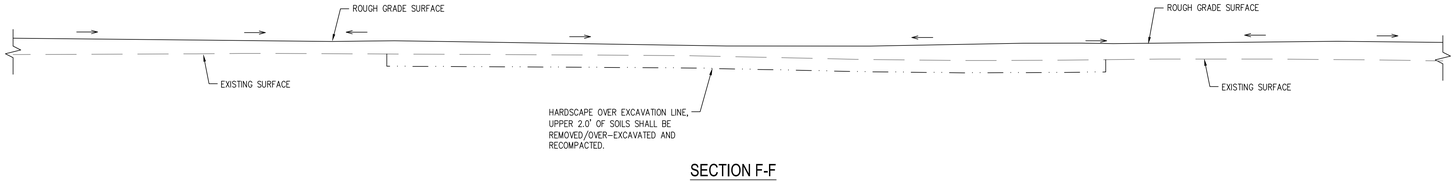
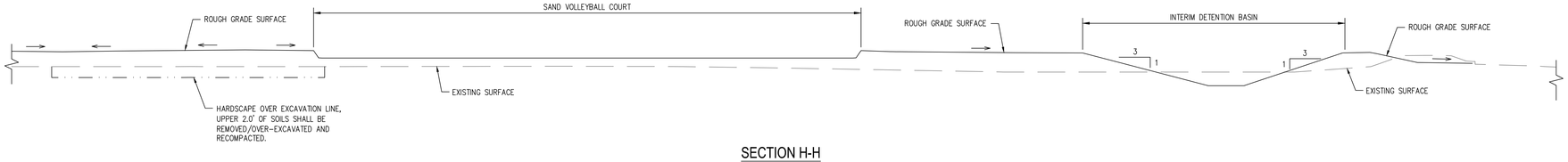


SECTION G-G



SECTION F-F



SECTION H-H

LICENSED ARCHITECT
RICHARD E. NORTON
EXP. 8-30-21
STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
NO.C28042
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
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www.bndesignstudio.com

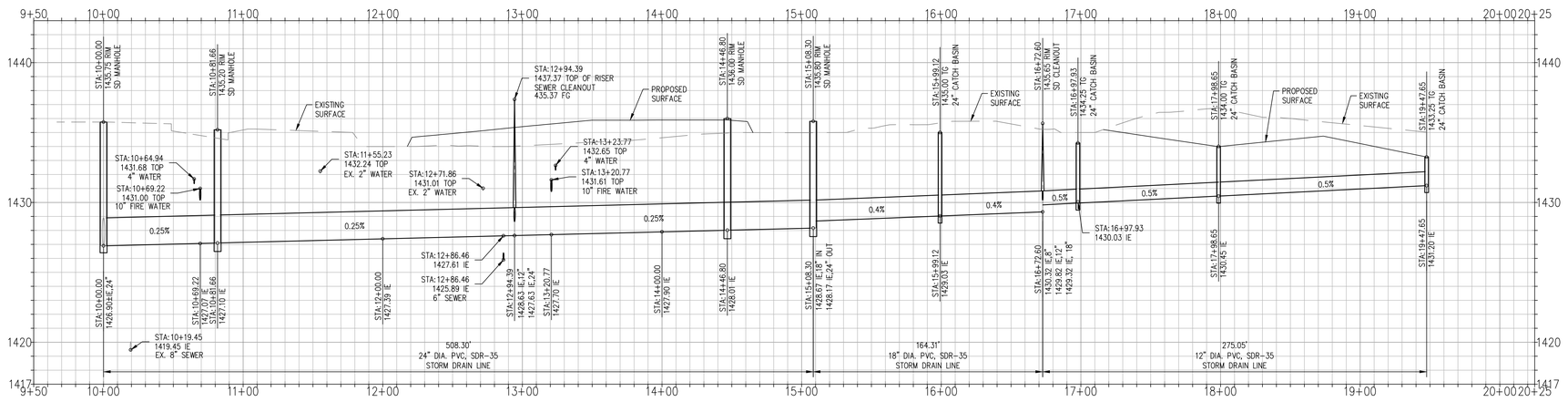
DSA 04-118898 - INC 1 ADDENDUM
GRADING SECTIONS

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1-C2.2R

ARIF ASLAM
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



A **STORM DRAIN "A" PROFILE**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

1" = 40' scale 40 0 40 80 feet

LICENSED ARCHITECT
RICHARD E. NORTON
EXP. 8-30-21
STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
NO.C28042
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
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WSP USA
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(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
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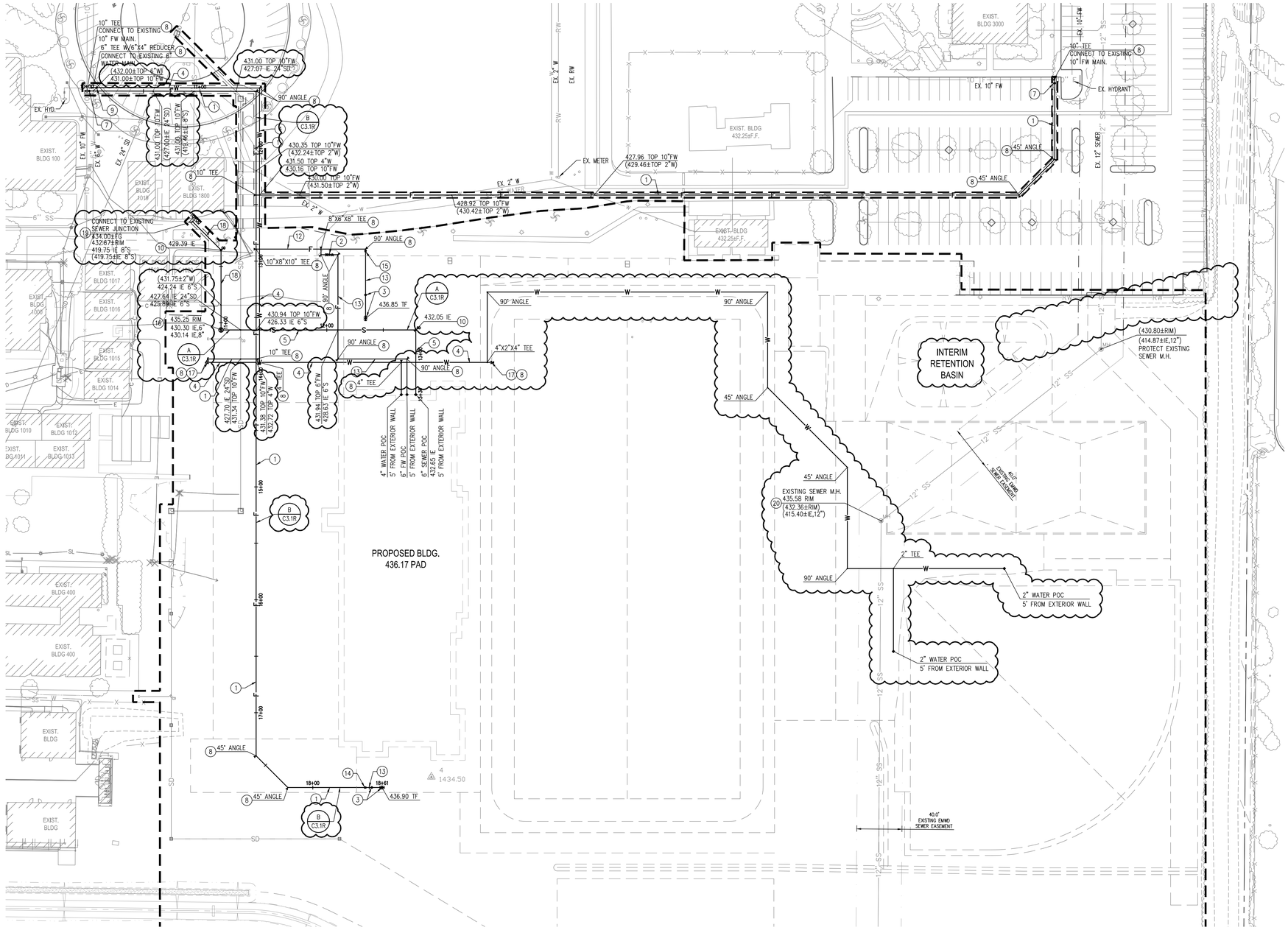
DSA 04-118898 - INC 1 ADDENDUM
STORM DRAIN PROFILE

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
C2.3R

AIR FORCE PROFESSIONAL ENGINEER
AHMAD ASLAM AWAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



WET UTILITY PLAN

SCALE: 1" = 40'

NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS

1. PRIOR TO INSTALLATION, ALL PLANS AND SPECIFICATIONS SHALL BE APPROVED BY DSA. REFER TO DSA IR A-25 FOR DESIGN, INSTALLATION AND MAINTENANCE GENERAL REQUIREMENTS.
2. INSPECTIONS ARE REQUIRED: 1) PRIOR TO POURING THRUST BLOCKS. 2) FOR HYDROSTATIC TESTING , AND 3) FOR FLUSH.
3. INSTALLATION, INSPECTION , AND TESTING SHALL CONFORM TO 2016 EDITIONS CFC, NFPA 13 AND NFPA 24.
4. PRIVATE FIRE HYDRANTS SHALL BE APPROVED WET BARREL STYLE WITH A MINIMUM OF ONE 2 1/2" AND ONE 4" OUTLET. THE 4" OUTLET SHALL FACE THE FIRE DEPARTMENT ACCESS ROAD. ALL OUTLETS SHALL BE PROVIDED WITH NATIONAL STANDARD THREADS (NST) . NFPA 24, 7.1*
5. FIRE HYDRANT SUPPLY PIPING SHALL BE A MINIMUM OF SIX INCHES IN DIAMETER. THE CENTER OF THE HOSE OUTLET SHALL BE NOT LESS THAN 18" ABOVE FINAL GRADE OR, WHERE LOCATED IN A HOSE HOUSE, 12" ABOVE THE FLOOR. NFPA 24, 7.1.1.1 & 7.3.3.
6. FIRE HYDRANTS SHALL BE A MINIMUM OF 40 FEET FROM ALL STRUCTURES. NFPA 24, 7.2.3.
7. A CONTROLLED GATE VALVE SHALL BE PROVIDED FOR EACH HYDRANT IN AN ACCESSIBLE LOCATION. VALVES SHALL NOT BE LOCATED IN PARKING STALLS. NFPA 24, 7.1.1.2.
8. ALL UNDERGROUND PIPING SHALL BE LISTED FOR USE IN FIRE PROTECTION SERVICE AND COMPLY WITH AWWA STANDARDS (CLASS 150 MINIMUM) CLASS 200 PIPE SHALL BE USED WHERE THE PRESSURE MAY EXCEED 150 PSI. NFPA24, 10.1*
9. ALL BOLTED JOINTS SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION RETARDING MATERIAL AFTER INSTALLATION . NFPA 24, 10.4
10. BACKFILL SHALL BE WELL TAMPED LAYERS TO CONSIST OF 6" MINIMUM BED OF CLEAN FILL SAND OR PEA GRAVEL BELOW AND 12 " ABOVE THE PIPE (TOTAL 18" MINIMUM). NFPA 24, 10.9.1.
11. FITTINGS SHALL BE OF AN APPROVED TYPE. NFPA 24, 10.2.1.
12. A MINIMUM OF 30" OF COVER, FROM FINISH GRADE TO THE TOP OF THE PIPE , SHALL BE PROVIDED. WHEN SURFACE LOADS ARE EXPECTED , A MINIMUM OF 36" COVER SHALL BE PROVIDED. NFPA 24 , 10.4.2.2.3

NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS

13. THRUST BLOCKS, OR OTHER APPROVED METHOD OF THRUST RESTRAINT, SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION. BACK-FILL BETWEEN THE JOINTS TO PREVENT MOVEMENT OF THE PIPE . PROVIDE DETAILS AND CALCULATIONS FOR SIZING THRUST BLOCKS BASE ON ACTUAL SOIL CONDITIONS . NFPA 24, 10.6.1*
14. A HYDROSTATIC TEST (200 PSI FOR TWO HOURS OR 50 PSI OVER MAXIMUM STATIC PRESSURE, WHICHEVER IS GREATER) SHALL BE PERFORMED. NFPA24, 10.10.2.2.1.
15. THE SYSTEM SHALL BE THOROUGHLY FLUSHED BEFORE CONNECTION IS MADE TO OVERHEAD PIPING. FLOW SHALL BE THROUGH A MINIMUM OF 4" HOSE OF PIPE. NFPA 24, 10.10.2.1.
16. ALL CONTROL VALVES SHALL BE LOCKED IN THE OPEN POSITION . VALVES SHALL BE MONITORED IF THEY SERVE 20 OR MORE SPRINKLER HEADS. CBC/CFC 903.4.
17. ALL CONTROL VALVES SHALL BE LISTED INDICATING TYPE UNLESS A NON-INDICATING VALVE , SUCH AS AN UNDERGROUND GATE VALVE WITH APPROVED ROADWAY BOX COMPLETE WITH T-WRENCH , IS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION (AHJ). NFPA 24 , 6.1.1.
18. TESTS SHALL BE MADE BY THE INSTALLING CONTRACTOR IN THE PRESENCE OF THE (AHJ). PROVIDE A COMPLETED CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING TO DSA. NFPA 24, 10.10.2.2 & 14.1, CFC 901.5 & 6.

NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES (UTILITY PIPES, STRUCTURES, ETC.) SHOWN ON THESE PLANS (MAIN LINES ONLY – NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY THE UTILITY AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. LOCATIONS OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SPECIAL NOTICE TO CONTRACTOR

PRIOR TO STARTING ANYWORK, CONTRACTOR TO POTHOLE, FIELD VERIFY AND RECORD ALL UTILITY POINT OF CONNECTIONS AND CROSSINGS AND CONFIRM EXISTING PIPE SIZES AND DEPTHS OF EXISTING PIPES TO MAKE SURE GRAVITY CONNECTIONS OF THE PROPOSED SEWER AND DRAINAGE LATERALS DO NOT HAVE CONFLICT AND THAT THE GRAVITY CONNECTIONS WILL WORK. NOTIFY THE SCHOOL DISTRICT REPRESENTATIVE IMMEDIATELY OF ANY CONFLICT.

SPECIAL NOTE:

A. ALL FITTINGS SHALL BE BITUMINOUS COATED. WRAP ALL BURIED, FERROUS METAL FITTINGS WITH 2 LAYERS OF 8 MIL POLYURETHANE FILM SECURED WITH PLASTIC ADHESIVE TAPE PER AWWA C105.

B. ALL BOLTS, NUTS, WASHERS AND RODDING USED FOR THE INSTALLATION OF UNDERGROUND PIPING, VALVES AND FITTING SHALL BE STAINLESS STEEL CONFORMING TO UNS 31600 (FORMERLY AISI TYPE 316). BOLTS SHALL CONFORM TO ASTM F 593, ALLOY GROUP 2, CONDITION CW1/CW2 (DEPENDING ON SIZE). NUTS SHALL CONFORM TO ASTM F 594, ALLOY GROUP 2, CONDITION CW1/CW2 (DEPENDING ON SIZE).

C. CONCRETE FOR THRUST BLOCKS SHALL BE CLASS 470-C-2000, CONFORMING TO SECTION 201 OF THE STANDARD SPECIFICATIONS. QUANTITY OF CONCRETE AND THE AREA OF BEARING IN UNDISTURBED SOIL SHALL BE AS SHOWN ON (A C-4.3R)

D. MECHANICAL RESTRAINT DEVICES SHALL BE PROVIDED AT ALL PIPE JOINTS. RESTRAINT DEVICES SHALL BE THE WEDGING ACTION TYPE. ALL RODS, NUTS AND WASHERS SHALL BE STAINLESS STEEL PER ASTM F-593 AND F-594. UNIFLANGE, EBBA IRON OR EQUAL.

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED PIV, FDC ASSEMBLY	
PROPOSED FIRE HYDRANT	
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E	– ELECTRICAL	– ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	– ELECTRICAL DRAWINGS
G	– GAS	– PLUMBING DRAWINGS

PIPE TRENCH DIMENSIONS:

THE FOLLOWING REQUIREMENTS ARE CONSIDERED MINIMAL UNLESS OTHERWISE INDICATED, IN ORDER TO PROVIDE ADEQUATE PIPE CLEARANCES AND BEDDING. PROVIDE TRENCHES WIDER THAN THE SPECIFIED MINIMUMS WHERE REQUIRED TO PROPERLY INSTALL THE PARTICULAR TYPE OF PIPING. IN THE EVENT UTILITY COMPANY REGULATIONS, CODE REQUIREMENTS, OR THE PIPE MANUFACTURE'S RECOMMENDATIONS DIFFER FROM THESE PROVISIONS, THE MOST RESTRICTIVE REQUIREMENTS SHALL TAKE PRECEDENCE:

1. MINIMUM PIPE BURIAL DEPTHS:

SEWER:	AS SHOWN ON PLAN + 4" BED
DRAINAGE:	24" + PIPE O.D. + 4" BED
GAS:	30" + PIPE O.D. + 4" BED
WATER (FIRE)	48" + PIPE O.D. + 6" BED
WATER (DOMESTIC)	36" + PIPE O.D. + 4" BED
ALL OTHER:	24" (30" AT PLANTERS) + PIPE O.D. + 4" BED

WATER (IRRIGATION PRESSURE PIPING – RECLAIM)
3" DIAMETER OR LESS: 18" + PIPE O.D. + 2" BED
4" DIAMETER OR MORE: SAME AS DOMESTIC WATER

NOTES: FINISH GRADE TO TOP OF PIPE, TYPICAL. O.D.: OUTSIDE DIMENSION.

2. TRENCH WIDTHS:

SEWER & DRAINAGE:	12" + PIPE O.D. FOR 4" TO 18" DIA. PIPE
GAS	8" + PIPE O.D.
WATER (FIRE):	12" + PIPE O.D.
WATER (DOMESTIC):	8" + PIPE O.D.

WATER (IRRIGATION PRESSURE PIPING):
3" DIAMETER OR LESS: 4" + PIPE O.D.
4" DIAMETER OR MORE: 8" + PIPE O.D.

1" = 40' scale: 40 0 40 80 feet

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

LICENSED ARCHITECT
RICHARD E. NORTON
NO. C28042
EXP. 9-30-21
STATE OF CALIFORNIA

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

UTILITY KEY NOTES

1	10" DIA. C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
2	PIV, FDC ASSEMBLY, PER DETAIL	G C-4.0R
3	6" WET BARREL SUPER FIRE HYDRANT ASSEMBLY, PER DETAIL	C C-4.3R
4	4" DIA. PVC, SCH-80 POTABLE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
5	6" DIA. PVC, SDR-35 SEWER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	A,B C-4.3R
7	10" R.S.G.V. PER DETAIL	B C-4.2R
8	THRUST BLOCK PER SPECIFICATIONS AND PER DETAIL	A C-4.1R
9	4" R.S.G.V. PER DETAIL	B C-4.2R
10	SEWER CLEANOUT PER SPECIFICATIONS AND PER DETAIL, LEAVE RISER PIPE ±24" ABOVE ROUGH GRADE ELEVATION. RIM TO BE ADJUSTED DURING PRECISE GRADING PHASE.	B C-4.1R
12	8" DIA. C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
13	6" DIA, C900, CLASS 200, PVC, FIRE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	E C-4.0R, A C-4.2R
14	10" X 6" REDUCER	
15	8" X 6" REDUCER	
16	SEWER MANHOLE PER DETAIL	A C-4.4R
17	PROVIDE ENDCAP	
18	8" DIA. PVC, SDR-35 SEWER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	A,B C-4.3R
19	CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING 8" SEWER PRIOR TO START OF ANY CONSTRUCTION. ADJUST MANHOLE RIM ELEVATION BY ADDING 16"± RINGS.	
20	RAISE EXISTING SEWER MANHOLE FRAME AND GRATE TO PROPOSED ELEVATION. REMOVE EXISTING MANHOLE SHAFT CONE SECTION, ADD APPROPRIATE SHAFT RINGS TO EXTEND MANHOLE AND ADJUST RIM TO FINISHED SURFACE. ADD SHAFT RINGS AND STEPS AS REQUIRED PER EMWD STANDARD DRAWING SB-53.	
21	2" DIA. PVC, SCH-80 POTABLE WATER LINE. BEDDING AND TRENCH BACKFILL PER SPECIFICATIONS AND PER DETAIL	A C-4.2R

NOTE FOR SURVEYOR:
*ADD 1000' TO ELEVATIONS SHOWN ON PLANS

GENERAL UTILITY NOTES

1. THE CONTRACTOR SHALL NOTIFY DIGALERT (1-800-227-2600) AT LEAST TWO DAYS PRIOR TO STARTING WORK AND SHALL ARRANGE FOR AND COORDINATE SHUT DOWN, DISCONNECTION AND CAPPING OF EXISTING UTILITIES WITH THE APPROPRIATE UTILITY OWNERS PRIOR TO COMMENCING THE WORK.
2. PROTECT IN PLACE ALL EXISTING IMPROVEMENTS, STRUCTURES AND UNDERGROUND UTILITIES TO REMAIN.
3. THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING ANY WORK.
4. COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
5. ALL EXISTING "DRY" UTILITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS AND APPROPRIATE UTILITY COMPANY PLANS FOR ANY WORK ON OR WITH THESE UTILITIES.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
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www.bndesignstudio.com

DSA 04-118898 - INC 1 ADDENDUM

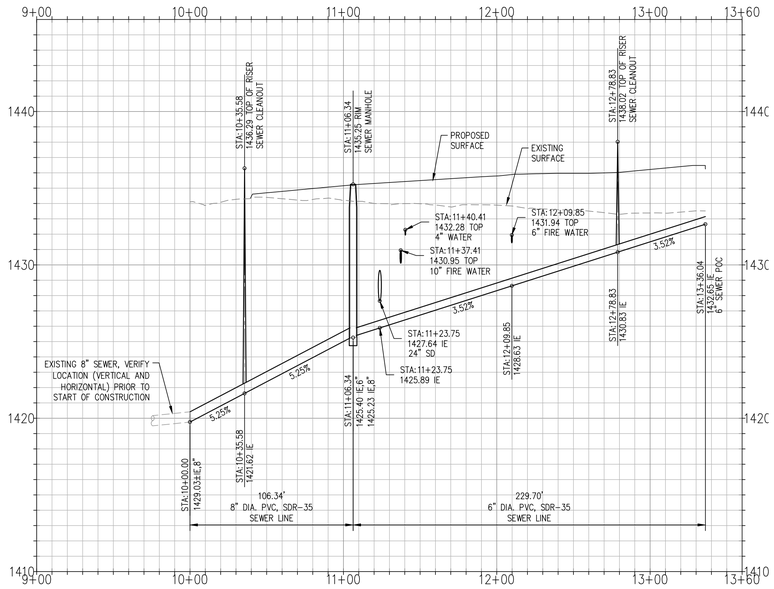
WET UTILITY PLAN

NO.	DATE	ISSUE

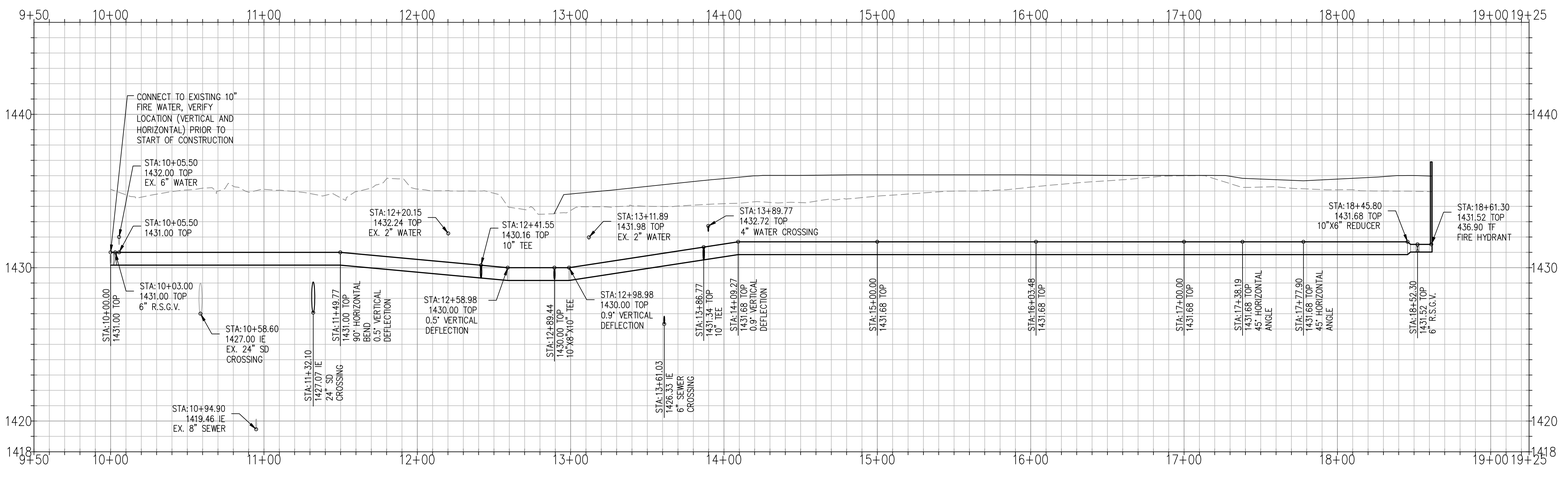
PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C3.0R

ARCHITECT
SHAHIDUL ASLAM
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA



A **SEWER MAIN "A" PROFILE**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



B **FIRE WATER MAIN "B" PROFILE**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

1" = 40' scale 40 0 40 80 feet

LICENSED ARCHITECT
RICHARD E. NORTON
EXP. 8-30-21
STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
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619.795.2450
www.bndesignstudio.com

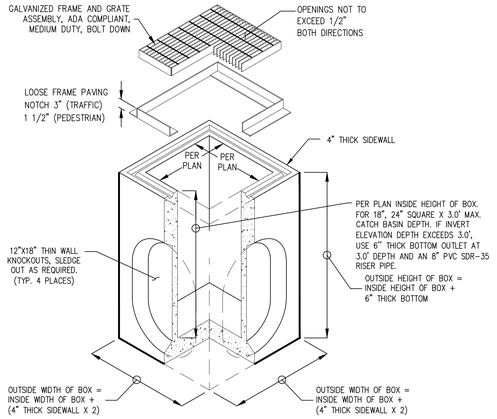
DSA 04-118898 - INC 1 ADDENDUM
WET UTILITY PROFILES

NO.	DATE	ISSUE

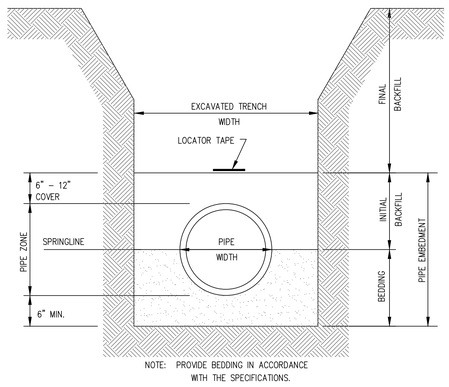
PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
C3.1R

REGISTERED PROFESSIONAL ENGINEER
ASLAM A. KHAN
NO. 77283
Expires 6/30/2021
CIVIL
STATE OF CALIFORNIA

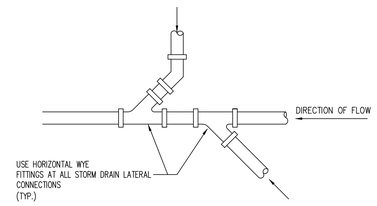


STORM DRAIN CATCH BASIN (B)
NOT TO SCALE

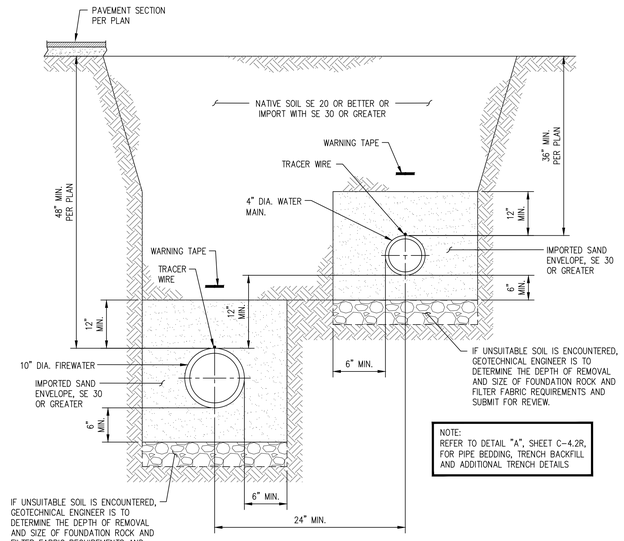


NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.

TRENCH FOR STORM DRAIN (C)
NOT TO SCALE

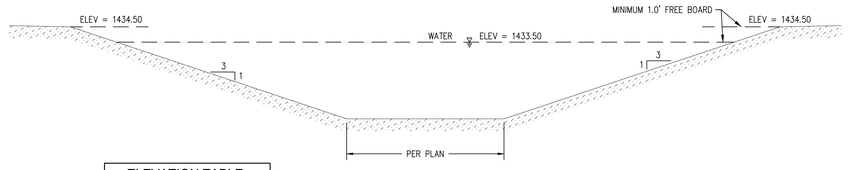


STORM DRAIN LATERAL CONNECTION (D)
NOT TO SCALE



NOTE:
REFER TO DETAIL "A", SHEET C-4.2R, FOR PIPE BEDDING, TRENCH BACKFILL AND ADDITIONAL TRENCH DETAILS

DOUBLE PIPE TRENCH DETAIL (E)
NOT TO SCALE



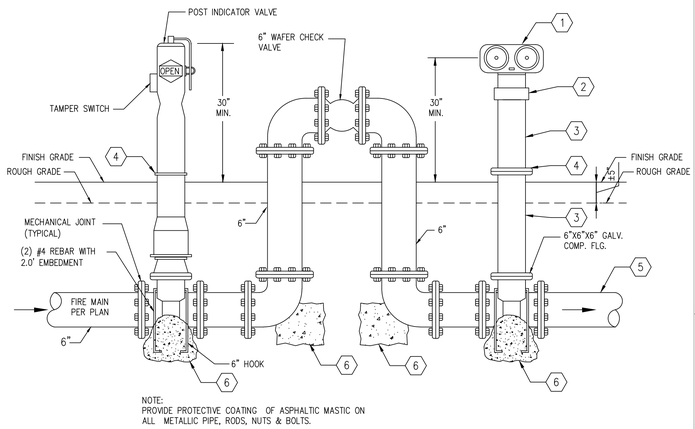
ELEVATION TABLE	
	BASIN A
TOP OF BASIN	1434.50
FLOOR OF BASIN	1428.50

DETENTION BASIN
N.T.S.

WATER QUALITY / DETENTION BASIN (F)
NOT TO SCALE

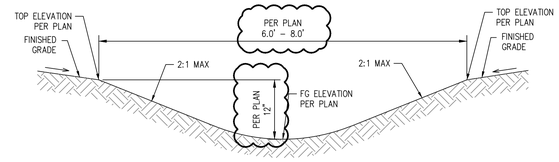
NOTES:

1. FREE STANDING FIRE DEPARTMENT CONNECTION WITH KNOX CAPS. 2"x2 1/2"x2 1/2" SIAMESE CONNECTION W/ CLAPPER INTERNAL 6" CHECK VALVE
2. IDENTIFICATION NAME PLATE.
3. PROVIDE AND INSTALL 6" DIA SCH-40 GALVANIZED STEEL PIPE
4. CORROSION RESISTANT PLATE.
5. GALVANIZED PIPING BURIED BELOW GRADE TO BE TARRED AND WRAPPED.
6. CONCRETE THRUST BLOCK TO BE SIZED PER NFPA #24.



NOTE:
PROVIDE PROTECTIVE COATING OF ASPHALTIC MASTIC ON ALL METALLIC PIPE, RODS, NUTS & BOLTS.

FDC, CV, PIV ASSEMBLY (G)
NOT TO SCALE



EARTHEN SWALE (H)
NOT TO SCALE

LICENSED ARCHITECT RICHARD E. NORTON EXP. 9-30-21 STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC: 01
REVIEWED FOR
NO. C28042
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

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PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki designstudio
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DSA 04-118898 - INC 1 ADDENDUM

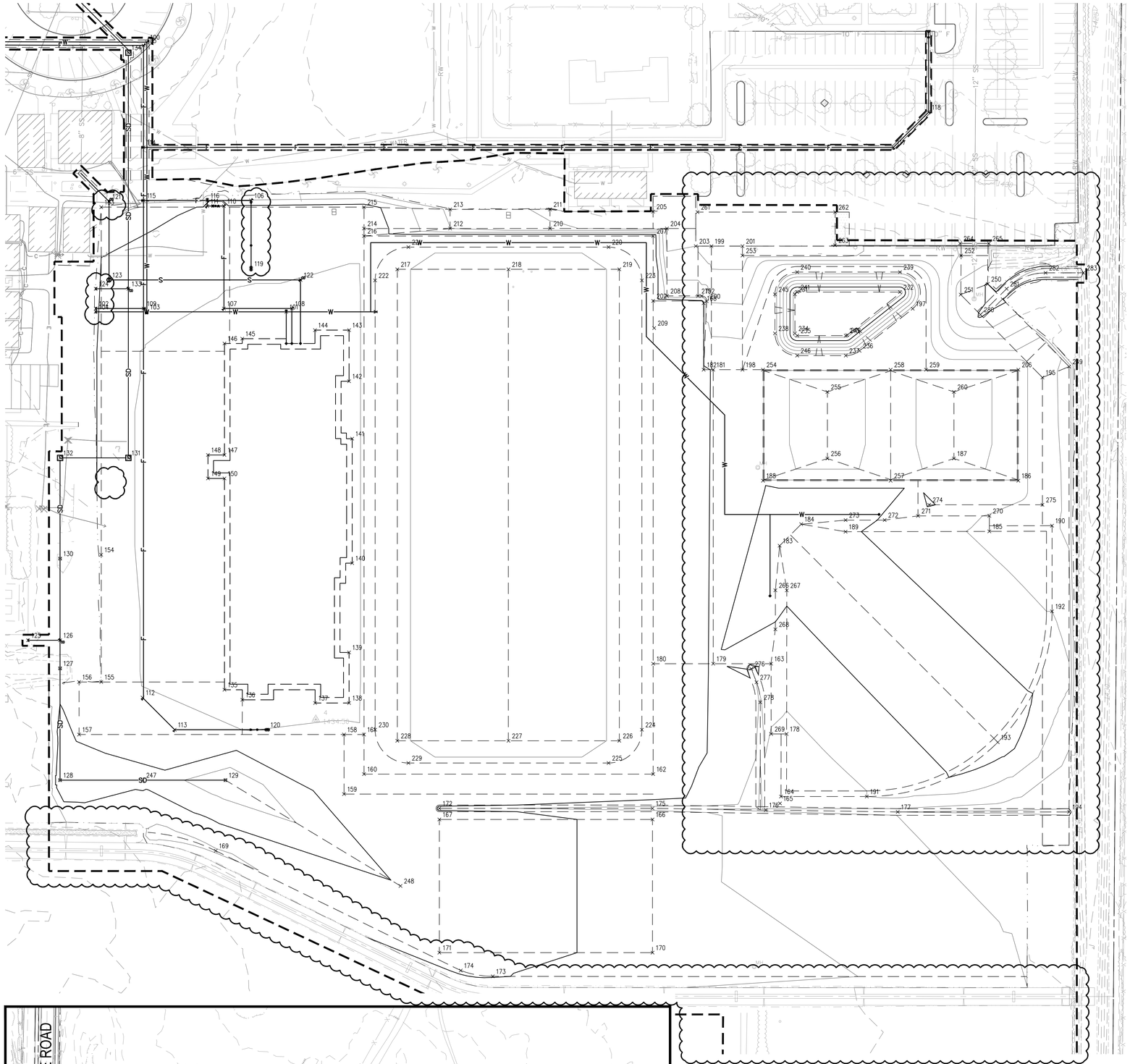
DETAILS

REGISTERED PROFESSIONAL ENGINEER RAMIRO J. ADEVA NO. 77283 Expires 6/30/2021 CIVIL STATE OF CALIFORNIA

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C4.0R



CONTROL POINTS, BASIS OF BEARING
SCALE: 1" = 100'

HORIZONTAL CONTROL PLAN
SCALE: 1" = 40'

BENCH MARK:

CONTROL POINT #1, EXISTING IP MONUMENT (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE.
N = 2189445.82
E = 6281645.13
ELEV. 1438.34

BASIS OF BEARINGS:

N 89°33'13.68" W, L=1053.45'
BETWEEN CONTROL POINT #1 (LOCATED AT INTERSECTION OF ANTELOPE ROAD AND ALBION LANE) AND CONTROL POINT #2 (LOCATED AT INTERSECTION OF ALBION LANE AND HANOVER LANE)

1" = 40' scale 40 0 40 80 feet

COORDINATE LIST

PT. NO.	NORTHING	EASTING	DESCRIPTION
100	2190662.9479	6282975.6665	WATER ANGLE
101	2190419.9582	6283101.2706	WATER ANGLE
102	2190422.9582	6282929.6039	FIREWATER ENDCAP
103	2190419.9582	6282975.6665	WATER TEE
104	2190419.9582	6282929.6039	WATER ENDCAP
105	2190659.9563	6282972.6665	FIREWATER ANGLE
106	2190520.2847	6283069.5878	FIREWATER ANGLE
107	2190422.9582	6283045.1039	FIREWATER ANGLE
108	2190422.9582	6283106.2706	FIREWATER ANGLE
109	2190422.9582	6282972.6665	FIREWATER TEE
110	2190515.2847	6283045.1039	FIREWATER ANGLE
111	2190515.2847	6283030.1039	FIREWATER TEE
112	2190072.4382	6282971.7643	FIREWATER ANGLE
113	2190043.4582	6283000.7443	FIREWATER ANGLE
114	2190568.1708	6282972.6665	FIREWATER TEE
115	2190520.2847	6282972.6665	FIREWATER TEE
116	2190520.2847	6283030.1039	FIREWATER TEE
117	2190568.1708	6283648.1990	FIREWATER ANGLE
118	2190599.8686	6283679.8968	FIREWATER ANGLE
119	2190458.9421	6283069.5878	FIRE HYDRANT
120	2190043.4582	6283084.1319	FIRE HYDRANT
121	2190519.4596	6282941.5966	SEWER CLEANOUT
122	2190448.6909	6283114.0860	SEWER CLEANOUT
123	2190448.6909	6282941.5966	SEWER MANHOLE
124	2190440.7592	6282929.6039	SD ENCAP
125	2190124.0694	6282868.6293	SD ENDCAP
126	2190124.0694	6282897.5061	SD CLEANOUT
127	2190098.7460	6282897.5061	SD CATCH BASIN
128	2189998.0215	6282897.5061	SD CATCH BASIN
129	2189998.0215	6283046.5061	SD CATCH BASIN
130	2190197.6574	6282897.5061	SD CATCH BASIN
131	2190288.3551	6282959.0061	SD MANHOLE
132	2190288.3760	6282897.5061	SD MANHOLE
133	2190440.7592	6282959.0061	SD CLEANOUT
134	2190653.4945	6282959.0061	SD MANHOLE
135	2190079.4582	6283045.6039	BLDG OVEREX
136	2190070.3801	6283061.6872	BLDG OVEREX
137	2190067.5207	6283127.2766	BLDG OVEREX
138	2190067.5207	6283157.8542	BLDG OVEREX
139	2190113.0915	6283157.8542	BLDG OVEREX
140	2190413.5272	6283160.6783	BLDG OVEREX
141	2190305.6760	6283160.6664	BLDG OVEREX
142	2190357.4426	6283157.8539	BLDG OVEREX
143	2190403.4925	6283157.8539	BLDG OVEREX
144	2190403.4925	6283127.1166	BLDG OVEREX
145	2190395.7916	6283061.6039	BLDG OVEREX
146	2190391.4582	6283045.6039	BLDG OVEREX
147	2190291.0150	6283045.6039	BLDG OVEREX
148	2190291.0150	6283030.7345	BLDG OVEREX
149	2190269.8483	6283030.7345	BLDG OVEREX
150	2190269.8483	6283045.6039	BLDG OVEREX
152	2190434.2847	6283475.5549	SD GRADEBREAK
153	2190514.2847	6282934.6039	GRADEBREAK
154	2190201.0999	6282934.5061	SD GRADEBREAK
155	2190086.4582	6282934.6039	SD GRADEBREAK
156	2190086.4582	6282914.6039	SD GRADEBREAK
157	2190039.0987	6282914.6039	GRADE BREAK
158	2190039.0987	6283153.2989	GRADE BREAK
159	2189985.4582	6283153.2989	GRADE BREAK
160	2190003.4582	6283171.2989	GRADE BREAK
161	2190039.0987	6283171.2989	GRADE BREAK
162	2190003.4582	6283431.7989	GRADE BREAK
163	2190102.9089	6283538.0536	GRADE BREAK
164	2189983.2588	6283546.9856	GRADE BREAK
165	2189977.0472	6283546.0813	GRADE BREAK
166	2189962.5940	6283431.1984	GRADE BREAK
167	2189962.5940	6283239.1984	GRADE BREAK
168	2190427.7847	6283477.2698	GRADE BREAK
169	2189934.3706	6283037.7183	GRADE BREAK
170	2189842.5940	6283431.1984	GRADE BREAK
171	2189842.5940	6283239.1984	GRADE BREAK
172	2189972.5940	6283239.1984	GRADE BREAK
173	2189821.2441	6283287.3368	GRADE BREAK
174	2189826.5095	6283258.4621	GRADE BREAK
175	2189972.5940	6283431.1984	GRADE BREAK
176	2189971.0858	6283533.2755	GRADE BREAK
177	2189969.3562	6283652.1324	GRADE BREAK
178	2190039.6380	6283551.9908	GRADE BREAK
179	2190102.9089	6283485.9031	GRADE BREAK
180	2190102.9089	6283431.7989	GRADE BREAK
181	2190367.8188	6283485.9031	GRADE BREAK
182	2190367.8188	6283477.2698	GRADE BREAK
183	2190209.2700	6283545.7489	GRADE BREAK
184	2190228.6755	6283565.1544	GRADE BREAK
185	2190222.1770	6283734.6711	GRADE BREAK
186	2190267.8188	6283760.7378	GRADE BREAK
187	2190287.8188	6283702.7378	GRADE BREAK
188	2190267.8188	6283530.7378	GRADE BREAK
189	2190221.8645	6283605.1294	GRADE BREAK
190	2190227.2927	6283791.1336	GRADE BREAK
191	2189983.2588	6283624.2586	GRADE BREAK
192	2190150.1338	6283791.1336	GRADE BREAK
193	2190032.1354	6283742.2571	GRADE BREAK
194	2189969.3562	6283806.4866	GRADE BREAK
195	2190360.8119	6283782.4866	GRADE BREAK
197	2190422.7910	6283665.6066	GRADE BREAK
198	2190367.8188	6283512.2698	GRADE BREAK
199	2190479.1651	6283484.2698	GRADE BREAK
200	2190429.5761	6283480.0501	GRADE BREAK

COORDINATE LIST

PT. NO.	NORTHING	EASTING	DESCRIPTION
201	2190479.1651	6283512.2698	GRADE BREAK
202	2190429.7847	6283431.7989	GRADE BREAK
203	2190479.1651	6283470.1948	GRADE BREAK
204	2190495.0307	6283444.1948	GRADE BREAK
205	2190510.2847	6283431.6980	GRADE BREAK
206	2190367.8188	6283760.7378	GRADE BREAK
207	2190488.2847	6283431.7989	GRADE BREAK
208	2190434.2847	6283444.1948	GRADE BREAK
209	2190405.3531	6283432.7011	GRADE BREAK
210	2190495.0305	6283338.8708	GRADE BREAK
211	2190512.2847	6283338.8708	GRADE BREAK
212	2190495.0304	6283248.8708	GRADE BREAK
213	2190512.2847	6283248.8708	GRADE BREAK
214	2190495.0303	6283171.2989	GRADE BREAK
215	2190514.2847	6283171.2989	GRADE BREAK
216	2190488.2847	6283171.2989	GRADE BREAK
217	2190458.2847	6283201.2989	GRADE BREAK
218	2190458.2847	6283301.4656	GRADE BREAK
219	2190458.2847	6283401.2989	GRADE BREAK
220	2190478.2847	6283391.6323	GRADE BREAK
221	2190478.2847	6283211.2989	GRADE BREAK
222	2190448.2847	6283181.2989	GRADE BREAK
223	2190448.2847	6283421.6323	GRADE BREAK
224	2190043.4582	6283421.6323	GRADE BREAK
225	2190013.4582	6283391.6323	GRADE BREAK
226	2190033.4582	6283401.2989	GRADE BREAK
227	2190033.4582	6283301.4656	GRADE BREAK
228	2190033.4582	6283201.2989	GRADE BREAK
229	2190013.4582	6283211.2989	GRADE BREAK
230	2190043.4582	6283181.2989	GRADE BREAK
231	2190435.7896	6283559.5344	BASIN
232	2190437.7896	6283654.1157	BASIN
234	2190400.5479	6283559.5344	BASIN
235	2190398.5479	6283561.5344	BASIN
236	2190384.8737	6283617.7647	BASIN
237	2190380.5479	6283605.3421	BASIN
238	2190400.5479	6283541.5344	BASIN
239	2190455.7896	6283654.1157	BASIN
240	2190455.7896	6283561.5344	BASIN
241	2190437.7896	6283561.5344	BASIN
242	2190398.9805	6283606.5844	BASIN
243	2190398.5479	6283605.3421	BASIN
245	2190435.7896	6283541.5344	BASIN
246	2190380.5479	6283561.5344	BASIN
247	2189998.0215	6282972.0061	GRADE HIGH POINT
248	2189902.7087	6283204.1610	GRADEBREAK
249	2190370.6555	6283806.4866	GRADEBREAK
250	2190445.0043	6283733.1629	GRADEBREAK
251	2190435.4817	6283708.8463	GRADEBREAK
252	2190470.6651	6283709.2155	GRADEBREAK
253	2190470.6651	6283512.2698	GRADEBREAK
254	2190367.8188	6283530.7378	GRADEBREAK
255	2190347.8188	6283588.7378	GRADE BREAL
256	2190287.8188	6283588.7378	GRADE BREAK
257	2190267.8188	6283645.7378	GRADE BREAK
258	2190367.8188	6283645.7378	GRADE BREAK
259	2190367.8188	6283677.6157	GRADE BREAK
260	2190347.8188	6283702.7378	GRADE BREAK
261	2190509.8142	6283471.7284	SAWCUT LINE
262	2190509.8142	6283595.7640	SAWCUT LINE
263	2190479.9869	6283595.6143	SAWCUT LINE
264	2190481.6609	6283708.2798	SAWCUT LINE
265	2190481.6421	6283734.2798	SAWCUT LINE
266	2190169.0964	6283541.8829	GRADE BREAK
267	2190168.9922	6283552.1783	GRADE BREAK
268	2190133.9089	6283541.8866	GRADE BREAK
269	2190039.6380	6283538.0741	GRADE BREAK
270	2190236.1145	6283734.6711	GRADE BREAK
271	2190236.0936	6283670.4003	GRADE BREAK
272	2190232.3462	6283640.3586	GRADE BREAK
273	2190232.3228	6283605.1503	GRADE BREAK
274	2190246.1145	6283680.4003	GRADE BREAK
275	2190246.1145	6283782.4866	GRADE BREAK
276	2190098.3137	6283520.2199	SWALE
277	2190086.2168	6283524.9042	SWALE
278	2190068.1616	6283528.2780	SWALE
279	2190434.2847	6283472.1948	GRADE BREAK
280	2190417.4720	6283726.6077	SWALE CENTERLINE
281	2190440.7207	6283750.1815	SWALE CENTERLINE
282	2190455.1208	6283785.2905	SWALE CENTERLINE
283	2190455.1208	6283819.4069	SWALE CENTERLINE

LICENSED ARCHITECT RICHARD E. NORDEN EXP. 9-30-21 STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
NO.C28042
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

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DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

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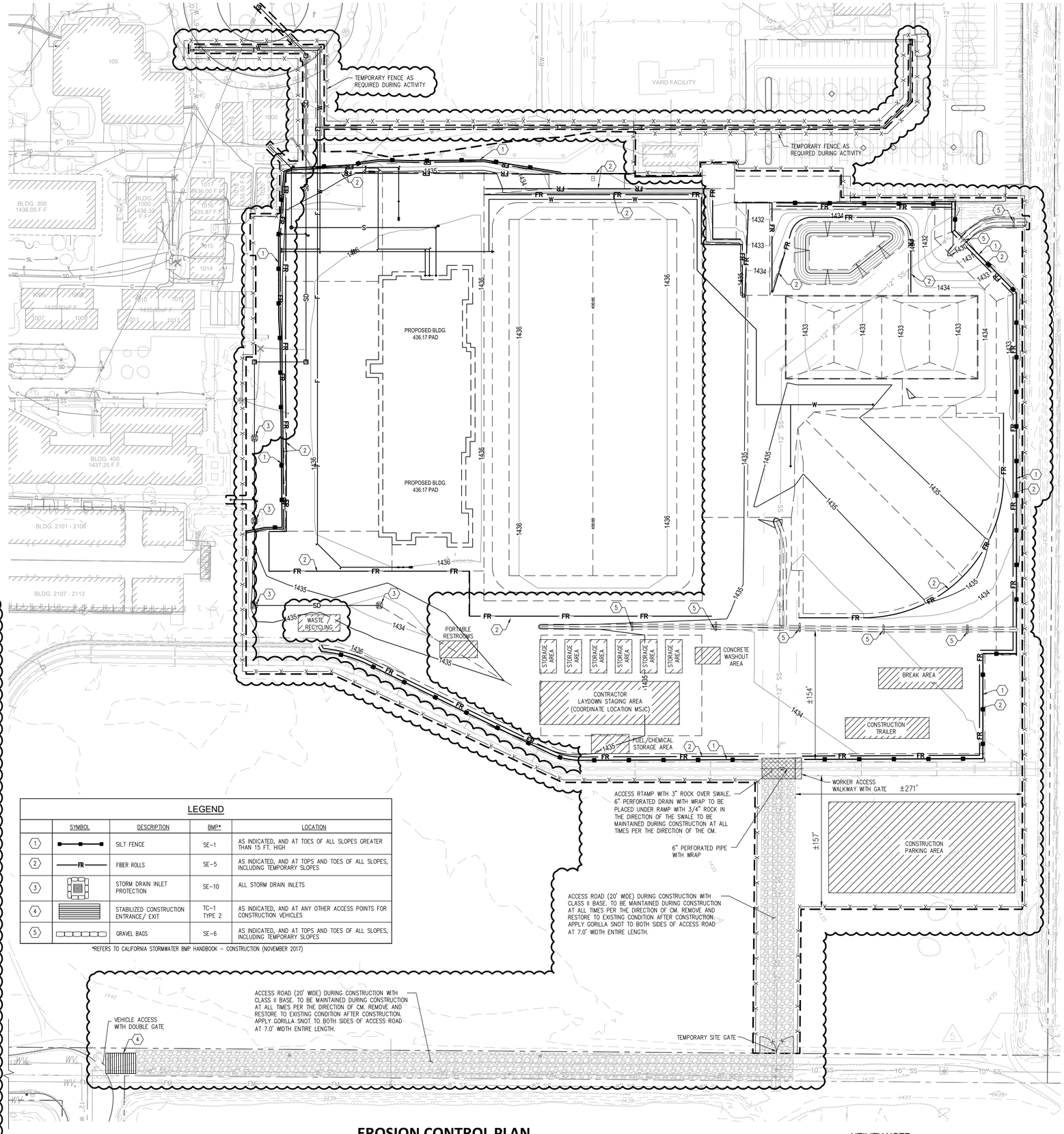
DSA 04-118898 - INC 1 ADDENDUM
HORIZONTAL CONTROL PLAN

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C5.0R

STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER RICHARD ASLAN KHOURY NO. 77283 Expires 6/30/2021 CIVIL



LEGEND

	SYMBOL	DESCRIPTION	BMP*	LOCATION
1		SILT FENCE	SE-1	AS INDICATED, AND AT TOES OF ALL SLOPES GREATER THAN 15 FT. HIGH
2	FR	FIBER ROLLS	SE-5	AS INDICATED, AND AT TOPS AND TOES OF ALL SLOPES, INCLUDING TEMPORARY SLOPES
3		STORM DRAIN INLET PROTECTION	SE-10	ALL STORM DRAIN INLETS
4		STABILIZED CONSTRUCTION ENTRANCE/ EXIT	TC-1 TYPE 2	AS INDICATED, AND AT ANY OTHER ACCESS POINTS FOR CONSTRUCTION VEHICLES
5		GRAVEL BAGS	SE-6	AS INDICATED, AND AT TOPS AND TOES OF ALL SLOPES, INCLUDING TEMPORARY SLOPES

*REFERS TO CALIFORNIA STORMWATER BMP HANDBOOK – CONSTRUCTION (NOVEMBER 2017)

EROSION CONTROL PLAN
SCALE: 1" = 40'

UTILITY NOTE

1. THE FOLLOWING UTILITY LINES ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR INFORMATION AND DETAILS.

E	– ELECTRICAL	– ELECTRICAL DRAWINGS
T	– TELECOMMUNICATIONS	– ELECTRICAL DRAWINGS
G	– GAS	– PLUMBING DRAWINGS

1" = 50' scale: 50 0 50 100 feet

EROSION CONTROL NOTES

1. IN CASE OF EMERGENCY, CALL (RESPONSIBLE PERSON) AT (24 HOUR TELEPHONE).
2. ALL PUBLIC STREETS SHALL BE MAINTAINED FREE OF DUST AND SEDIMENT CAUSED BY GRADING OPERATIONS
3. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE BUILDING AND SAFETY/PUBLIC WORKS INSPECTOR IF THE GRADING OPERATION HAS PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
7. ALL LOOSE SOIL AND DEBRIS WHICH MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.
8. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT SITE.
9. IMPLEMENT FUGITIVE DUST CONTROL MEASURES DUST BY WATERING OR OTHER APPROVED METHODS IN COMPLIANCE WITH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 403.

NPDES NOTES

1. CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THE REQUIREMENTS OF THE ONSITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN ALL TEMPORARY BEST MANAGEMENT PRACTICES (BMPS), SHOWN IN THE APPROVED EROSION CONTROL PLANS, THROUGHOUT THE TIME OF CONSTRUCTION. A COPY OF THE SWPPP AND THE APPROVED EROSION CONTROL PLANS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES. THE IMPLEMENTATION AND MAINTENANCE OF SITE BMPS IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. BMPS SHALL BE REQUIRED TO REMAIN IN PLACE THROUGHOUT THE YEAR TO MINIMIZE EROSION AND SEDIMENTATION.
3. IMPLEMENT AND MAINTAIN EROSION CONTROL BMPS TO MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOIL AREAS ON CONSTRUCTION SITES.
4. IMPLEMENT AND MAINTAIN YEAR ROUND SEDIMENT CONTROL BMPS TO MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
5. PHASE GRADING TO LIMIT THE AMOUNT OF DISTURBED AREAS EXPOSED TO THE EXTENT FEASIBLE.
6. LIMIT AREAS THAT ARE CLEARED AND GRADED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. MANAGE THE CONSTRUCTION SITE TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
7. AT ANY TIME DURING THE YEAR, STABILIZE SLOPES PRIOR TO A PREDICTED STORM EVENT. ONCE DISTURBED, STABILIZE SLOPES (TEMPORARY OR PERMANENT) IF THEY WILL NOT BE WORKED WITHIN 14 DAYS. RE-VEGETATE CONSTRUCTION SITES AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
8. CONTAIN STOCKPILES OF SOIL TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE VIA RUNOFF, VEHICLE TRACKING, OR WIND.
9. MAINTAIN CONSTRUCTION SITES TO ENSURE THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY.
10. CONTAIN RUNOFF FROM EQUIPMENT AND VEHICLE WASHING AT CONSTRUCTION SITE TO PREVENT DISCHARGING TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.
11. IMPLEMENT BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
12. ENSURE CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNEL ARE AWARE OF THE REQUIRED BMPS, MAINTENANCE, AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
13. MAINTAIN BMPS AT ALL TIMES. INSPECT BMPS PRIOR TO PREDICTED STORM EVENTS, DURING AND FOLLOWING STORM EVENTS.
14. COLLECT AND PROPERLY DISPOSE OF IN TRASH OR RECYCLE BINS AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, CONSTRUCTION DEBRIS AND WASTE MATERIALS.
15. 24 HOUR EMERGENCY NPDES

CONTACT: FOR THE PERSON RESPONSIBLE FOR IMPLEMENTING, INSPECTING, AND MAINTAINING THE SITE'S EROSION CONTROL BMP'S.

NAME: _____ ADDRESS: _ PHONE: ____

CHANGE OF SUCH PERSON, ADDRESS OR PHONE NUMBER SHALL BE FILED WITHIN 24 HOURS WITH THE CITY OF MENIFEE ENGINEERING DEPARTMENT AND THE PROJECT INSPECTOR, AND SHALL INCLUDE THE GRADING PERMIT NUMBER.

FIBER ROLL INSTALLATION

- LOCATE FIBER ROLLS ON LEVEL CONTOURS SPACED AS FOLLOWS:
  - SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 20FEET.
  - SLOPE INCLINATION OF 4:1 AND 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
  - SLOPE INCLINATION OF 2:1 (H:V) OR GREATER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 10 FEET. (A CLOSER SPACING IS MORE EFFECTIVE).
- PREPARE THE SLOPE BEFORE BEGINNING INSTALLATION.
- DIG SMALL TRENCHES ACROSS THE SLOPE ON THE CONTOUR. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.

LAYDOWN AREA

LAYDOWN AREA INCLUDES AS FOLLOWING:

-LOCATION(S) OF SOIL OR WATER STORAGE
-CONSTRUCTION MATERIAL LOADING AND UNLOADING
-EQUIPMENT AND VEHICLE STORAGE, CLEANING AND MAINTENANCE
-PORTABLE TOILETS
-SPILL CONTROL DEVICES AND CONTAINMENT MATERIALS
-SPILLS OR NON STORM WATER DISCHARGES
-WASTE MATERIALS
-PORTABLE RESTROOM(S)
-CONCRETE WASHOUT AREA
-EQUIPMENT AND WORKER VEHICLE PARKING

IN ADDITION TO THE BMPS LISTED IN THE LEGEND THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING BMPS:

EC-1 SCHEDULING
EC-2 PRESERVATION OF EXISTING VEGETATION
SE-7 STREET SWEEPING/VACUUMING
WE-1 WIND EROSION CONTROLS (DUST CONTROL BMPS)
NS-1 WATER CONSERVATION PRACTICES
NS-3 PAVING & GRINDING OPERATIONS
NS-6 ILLICIT CONNECTION/DISCHARGE
NS-7 POTABLE WATER/IRRIGATION
NS-12 CONCRETE CURING
NS-13 CONCRETE FINISHING
WM-1 MATERIAL DELIVERY & STORAGE
WM-2 MATERIAL USE
WM-3 STOCKPILE MANAGEMENT
WM-4 SPILL PREVENTION & CONTROL
WM-5 SOLID WASTE MANAGEMENT
WM-6 CONCRETE WASTE MANAGEMENT
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT
EMPLOYEE AND SUBCONTRACTOR TRAINING

LICENSED ARCHITECT RICHARD E. NORTON EXP. 9-30-21 NO.C28042 STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

GENERAL LEGEND

EXISTING

ITEM	SYMBOL
PROPERTY LINE	
EXISTING CONTOUR	140
EXISTING FENCE	X
EXISTING BUILDING	
EXIST. CONCRETE	
EXISTING CURB AND GUTTER	
EXISTING CURB	
EXISTING PEDESTRIAN RAMP	
EXISTING SPOT ELEVATION	X 65.40
EXISTING WALL	
EXISTING EASEMENT	
EXIST. AC PAVEMENT	
EXISTING STORM DRAIN INLET	
EXISTING STORM DRAIN	SD
EXISTING SEWER LATERAL	S
EXISTING SEWER LINE	S
EXISTING SEWER CLEANOUT	S
EXIST. WATER SERVICE & METER	W
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING UTILITY BOX	
EXISTING SITE LIGHT	

PROPOSED

PROPOSED STABILIZED DECOMPOSED GRANITE	
PROPOSED P.C.C. HARDSCAPE	
PROPOSED AC PAVEMENT	
PROPOSED BUILDING	
PROPOSED STORM DRAIN LINE	
PROPOSED STORM DRAIN LINE	SD
PROPOSED SEWER LINE	S
PROPOSED WATER LINE	W
PROPOSED FIREWATER LINE	FW
PROPOSED PIV, FDC ASSEMBLY	
PROPOSED FIRE HYDRANT	
PROPOSED CLEANOUT	CO
POINT OF CONNECTION	
PROPOSED CATCH BASIN	
PROPOSED HEADWALL	
PROPOSED SITE WALL	

ABBREVIATIONS

RIM	RIM ELEVATION	CW	COLD WATER (DOMESTIC SERVICE WATER)
BW	BOTTOM OF WALL	POC	POINT OF CONNECTION
WTR	WATER	V	UTILITY VAULT
SWR	SEWER	MH	MANHOLE (SEWER, STORM DRAIN, UTILITY)
IE	INVERT ELEVATION	PVC	POLYVINYL CHLORIDE (PIPE MATERIAL)
BFD	BACK FLOW DEVICE	FDC	FIRE DEPARTMENT CONNECTION
ELEC	ELECTRIC/ELECTRICAL	P.C.C.	PORTLAND CEMENT CONCRETE
EX	EXISTING	PIV	POST INDICATOR VALVE
FW	FIRE WATER		

WSP USA
506 West Graham Avenue, Suite 105,
Lake Elsinore, CA 92530
(951) 471-1625 Fax: (951) 471-1635

DATE:	09/04/19
PLOTTED:	12:56 P
WSP PROJECT NO.	WA31600003
DESIGN BY:	AAK, SLL
DRAWN BY:	SLL
REVIEWED BY:	AAK

BakerNowicki design studio
731 Ninth Avenue, Suite A, San Diego, California 92101
619.795.2450
www.bndesignstudio.com

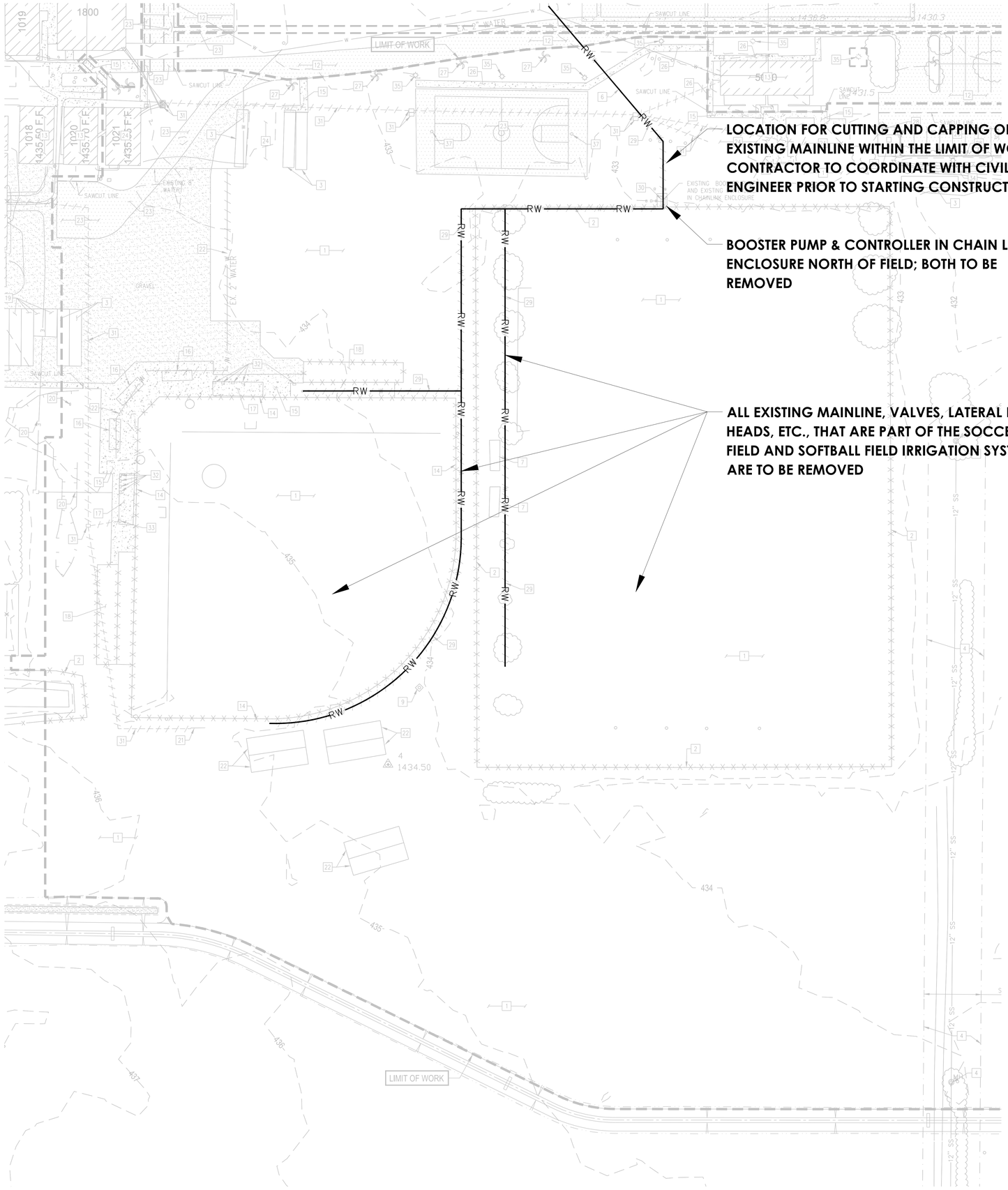
DSA 04-118898 - INC 1 ADDENDUM
EROSION CONTROL PLAN

NO.	DATE	ISSUE

PROJECT NO: 19001-001
DATE: 3/01/2020

DRAWING
AD1 - C6.0R

REGISTERED PROFESSIONAL ENGINEER SLAVA LEVITAN NO. 77283 Expires 6/30/2021 CIVIL STATE OF CALIFORNIA



LOCATION FOR CUTTING AND CAPPING OF EXISTING MAINLINE WITHIN THE LIMIT OF WORK. CONTRACTOR TO COORDINATE WITH CIVIL ENGINEER PRIOR TO STARTING CONSTRUCTION

BOOSTER PUMP & CONTROLLER IN CHAIN LINK ENCLOSURE NORTH OF FIELD; BOTH TO BE REMOVED

ALL EXISTING MAINLINE, VALVES, LATERAL LINE, HEADS, ETC., THAT ARE PART OF THE SOCCER FIELD AND SOFTBALL FIELD IRRIGATION SYSTEMS ARE TO BE REMOVED

1 OVERALL SITE PLAN
1" = 80'-0"

EXISTING CONDITIONS AND DEMOLITION PLAN
SCALE: 1" = 30'

BIM 360://19001-00 MVC Stadium/ARCH-BNDS-MSJC-SITE.rvt
12/5/2019 4:02:23 PM

LICENSED ARCHITECT
JESS E. ROBERTS
NO.C28042
EXP. 9-30-21
STATE OF CALIFORNIA

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

LICENSED LANDSCAPE ARCHITECT
BRAD LENAHAN
4470
SIGNATURE
DATE
Dec. 3-31-20
STATE OF CALIFORNIA

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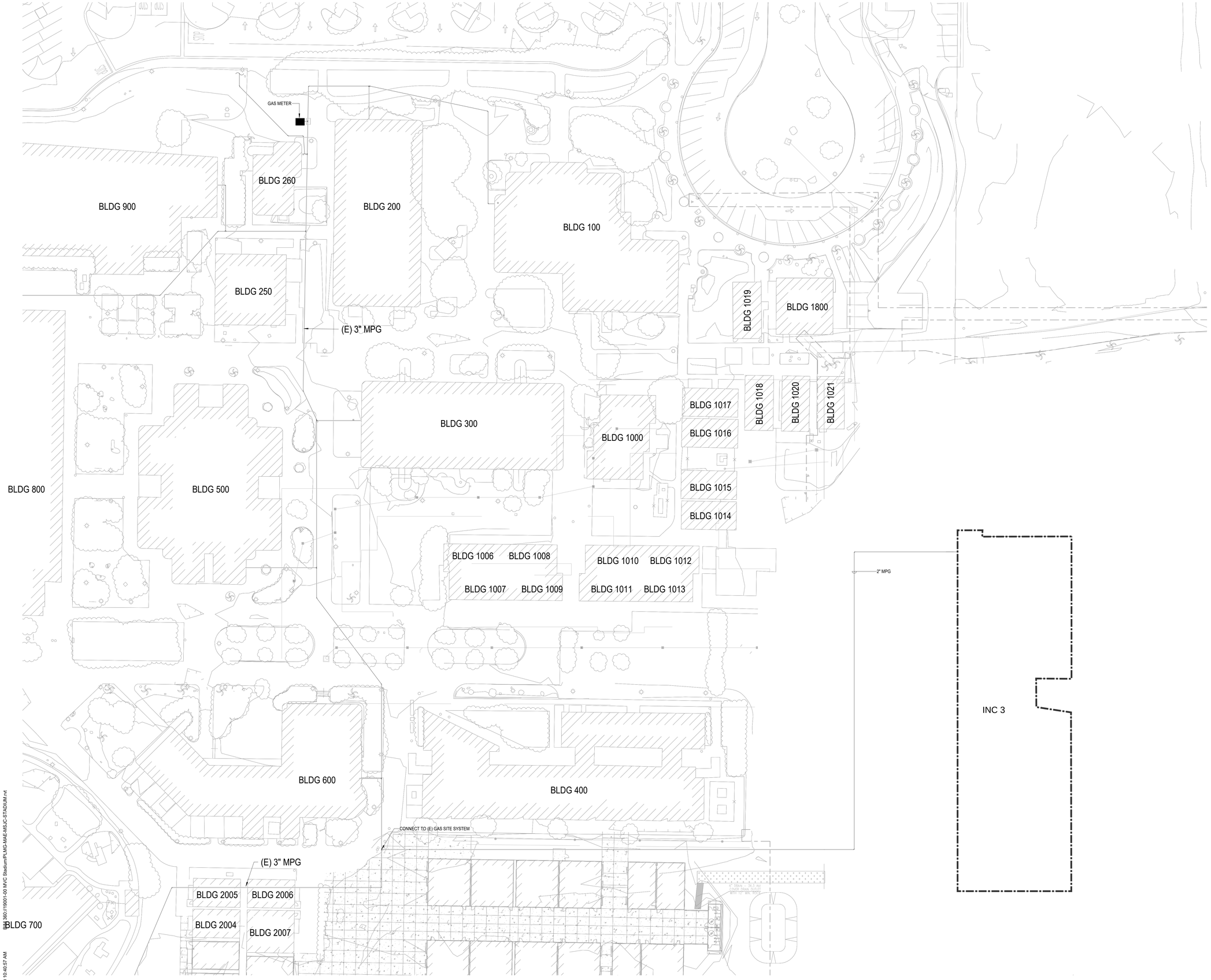
DSA 04-118898 - INC 1 ADDENDUM
IRRIGATION DEMO PLAN

NO. DATE ISSUE

PROJECT NO: 19001-001
DATE: 3/04/2020

DRAWING
AD1-LI-1.05



1 PLUMBING OVERALL SITE PLAN
1" = 30'-0"

2/25/2020 10:40:57 AM

RH 360://19001-00 MVC Stadium/PLMG-MAE-MSJC-ST-ADUM.rvt

REGISTERED PROFESSIONAL ENGINEER
DANIEL J. GRAMMER
M34498
Exp. 6/30/21
MECHANICAL
STATE OF CALIFORNIA

6024

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-118898 INC:01
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 03.19.2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC STADIUM

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DSA 04-118898 - INC 1 ADDENDUM

PLUMBING OVERALL SITE PLAN

NO. DATE ISSUE

PROJECT NO: 6024
DATE: 3/01/2020

DRAWING
P1.0.1

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

OFFICE LOCATIONS

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888.844.5060

www.mtglinc.com

August 30, 2019

MTG$_L$ Project No. 8767A02
MTG$_L$ Log No. 19-2089

Mt. San Jacinto Community College District
1499 North State Street
San Jacinto, California 92583

Subject: **GEOTECHNICAL INVESTIGATION**
Mt. San Jacinto College
5,000 Seat Stadium and Buildings at Menifee Valley Campus
28237 La Piedra Road
San Jacinto, Riverside County, California

In accordance with your request and authorization, MTG$_L$, Inc. has completed a Geotechnical Investigation for the subject site. MTG$_L$, Inc. is pleased to present the following report which addresses both engineering geologic and geotechnical conditions of the subject site, including a description of the site conditions, results of MTG$_L$, Inc.'s field exploration and laboratory testing, and MTG$_L$, Inc.'s conclusions and recommendations for site grading and foundations design.

The Menifee Valley campus of Mt. San Jacinto College is located at 28237 La Piedra Road, in the City of Menifee, Riverside County, California. The project will consist of constructing a new 5,000 seat sports stadium and associated buildings, along with various site pavement improvements, in the southeastern portion of the existing school campus.

Based on MTG$_L$, Inc.'s investigation, the site will be suitable for construction, provided the recommendations presented herein are incorporated into the plans and specifications for the proposed construction. Details related to geologic conditions, seismicity, site preparation, foundation and pavement design, and construction considerations are also included in the subsequent sections of this report.

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

OFFICE LOCATIONS

ORANGE COUNTY
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SAN DIEGO DISPATCH

888.844.5060

www.mtglinc.com

GEOTECHNICAL INVESTIGATION

Mt. San Jacinto College
5,000 Seat Stadium and Buildings at
Menifee Valley Campus
28237 La Piedra Road
Menifee, Riverside County, California

Prepared For:
Mt. San Jacinto Community College District
1499 North State Street
San Jacinto, California 92583

Prepared By:
MTG$_L$, Inc.
14467 Meridian Parkway, Building 2A
Riverside, California 92518

August 30, 2019

MTG$_L$ Project No. 8767A02
MTG$_L$ Log No. 19-2089

MTGL, Inc. appreciates this opportunity to be of continued service and look forward to providing additional consulting services during the planning and construction of the project. Should you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

MTGL, Inc.

Bruce A. Hick, P.E., G.E.
Vice President | Engineering Manager

TABLE OF CONTENTS

ATTACHMENTS:

1.00 INTRODUCTION

In accordance with your request and authorization, MTGL, Inc. has completed a Geotechnical Investigation for the subject project located on the campus of the Mt. San Jacinto Menifee Valley College at 28237 La Piedra Road, in the City of Menifee, Riverside County, California. The following report presents as summary of MTGL, Inc.'s findings, conclusions and recommendations based on the field investigation, laboratory testing, and engineering analysis.

1.01 PLANNED CONSTRUCTION

Based upon information provided, MTGL understands that plans are to construct a 5,000 seat sports stadium and associated buildings/site improvements (see Boring Location Map, Figure 2). MTGL anticipates the stadium to have a synthetic turf and running track. Additional track and field sport facilities, pedestrian, vehicular, and fire apparatus pavement improvements (both asphalt concrete and Portland cement concrete) are also anticipated.

It is anticipated that the stadium grandstands will be metal frame structures supported by conventional shallow foundations. It is anticipated that any proposed new buildings will be single or two story, of wood frame construction with conventional continuous (perimeter) and isolated pad (column) foundations, with concrete slab-on-grade floors. Maximum foundation loads of 3,000 plf for continuous foundations and 200 kips for isolated pad foundations are anticipated. Sewage disposal, if needed, is anticipated to be by a public sewer system. Due to the relatively flat site topography at each site, maximum slope heights of 10 feet are anticipated.

1.02 SCOPE OF WORK

The scope of MTGL, Inc.'s geotechnical services included the following:

- Review of geologic, seismic, ground water and geotechnical literature.
- Logging, sampling and backfilling of thirteen (13) exploratory borings drilled with an 8" hollow stem auger drill rig to a maximum depth of 51.5 feet below existing grades.
- Drilling, conducting and backfilling of three (3) soil percolation test borings drilled with an 8" hollow stem auger drill rig to a maximum depth of 10 feet below existing grades.
- Laboratory testing of representative samples (See Appendix C).
- Geotechnical engineering review of data and engineering recommendations.
- Preparation of this report summarizing MTGL, Inc.'s findings and presenting MTGL, Inc.'s conclusions and recommendations for the proposed construction.

1.03 Site Description

The Menifee Valley campus of Mt. San Jacinto College is located at 28237 La Piedra Road, in the City of Menifee, Riverside County, California (see Site Vicinity Map, Figure 1). The school site is located at approximate 33.6750° North Longitude and -117.1675° West Latitude. The campus is bounded to the north by La Piedra Road, on the south by Albion Lan Lane and on the west by Antelope Road, all paved improved streets. The Valley Wide Recreation and Parks District Menifee Gym and residential developments are situated adjacent to the eastern boundary of the campus.

The proposed sports stadium is located in the southeastern portion of the school campus. Access to this areas is via asphalt concrete pavements in developed campus areas north of the proposed stadium development and dirt trails in undeveloped campus areas west of the proposed stadium development. This portion of the campus currently consists of a grass soccer (athletic) field and undeveloped fields (see Boring and Percolation Test Location Plan, Figure 2). An emergency generator is planned to be constructed just southeast of Building 700 in the main building campus area (Boring B-10 on Boring and Percolation Test Location Plan, Figure 2).

An existing sewer line trends in a north-south direction through the central portion of the proposed stadium athletic field area. Topographically, the proposed stadium development area is essentially planar, gently sloping to the east/southeast at less than a 2 percent gradient. Elevation at the proposed stadium development area is approximately 1,434 feet above mean sea level. Drainage across the proposed stadium development area is by sheet flow to the east/southeast into a north-south trending dirt drainage channel situated along the eastern edge of the main campus.

1.04 Field Investigation

Prior to the field investigation, a site reconnaissance was performed by an engineer from MTG$_L$, Inc. to evaluate the locations with respect to obvious subsurface structures and access for the drilling rig. The subsurface investigation consisted of drilling and sampling thirteen (13) test borings and three (3) percolation test borings utilizing a truck-mounted drill rig equipped with an 8" diameter hollow stem auger. Boring B-10 was conducted in the proposed emergency generator construction area just southeast of Building 700 in the main campus building complex (see Boring and Percolation Test Location Plan, Figure 2). See Appendix B for further discussion of the field exploration including Logs of Test Borings.

Borings were logged and sampled using Modified California Ring (Ring) and Standard Penetration Test (SPT) samplers at selected depth intervals. Samplers were driven into the bottom of the boring with successive drops of a 140-pound weight falling 30 inches. Blows required to drive the last 12 inches of the 18-inch Ring and SPT samplers are shown on the boring logs in the "blows/foot" column (Appendix B). SPT was performed in the borings in general accordance with the American Standard Testing Method (ASTM) D1586 Standard Test Method. Representative bulk soil samples were also obtained from the borings.

Each soil sample collected was inspected and described in general conformance with the Unified Soil Classification System (USCS). The soil descriptions were entered on the boring logs (see Appendix B). All samples were sealed and packaged for transportation to MTGL, Inc.'s laboratory. After completion of drilling, borings were backfilled with the soil cuttings.

1.05 Laboratory Testing

Laboratory tests were performed on representative samples to verify the field classification of the recovered samples and to determine the geotechnical properties of the subsurface materials. All laboratory tests were performed in general conformance with ASTM or State of California Standard Methods. The results of our laboratory tests are presented in Appendix C of this report.

2.00 FINDINGS

2.01 Regional Geologic Conditions

As discussed in the Limited Engineering Geologic Hazard Evaluation of Property Report dated August 22, 2019 (Project No. 19016-01) prepared by Anderson Geology in Appendix D of this report, the project site is regionally located in the west-central portion of the Perris Block, within the northern Peninsular Ranges Geomorphic Province of Southern California, near the intersection of the east-central boundary of the Transverse Range Provence and southern boundary of the Mojave Desert Provence. Locally, the site is situated within the Menifee Valley. Located within Perris Valley to the north and Paloma Valley to the south. Detailed discussions of the geologic setting of the project site is presented in the referenced Geologic Hazard Evaluation in Appendix D of this report.

2.02 Site Soil Conditions

The proposed stadium development area is located on generally planar terrain in the southeast portion of the college campus at an average elevation of approximately 1,434 feet above sea level. The existing college campus is surrounded by existing residential and recreation developments or paved, improved streets.

Thirteen (13) 8-inch diameter hollow stem auger soil borings and three (3) percolation test borings were advanced to characterize near-surface geologic conditions and to obtain soil samples for analyses. Boring locations and pertinent data for each boring are presented in the table below.

Boring No.	Depth (ft.)	Latitude	Longitude	Approx. Fill Thickness (ft)	Groundwater Depth (ft. bgs)
B1	51.5	33.6742°	-117.1650°	0	No GW
B2	16.0	33.6746°	-117.1651°	0	No GW
B3	16.0	33.6747°	-117.1648°	0	No GW
B4	11.0	33.6750°	-117.1652°	0	No GW
B5	11.0	33.6737°	-117.1652°	0	No GW
B6	16.0	33.6737°	-117.1644°	0	No GW
B7	16.0	33.6733°	-117.1644°	0	No GW
B8	16.0	33.6733°	-117.1634°	0	No GW
B9	21.0	33.6740°	-117.1634°	0	No GW
B10	11.0	33.6736°	-117.1681°	0	No GW
B11	16.0	33.6745°	-117.1633°	0	No GW
B12	11.0	33.6748°	-117.1636°	0	No GW
B13	16.5	33.6743°	-117.1639°	0	No GW
P1	11.0	33.6731°	-117.1686°	0	No GW
P2	11.0	33.6741°	-117.1633°	0	No GW
P3	11.0	33.6749°	-117.1648°	0	No GW

Grass turf was located at the surface of Borings B1, B2 and B3. As shown on the attached boring logs, the site is underlain by alluvium. The site soils consist of highly interbedded silty sands, clayey sands, sandy gravel, relatively clean sands, sandy and clayey silts and sandy and silty clays (SM, SC, GP, SP, ML and CL soil types based upon the Unified Soil Classification System. Ground water was not encountered in any of the borings at the time of drilling (maximum depth drilled of 51.5 feet).

2.03 Flooding Potential

The site is located within an area described as having a "minimal flood hazard" (FEMA Map #06065C2070H, 8/18/2014).

2.04 Surface and Groundwater Conditions

No areas of ponding or standing water were present at the time of the field exploration. Further, no springs or areas of natural seepage were observed at the time of the field exploration.

Ground water was not encountered in any of the borings at the time of drilling (maximum depth drilled of 51.5 feet). Historic high groundwater levels in the immediate site vicinity are approximately 10 below existing ground surface (USGS, 1996).

2.05 Faulting and Seismicity

Detailed discussions of the faulting and seismicity of the proposed building site is presented in the referenced Geologic Hazard Evaluation Report in Appendix D of this report.

2.06 Liquefaction Potential and Dynamic Soil Settlement

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, strength of the ground motion 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 nearby large magnitude earthquake.

The site is not within a Seismic Special Studies Zone as currently mapped by the California Division of Mines and Geology (see Geologic Hazard Evaluation Report in Appendix D of this report). Based on the high relative density/consistency of the subsurface soils and depth to groundwater (in excess of 50 feet below the existing ground surface), the potential for liquefaction is very low. Based upon review of the City of Menifee General Plan (2010), the project site is not indicated as having a liquefaction susceptibility. Due to the dense/high consistency nature of the subsurface soils, estimated dynamic settlement ("dry sand") settlement of the site soils are anticipated to be negligible.

2.07 Landslides

The site is not located in a hillside area of the county where earthquake induced landslides would cause permanent ground displacements. No reported occurrences of landslides or mudflows are known to have recently affected the site. Therefore, the potential for landslides and mudflows is considered to be very low at the site.

2.08 Tsunami and Seiche Hazard

Given the inland location of the site at an elevation of approximately 1,4341 feet MSL, the inundation hazard posed by tsunami is considered to be very low. Seiches are not considered a hazard due to the absence of above-ground tanks or reservoirs located immediately up gradient from the site. Detailed discussions of the secondary seismic hazards of the proposed stadium development area is presented in the referenced Geologic Hazard Evaluation Report in Appendix D of this report.

3.00 CONCLUSIONS

3.01 General Conclusions

Based on our Geotechnical review of the planned construction, it is our opinion that the site is suitable for the proposed construction provided our conclusions are taken into consideration during design, and our recommendations are incorporated into the construction plans and specifications and implemented during grading and construction.

Given the findings of the investigation, it appears that the site geology is suitable for the proposed construction. Based on the investigation, it is our opinion that the proposed development is safe against landslides and settlement provided the recommendations presented in our report are incorporated into the design and construction of the project. Grading and construction of the proposed project will not adversely affect the geologic stability of adjacent properties. The nature and extent of the investigation conducted for the purposes of this declaration are, in our opinion, in conformance with generally accepted practice in this area. Therefore, the proposed project appears to be feasible from a geologic standpoint.

3.02 Seismic Design Parameters

The USGS Seismic Design Maps application, was used to calculate the CBC site specific design parameters as required by the 2016 California Building Code. Based upon the subsurface data, the site can be classified as Site Class D. Detailed discussions of seismic design criteria for the proposed building site is presented in the referenced Geologic Hazard Evaluation Report in Appendix D of this report. The spectral acceleration values for 0.2 second and 1 second periods obtained from the computer program and in accordance with the 2016 California Building Code are tabulated below.

Ground Motion Parameter	Design Value
S_S	1.5 g
S_1	0.6 g
Site Class	D
F_a	1.0
F_v	1.5
S_{DS}	1.0 g
S_{D1}	0.6 g
MCE_R	0.505 g

3.03 Soil Infiltration Testing

To establish the design infiltration rate, we have utilized the Percolation Test Procedures of the Riverside County Department of Environmental Health as specified in the Technical Guidance Document Appendices of the Model Water Quality Management Plan. Three (3) 8-inch diameter percolation test holes were drilled to a maximum depth of 10 feet. Each test hole was pre-soaked to allow the water flow to hold a constant level at least 5 times the holes' radius above the gravel at the bottom of the hole. The approximate locations of the test holes are depicted on the Boring and Percolation Test Location Plan, Figure 2.

Based on the samples obtained from the percolation test borings, the subsurface materials are classified as silty sands to sandy clays (SM and CL soil types) in accordance with the Unified Soil Classification System as shown on the accompanying boring logs (Appendix B). Our field test data sheets are attached in Appendix G of this report.

The grain-size distribution affects soil permeability. Coarse-grained soils with large median particle sizes will yield higher infiltration rates. Finer grained soils will yield lower percolation rates.

Although the measured percolation rate obtained from the field test is related to the infiltration rate, the two rates are not equivalent. The percolation rate incorporates both downward and horizontal fluxes of water through the soil column whereas infiltration only refers to a downward flux of water. Thus, the measured percolation rate obtained from the field was converted to a reasonable estimate of the infiltration rate using the Porchet Method (i.e. Inverse Borehole Method).

$$I_t = \frac{\Delta H\,(60r)}{\Delta t\,(r + 2H_{avg})}$$

ΔH = Change in height over time
Δt = Time interval
H_{avg} = Average head over time interval
I_t = Tested infiltration rate

The measured percolation rates and estimated infiltration rates are as follows:

Test Hole	Test Date	Test Depth	Measured Percolation Rate (minutes/inch)	Estimated Infiltration Rate (inches/hour)
P-1	8/10/19	11 ft	10.00	0.47
P-2	8/10/19	11 ft	120.00	0.06
P-3	8/10/19	11 ft	120.00	0.04

Long-term sustainable infiltration rates may be affected by several factors including the degree of saturation of the adjacent ground and the infiltration of finer grained soils into the system. To account for these factors, the application of these rates should therefore consider the use of an appropriate factor of safety.

The development of the factor of safety should be based upon the more conservative rate obtained during testing and include consideration of the impacts of deteriorated performance, life safety issues and should anticipate that the measured test rates will be reduced over time.

Due to the fine-grained (clayey) and cemented nature of the subsurface soils encountered in the percolation test borings, the measured percolation and infiltration rates were relatively low. Long-term sustained use of underground storm water disposal systems on this project may result in "mounding" of subsurface waters within the disposal fields. The use of alternative storm water disposal systems should be considered for this project.

4.00 RECOMMENDATIONS

MTGL, Inc.'s recommendations are considered minimum and may be superseded by more conservative requirements of the architect, structural engineer, building code, or governing agencies. The foundation recommendations are based on the expansion index and shear strength of the on-site soils. Import soils, if necessary should have a "very low" expansion index potential and should be approved by the Geotechnical Engineer prior to importing to the site. In addition to the recommendations in this section, additional general earthwork and grading specifications are included in Appendix F.

4.01 Excavation Characteristics/Shrinkage

The exploratory borings were advanced with little difficulty and no significant "oversize" materials were encountered within the anticipated depths of site grading/construction. Accordingly, it is expected that all earth materials will be rippable with conventional heavy duty grading equipment and oversized materials are not expected.

Shrinkage is the decrease in volume of soil upon removal and recompaction expressed as a percentage of the original in-place volume, which will account for changes in earth volumes that will occur during grading. MTGL, Inc.'s estimate for shrinkage of the on-site fill and native soils are expected to range from 17 to 22 percent.

4.02 Settlement Considerations

Foundations should be designed to resist the anticipated settlements. Settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. It is estimated maximum settlement of foundations designed and constructed in accordance with the recommendations presented in this report to be on the order of ¾ inch. Differential settlement between similarly loaded and adjacent footings are expected to be a maximum of approximately ½ inch across 40 feet, provided footings are founded on similar materials. Settlement of all foundations is expected to occur rapidly and should be essentially complete shortly after initial application of the loads.

4.03 Site Clearing Recommendations

All surface vegetation, grass turf, existing landscaping, trash, debris, asphalt concrete, Portland cement concrete and underground utilities should be cleared and removed from the proposed construction sites. Underground facilities such as utilities, pipes or underground storage tanks may

exist at the site. Removal of underground tanks is subject to state law as regulated by the County, City and/or Fire Department. If storage tanks containing hazardous or unknown substances are encountered, the proper authorities must be notified prior to any attempts at removing such objects.

Any water wells, if encountered during construction, should be exposed and capped in accordance with the requirements of the regulating agencies. Depressions resulting from the removal of foundations of existing buildings, underground tanks and pipes, buried obstructions and/or tree roots should be backfilled with properly compacted material.

4.04 Site Grading Recommendations

All fill materials should be compacted to at least 90 percent of maximum dry density as determined by ASTM Test Method D1557. Fill materials should be placed in loose lifts, no greater than 8 inches prior to applying compactive effort. All engineered fill materials should be moisture-conditioned and processed as necessary to achieve a uniform moisture content that is near optimum moisture content and within moisture limits required to achieve adequate bonding between lifts. Compaction should be verified by testing.

4.05 Site Overexcavation

Building plans, grading plans, structural plans and foundation elevations were not available at the time of MTGL, Inc.'s investigation. Therefore, once formal plans are prepared and available for review, this office should review these plans from a geotechnical viewpoint, comment on any changes, and revise the recommendations of this report as necessary.

All artificial fills, organics, debris, trash and topsoil should be removed from the grading area and hauled offsite. Recommendations for site grading to prepare the building pad area for the support of structures are as follows.

It is recommended that the existing soils within building or foundation areas be over excavated to a minimum depth of 2 feet below the bottom of the proposed footings or 4 feet below the existing grade, whichever is greater. The required horizontal limits of the over excavated area shall be defined as the area extending from the edge of the building perimeter/footing for a distance of 5 feet, where obtainable.

Hardscape areas which include all paved areas will require a minimum depth of 2 feet of removal and recompaction. Processing for hardscape areas should extend a minimum distance of 2 feet outside the hardscape limits, where obtainable.

4.06 Fill Materials

Removed and/or overexcavated soils may be moisture-conditioned to near optimum moisture content and recompacted as engineered fill, except for soils containing detrimental amounts of organic material. Our subsurface investigation indicates that the near surface materials are generally at or below its optimum moisture content. The fill materials should be compacted to a minimum of 90% of the maximum dry density per ASTM D-1557. Compaction should be verified by testing.

Imported materials shall be coarse grained, non-expansive, and non-plastic in nature. The materials should be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than 3 inches, 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.

4.07 Foundations

Spread and/or continuous footings on compacted fill materials may be used to support the proposed structure/building foundations and designed using an allowable bearing pressure of 2,500 psf. This allowable bearing pressure may be increased by 20% for each additional foot of width and/or depth, to a maximum value of 4,000 psf. The allowable bearing capacity may also be increased by one-third for considerations of short term wind or seismic loads. The recommended minimum footing width and embedment depth below the lowest adjacent grade are as follows:

Foundation Type	Minimum Width	Minimum Depth
Continuous (Interior)	12 inches	18 inches
Continuous (Perimeter)	12 inches	18 inches
Spread Footings	24 inches	18 inches

Soil resistance developed against lateral structural movement can be obtained from the passive pressure value of 350 pcf. The upper one foot of passive pressure should be neglected unless confined by pavement or slab. For sliding resistance, a friction coefficient of 0.35 may be used at the concrete and soil interface. The passive pressure and the friction of resistance could be combined without reduction. In addition, the lateral passive resistance is taken into account only if it is ensured that the soil against embedded structures will remain intact with time.

The near surface soils have an expansion index classification of "very low" (0-20). Therefore, nominal reinforcement consisting of two #5 bars placed within 3 inches of the top of footings and two #5 bars placed within 3 inches of the bottom of footings are recommended. However, the structural engineer may require heavier reinforcement. Spread foundations should be reinforced as required by the structural engineer.

4.08 Concrete Slabs on Grade and Miscellaneous Flatwork

A minimum of six (6) inches thickness should be designed for structural concrete slab-on-grade within heavy use areas of buildings or structures. Concrete slabs on grade and miscellaneous flatwork that are not subjected to vehicular loads may be designed with a minimum thickness of 5.0 inches for normal loading conditions. However, if heavier loads are anticipated, a modulus of subgrade reaction of 250 pounds per cubic inch may be used when the slabs are supported by compacted fill.

All slabs and flatwork should be reinforced with a minimum #4 bars, 18 inches on center, each direction, placed at the mid-height of the slab. The structural engineer may require heavier reinforcement. Special care should be taken so that reinforcement is placed at the slab mid-height.

Floor slabs should be separated from footings, structural walls, and utilities and provisions made to allow for settlement or swelling movements at these interfaces. If this is not possible from a structural or architectural design standpoint, it is recommended that the slab connection to footings be reinforced such that there will be resistance to potential differential movement.

Control joints should be constructed on all slabs on grade to create squares or rectangles with a maximum spacing of 12 feet on large slab areas. Where flatwork is adjacent to curbs, reinforcing bars should be placed between the flatwork and the curbs. Expansion joint material should be used between flatwork and curbs, and flatwork and buildings.

Vehicular concrete pavers should be designed with one (1) inch sand over eight (8) inches of Caltrans Class II aggregate base over a minimum of twenty-four (24) inches of subgrade compacted to at least 90 percent of maximum dry density. Any aggregate base material should be compacted to at least 95 percent of maximum dry density. Compaction should be verified by testing.

Subsurface moisture and moisture vapor naturally migrate upward through the soil and where the soil is covered by a building or pavement. To reduce the impact of the subsurface moisture and potential impact of future introduced moisture (such as landscape irrigation or precipitation) damp

proofing should be provided under all slabs on grade with moisture sensitive floor coverings. The damp proofing should consist of a minimum 15 mil polyethylene liner placed with 2 inches of sand below and 2 inches of sand above the polyethylene liner. The liner should be carefully fitted around service openings with joints lapped not less than 6 inches.

Damp proofing typically will not necessarily assure that floor slab moisture transmission rates will meet floor-covering manufacturer standards. Other factors such as surface grades, adjacent planters, the quality of slab concrete and the permeability of the on-site soils will affect slab moisture. In many cases, floor moisture problems are the result of either improper curing of floors slabs or improper application of flooring adhesives. We recommend contacting a flooring consultant experienced in the area of concrete slab-on-grade floors for specific recommendations regarding the proposed flooring applications. We make no guarantee nor provide any assurance that use of a vapor retarder system will reduce concrete slab-on-grade floor moisture penetration to any specific rate or level, particularly those required by floor covering manufacturers. The builder and designers should consider all available measures for floor slab moisture protection.

Special precautions must be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking, or curling of the slabs. High water-cement ratio and/or improper curing also greatly increase the water vapor permeability of concrete. It is recommended that all concrete placement and curing operations be performed in accordance with the American Concrete Institute (ACI) manual.

The subgrade soils beneath all concrete flatwork should be compacted to a minimum of 90% relative compaction for a minimum depth of 24 inches. The geotechnical engineer should monitor the compaction of the subgrade soils and perform testing to verify that proper compaction has been obtained.

4.09 Prewetting Recommendation

Prior to placing concrete slabs and flatwork, the underlying soils should be brought to near optimum moisture content for a depth of six 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.

Once the slab subgrade soil has been pre-wetted and compacted, the soil should not be allowed to dry prior to concrete placement. If the subgrade soil is dry, the moisture content of the soil should be restored prior to placement of concrete and re-tested.

Proper moisture conditioning and compaction of subgrade soils prior to placement is very important prior to concrete placement. Even with proper site preparation, some soil moisture changes of the subgrade soils supporting the concrete flatwork due to edge effects (shrink/swell) may occur. Drying and/or wetting of subgrade soils adjacent to landscaped areas or open fields may increase the potential of shrink/swell effects beneath concrete flatwork areas. To help reduce edge effects, lateral cutoffs, such as inverted curbs are recommended. Control joints should be used to reduce the potential for flatwork panel cracks as a result of minor soil shrink/swell.

4.10 Soil Corrosion Potential

Soluble sulfate tests indicate that concrete at the subject site will have a "moderate" (Class S1) exposure to water soluble sulfate in the soil. Recommendations for concrete exposed to sulfate-containing soils are presented below.

RECOMMENDATIONS FOR CONCRETE EXPOSED TO SULFATE CONTAINING SOILS

Sulfate Exposure Severity	Class	Water soluble sulfate (SO_4) in soil (% by wgt)	Sulfate (SO_4) in water (ppm)	Max Water to Cement Ratio by Weight	Minimum Compressive Strength (psi)	Cement Type	Calcium Chloride Admixture
Negligible	S0	0.00 - 0.10	0-150	---	2,500	---	No Restriction
Moderate	**S1**	0.10 - 0.20	150-1,500	0.50	4,000	II/V	No Restriction
Severe	S2	0.20 - 2.00	1,500-10,000	0.45	4,500	V	Not Permitted
Very Severe	S3	Over 2.00	Over 10,000	0.45	4,500	V Plus Pozzolan	Not Permitted

Corrositivity testing consisting of soils reactivity (pH) and resistivity (ohms-cm) were also tested on representative soils. The test results indicate that the soils have a soil reactivity (pH) of 8.3, and a resistivity 1,000 ohms-cm. A neutral or non-corrosive soil has a reactivity value ranging from 5.5 to 8.4. Generally, soils that could be considered corrosive to metal have resistivities less than 3,000 ohms. Those soils with resistivity values of less than 1,000 ohms-cm can be considered extremely corrosive.

Based on our test results, near surfaces are anticipated to have a moderate to high corrosion potential. Protection of buried metal with sand bedding and protective coatings may be used to further reduce corrosion potential. A qualified corrosion engineer should be consulted to further assess the corrosion potential, as necessary.

4.11 Athletic Field Design

Prior to installation of any synthetic turf, the upper twelve (12) inches of the subgrade soils should be scarified, adjusted to within 2 percent of optimum moisture content, and compacted to a minimum of 90 percent relative compaction. Compaction should be confirmed by testing. Synthetic turfs should be underlain by a minimum of six (6) inches of Class II permeable base, along with subdrains, both perimeter and flat tile drains, installed as recommended by the landscape architect. An impervious 30-mil liner should be paced between the bottom of the base material and the compacted subgrade. All drains should be conducted to an approved drainage outlet.

A representative sample of the site soils was transported to Waypoint Analytical for testing and analysis for nutrient levels, agricultural suitability, and physical characteristics in preparation for new landscape installation. Results of this testing and analysis along with recommendations for landscape installation are presented in Appendix E of this report.

4.12 Retaining Walls

Embedded structural walls should be designed for lateral earth pressures exerted on the walls. The magnitude of these earth pressures will depend on the amount of deformation that the wall can yield under the load. If the wall can yield sufficiently to mobilize the full shear strength of the soils, it may be designed for the "active" condition. If the wall cannot yield under the applied load, then the shear strength of the soil cannot be mobilized and the earth pressures will be higher. These walls such as basement walls and swimming pools should be designed for the "at rest" condition. If a structure moves towards the retained soils, the resulting resistance developed by the soil will be the "passive" resistance.

For design purposes, the recommended equivalent fluid pressure for each case for walls constructed above the static groundwater table and backfilled with non-expansive soils is provided below. Retaining wall backfill should be compacted to at least 90% relative compaction based on the maximum density defined by ASTM D1557. Retaining structures may be designed to resist the following lateral earth pressures.

- Allowable Bearing Pressure – 2,500 psf
- Coefficient of Friction (Soil to Footing) – 0.35
- Passive Earth Pressure - equivalent fluid weight of 350 pcf (Maximum of 2,500 psf)
- At rest lateral earth pressure - 60 pcf
- Active Earth Pressures – equivalent fluid weights:

Slope of Retained Material	Equivalent Fluid Weight (pcf)
Level	40
2:1 (H:V)	65

It is recommended that all retaining wall footings be embedded at least 18 inches below the lowest adjacent finish grade, or a minimum of 12 inches below adjacent soil grade. In addition, the wall footings should be designed and reinforced as required for structural considerations. The wall areas should be over-excavated to a minimum depth of 2 feet below the bottom of the proposed footings. The required horizontal limits of the over excavated area shall be defined as the area extending from the edge of the footing for a minimum distance of 2 feet.

Lateral resistance parameters provided above are ultimate values. Therefore, a suitable factor of safety should be applied to these values for design purposes. The appropriate factor of safety will depend on the design condition and should be determined by the project Structural Engineer. If any super-imposed loads are anticipated, this office should be notified so that appropriate recommendations for earth pressures may be provided.

Retaining structures should be drained to prevent the accumulation of subsurface water behind the walls. Back drains should be installed behind all retaining walls exceeding 3.0 feet in height. A typical detail for retaining wall back drains is presented as Figure 3. Alternatively, a pre-manufactured drainage product (i.e. Mira-Drain™ or equivalent) may be utilized instead of an aggregate drain. All back drains should be outlet to suitable drainage devices. Walls and portions thereof that retain soil and enclose interior spaces and floors below grade should be waterproofed and damp-proofed accordingly. Any pre-manufactured product should be installed in strict conformance with the manufacturer's requirements.

4.13 Seismically Induced Lateral Earth Pressures

A seismic lateral increment of 30 pcf (equivalent fluid weight) may be applied as an incremental force which should be applied to the back of the wall in the upper 1/3 of the wall and also applied as a reduction of force to the front of the wall in the upper 1/3 of the footing.

4.14 Pavement Recommendations

Recommended pavement structural sections are based on the procedures outlined in "Design Procedures for Flexible Pavements" of the Highway Design Manual, California Transportation Department. This procedure uses the principal that the pavement structural section must be of adequate thickness to distribute the load from the design traffic (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).

All asphalt concrete pavement sections should be supported by a minimum twenty-four (24) inch thickness of subgrade compacted to at least 90 percent relative compaction. Compaction should be verified by testing.

Pavement sections were designed based on an R-Value of 30 and assumed Traffic Index of 4.0 for light auto parking and drive lanes, 5.0 for commercial vehicles/access lanes, and 7.0 for truck access/fire lanes. The recommend structural sections are as follows:

Asphalt Pavement Structural Section

Pavement Area	Traffic Index	Asphalt Thickness	Aggregate Base Thickness
Light Auto Parking / Drive Lanes	4.0	3.5"	4.0"
Commercial Vehicles / Access Lanes	5.0	4.0"	4.0"
Truck Access/Fire Lanes (Heavy Truck Traffic)	7.0	4.0" 5.0"	9.5" 7.5"

Portland cement concrete (PCC) pavements for areas which are subject to traffic loads may be designed with a minimum thickness of 6.0 inches of Portland cement concrete on 4.0 inches of compacted aggregate base. As recommended in Section 4.10 of this report, project Portland cement concrete should have a minimum compressive strength of 4,000 psi.

Prior to paving, the exposed subgrade soils should be scarified, adjusted to within 2% of optimum moisture and compacted to a minimum of 90% relative compaction for a minimum depth of 12 inches. All aggregate base courses should be compacted to a minimum of 95% relative compaction. Compaction should be confirmed by testing.

4.15 Construction Considerations

4.15.1 Moisture Sensitive Soils/Weather Related Concerns

The upper soils encountered at this site may be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and its support capabilities. In addition, soils that become excessively wet may be slow to dry and thus significantly delay the progress of the grading operations. Therefore, it will be advantageous to perform earthwork and foundation construction activities during the dry season. Much of the on-site soils may be susceptible to erosion during periods of inclement weather. As a result, the project Civil Engineer/Architect and Grading Contractor should take appropriate precautions to reduce the potential for erosion during and after construction.

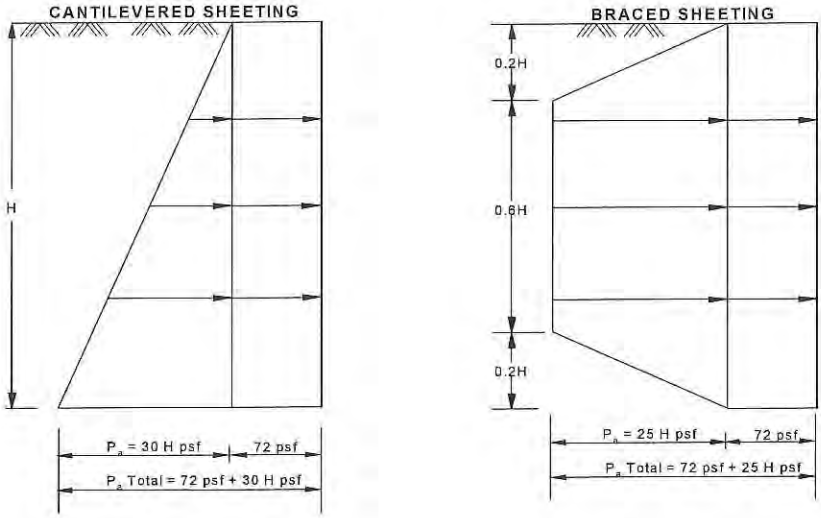
4.15.2 Drainage and Groundwater Considerations

Historic high groundwater levels in the immediate site vicinity are approximately 100 feet below grade. Since this is below the anticipated depths of grading, the installation of subdrains is not expected to be necessary. However, variations in the ground water table may result from fluctuation in the ground surface topography, subsurface stratification, precipitation, irrigation, and other factors such as impermeable and/or cemented formational materials overlain by fill soils. In addition, during retaining wall excavations, seepage may be encountered. Therefore, it is recommended that a representative of MTG$_L$, Inc. be present during grading operations to evaluate areas of seepage. Drainage devices for reduction of water accumulation can be recommended should these conditions occur.

Water should not be allowed to collect in the foundation excavation, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped to facilitate removal of any collected rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

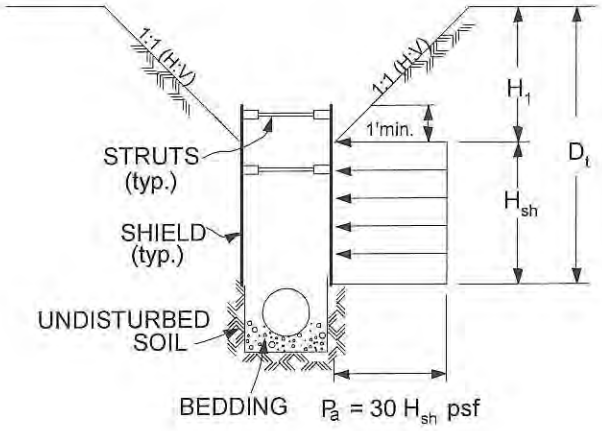
4.15.3 Temporary Excavations and Shoring

Short term temporary excavations in existing soils may be safely made at an inclination of 1:1 (horizontal to vertical) 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_{sh} = DEPTH OF TRENCH, D_t , MINUS DEPTH OF SLOPE, H_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. All Cal/OSHA construction safety orders should be observed during all underground work.

4.15.4 Utility Trenches

All Cal/OSHA construction safety orders should be observed during all underground work. 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 (horizontal to vertical) 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.

Utilities should be bedded and backfilled with clean sand or approved granular soil to a depth of at least 1-foot over the pipe. The bedding materials shall consist of sand, gravel, crushed aggregates, or native soils that are free draining with a sand equivalence of not less than 30. The bedding should be uniformly watered and compacted to a firm condition for pipe support.

The remainder of the backfill shall be typical on-site soil or imported soil which should be placed in lifts not exceeding 8 inches in thickness, watered or aerated to near optimum moisture content, and mechanically compacted to at least 90% of maximum dry density (ASTM D1557).

The bedding and backfill materials and placement shall conform to the requirements of the latest Standard Specifications for Public Works Construction (Greenbook).

4.15.5 Site Drainage

The site should be drained to provide for positive drainage away from structures in accordance with the building code and applicable local requirements. Unpaved areas should slope no less than 2% away from structure. Paved areas should slope no less than 1% away from structures. Concentrated roof and surface drainage from the site should be collected in engineered, non-erosive drainage devices and conducted to a safe point of discharge. The site drainage should be designed by a civil engineer.

4.16 Geotechnical Observation/Testing of Earthwork Operations

The recommendations provided in this report are based on preliminary design information and subsurface conditions as interpreted from the investigation. Our preliminary conclusion and recommendations should be reviewed and verified during site grading, and revised accordingly if exposed Geotechnical conditions vary from our preliminary findings and interpretations. The

Geotechnical consultant should perform Geotechnical observation and testing during the following phases of grading and construction:

- During site grading and overexcavation.
- During foundation excavations and placement.
- Upon completion of retaining wall footing excavation prior to placing concrete.
- During excavation and backfilling of all utility trenches
- During processing and compaction of the subgrade for the access and parking areas and prior to construction of pavement sections.
- When any unusual or unexpected Geotechnical conditions are encountered during any phase of construction.

5.00 LIMITATIONS

The findings, conclusions, and recommendations contained in this report are based on the site conditions as they existed at the time of MTG$_L$, Inc.'s investigation, and further assume that the subsurface conditions encountered during MTG$_L$, Inc.'s investigation are representative of conditions throughout the site. 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.

This report was prepared for the exclusive use and benefit of the owner, architect, and engineer for evaluating the design of the facilities as it relates to geotechnical aspects. It should be made available to prospective contractors for information on factual data only, and not as a warranty of subsurface conditions included in this report.

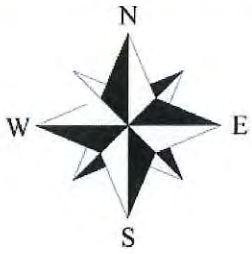
MTG$_L$, Inc.'s investigation was performed using the standard of care and level of skill ordinarily exercised under similar circumstances by reputable soil engineers and geologists currently practicing in this or similar localities. No other warranty, express or implied, is made as to the conclusions and professional advice included in this report.

This firm does not practice or consult in the field of safety engineering. MTG$_L$, Inc.'s does not direct the Contractor's operations, and are not responsible for their actions. The contractor will be solely and completely responsible for working conditions on the job site, including the safety of all persons and property during performance of the work. This responsibility will apply continuously and will not be limited to MTG$_L$, Inc.'s normal hours of operation.

The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they are due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge.

Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

FIGURES



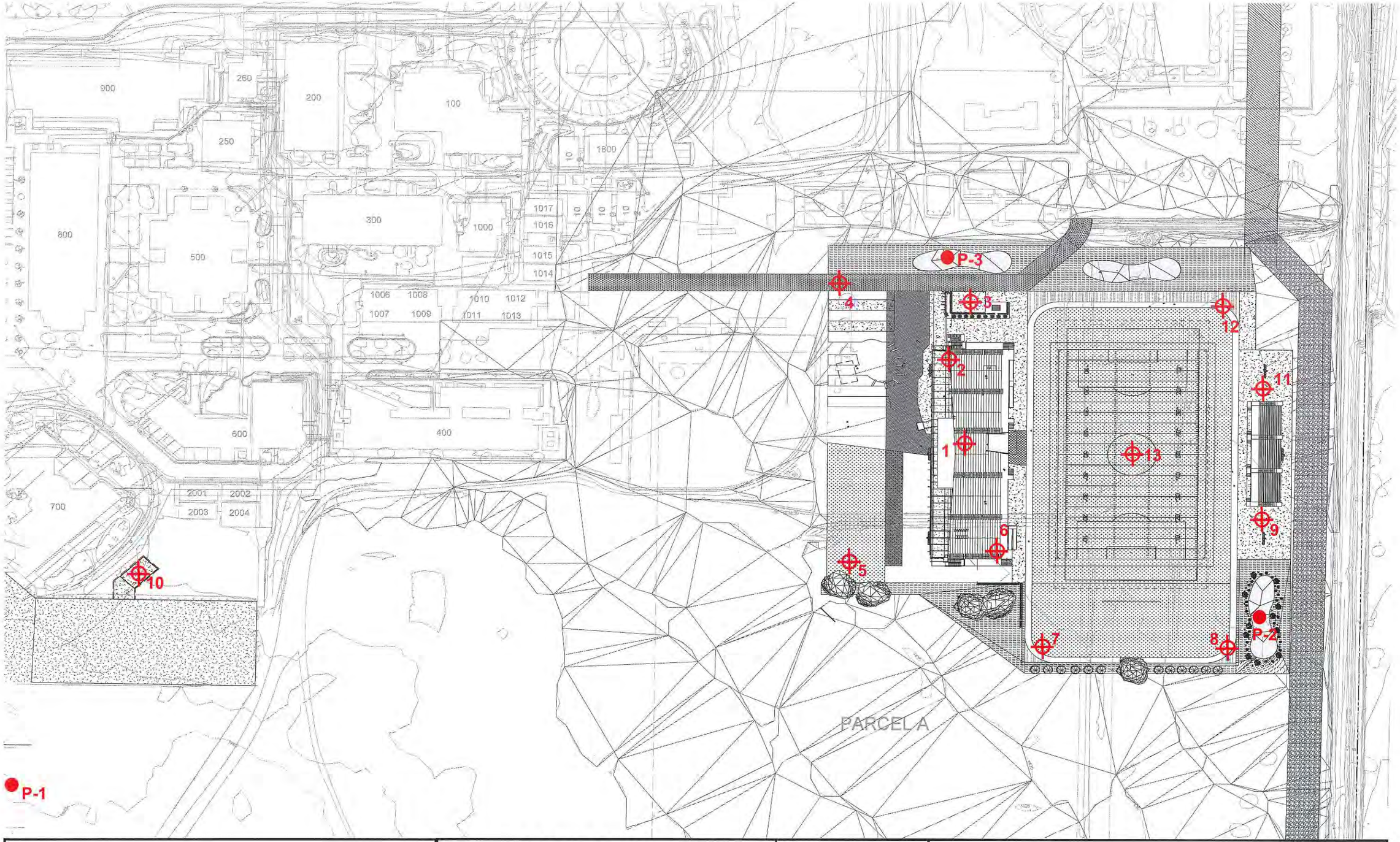
Source: Google Maps

SITE LOCATION MAP

APPROXIMATE LOCATION

MSJC Menifee Stadium
28237 La Piedra Road, Menifee, California

Project Number:	8767A02
Scale:	Not to Scale
Date:	8/30/2019
Figure No.	1



Legend:

- Boring Sample Location B-13
- Percolation Test Location P-3

MSJC Menifee Stadium
Boring and Percolation
Test Locations

MTGL

Project Number:	8767A02
Scale:	Not to Scale
Date:	8/30/2019
Figure No.	2

28237 La Piedra Road,
Menifee, CA

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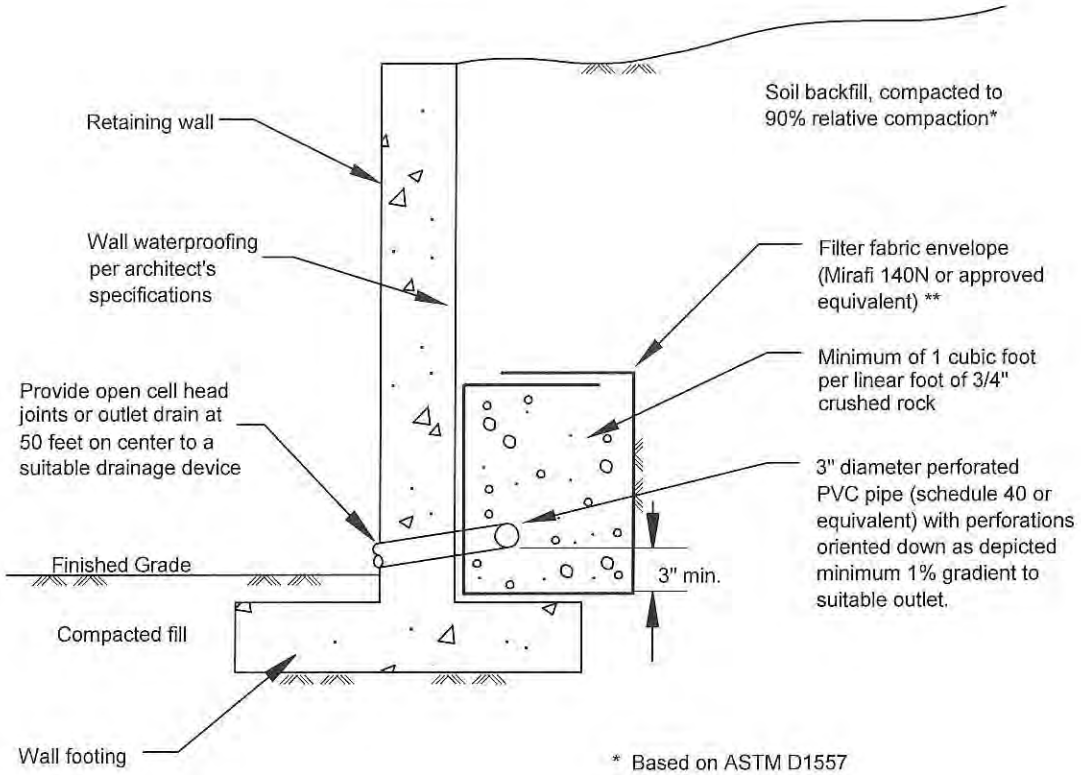

* Based on ASTM D1557

** 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. *

SPECIFICATIONS FOR CLASS 2 PERMEABLE MATERIAL (CAL TRANS SPECIFICATIONS)

Sieve Size	% Passing
1"	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

RETAINING WALL DRAINAGE DETAIL

Figure 3

APPENDIX A

REFERENCES

APPENDIX A

REFERENCES

Anderson Geology Consulting, LLC, 2019, Limited Engineering Geologic Hazard Evaluation of Property, Proposed Stadium Facility and Associated Parking/Support Structures, 28237 La Piedra Road, City of Menifee, California, Project No. 19016-01, dated August 22, 2019 (included in Appendix D of this report).

City of Menifee General Plan, 2010.

Federal Emergency Management Agency, Revised August 18, 2004, Flood Insurance Rate Map, Riverside County, FEMA Map 060065C2070H.

U. S. Geological Survey, 1996, Well-Construction, Water Quality and Water-Level Data and Pond Infiltration Estimates for Three Ground Water Subbasins, Riverside County, California, USGS Report No. 96-4294, 1996.

APPENDIX B

FIELD EXPLORATION PROGRAM

APPENDIX B

FIELD EXPLORATION PROGRAM

The subsurface conditions for this Geotechnical Investigation were explored by excavating exploratory borings with an 8-inch hollow-stem-auger to a maximum depth of 51.5 feet below existing grade. All drive samples were obtained by California Tube or SPT Samplers. The approximate locations of the borings are shown on the Boring Location Map (Figure 2). The field exploration was performed under the supervision of a Geotechnical Engineer/Geologist who maintained a continuous log of the subsurface soils encountered and obtained samples for laboratory testing.

Subsurface conditions are summarized on the accompanying Logs of Borings. The logs contain factual information and interpretation of subsurface conditions between samples. The stratum indicated on these logs represents 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

The exploratory borings were located in the field by using cultural features depicted on a preliminary site plan provided by the client. Each location should be considered accurate only to the scale and detail of the plan utilized.

The exploratory borings were backfilled with native soil cuttings, compacted, and patched where appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM					
No. 200 U.S. Standard Sieve is the smallest particle visible	Coarse-grained soils >1/2 of materials is larger than #200 sieve	GRAVELS are more than half of coarse fraction larger than #4 sieve	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
			Gravels with fines	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		SANDS are more than half of coarse fraction larger than #4 sieve	Clean Sands (less than 5% fines)	GM	Silty Gravels, poorly-graded gravel-sand-silt mixtures
			Sands with fines	GC	Clayey Gravels, poorly-graded gravel-sand-clay mixtures
	Fine-grained Soils >1/2 of materials is smaller than #200 sieve	SILTS AND CLAYS Liquid Limit Less than 50		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
				SM	Silty Sands, poorly-graded sands-gravel-clay mixtures
				SC	Clayey Sands, poorly-graded sand-gravel-silt mixtures
				ML	Inorganic clays of low to med plasticity, gravelly, sandy, silty, or lean clays
		SILTS AND CLAYS Liquid Limit Greater than 50		CL	Inorganic clays of low to med plasticity, gravelly, sandy, silty, or lean clays
				OL	Organic silts and clays of low plasticity
				MH	Inorganic silts, micaceous or diatomaceous fine sands or silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic silts and clays of medium to high plasticity
Highly Organic Soils				PT	Peat, humus swamp soils with high organic content

GRAIN SIZE					SIZE PROPORTION
Description		Sieve Size	Grain Size	Approximate Size	Trace – Less than 5%
Boulders		>12"	>12"	Larger than basketball-sized	Few – 5% to 10%
Cobbles		3"- 12"	3"- 12"	Fist-sized to basketball-sized	Little – 15% to 20%
Gravel	Coarse	¾"- 3"	¾"- 3"	Thumb-sized	Some – 30% to 45%
	Fine	#4 - ¾"	0.19" - 0.75"	Peat-sized to thumb-sized	Mostly – 50% to 100%
Sand	Coarse	#10 - #4	0.079" - 0.19"	Rock salt-sized to pea-sized	**MOISTURE CONTENT**
	Medium	#40 - #10	0.017" - 0.079"	Sugar-sized to rock salt-sized	Dry – Absence of moisture
	Fine	#200 - #40	0.0029" - 0.017"	Flour-sized to sugar-sized	Moist – Damp but not visible
Fines		Passing #200	<0.0029"	Flour-sized or smaller	Wet – Visible free water

CONSISTENCY FINE GRAINED SOILS			RELATIVE DENSITY COARSE GRAINED SOILS		
Apparent Density	**SPT (Blows/Foot)**	**Mod CA Sampler (Blows/Foot)**	**Apparent Density**	**SPT (Blows/Foot)**	**Mod CA Sampler (Blows/Foot)**
Very Soft	<2	<3	Very Loose	<4	<5
Soft	2-4	3-6	Loose	4-10	5-12
Firm	5-8	7-12	Medium Dense	11-30	13-35
Stiff	9-15	13-25	Dense	31-50	36-60
Very Stiff	16-30	26-50	Very Dense	>50	>60
Hard	>30	>50			

BORING NO. 1

Logged by: BAH
Date Drilled: 7/30/2019
Method of Drilling: 8-inch diameter hollw-stem auger - CME 75
Elevation: 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1						Grass Turf at Surface	Maximum Density & Optimum Moisture, R-Value, Expansion Index, Remolded Direct Shear (90%)
2	25	CAL		120	11	**Alluvium:** Silty Sand with Clay (SM), dark reddish brown, moist, medium dense	
3							
4	31	CAL		114	14		
5							
6	30	CAL		122	12	**Alluvium:** Clayey Sand with Silt (SC), dark brown, moist, medium dense	
7							
8	34	CAL		120	17		
9							
10							
11	39	CAL		111	14	**Alluvium:** Clayey Silt with Sand (ML), reddish brown, moist, very stiff	
12							
13							
14							
15							
16	29	CAL		111	18		
17							
18							
19							
20							
21	37	CAL		111	12	Grades with up to 1" Gravel	
22							
23							
24							
25							
26	60	CAL		114	10.0	**Alluvium:** Clayey Sand with Silt (SC), reddish brown, moist, dense	
27							
28							
29							
30							

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LOG OF BORING

BORING NO. 1 (Continued)

Logged by: BAH **Date Drilled:** 7/30/2019

Method of Drilling: 8-inch diameter hollw-stem auger - CME 75 **Elevation:** 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
31	46	CAL		109	9	(Continued) **Alluvium:** Silty Sand with Clay (SM), dark reddish brown, moist, medium dense	
34	28	CAL			11	**Alluvium:** Sandy Silt (ML), light brown, moist, very stiff	
41	41	SPT			15	Grades with Clay, hard	
44	66	SPT			7	**Alluvium:** Silty Sand with Clay (SM), light reddish brown moist, very dense	
49	46	SPT			18	**Alluvium:** Clayey Silt with Sand (ML), dark brown, moist, hard	
52						Total Depth: 51.5 feet As Planned Groundwater not encountered Backfilled with tailings on 7/30/2019	

BORING NO. 2

Logged by: BAH
Date Drilled: 7/30/2019
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Elevation: 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1						Grass Turf at Surface.	
2							
3	17	CAL			7.8	**Alluvium:** Silty Sand (SM), moderate-dark brown, slightly moist, medium dense.	
4							Direct Shear
5	32	CAL		109	17.1	**Alluvium:** Silty Sand (SM), trace Gravel, moderate brown, moist, medium dense	
6							
7	30	CAL		125	10.9	**Alluvium:** Gravelly Silty Sand (SM), moist, medium dense.	
8							
9							
10							
11	22	CAL		118	10.1	**Alluvium:** Silty Sand w/ Gravel and Clay (SM/SC), moderate brown, moist, medium dense.	
12							
13							
14							
15							
16	28	CAL		100	15.3	**Alluvium:** Silty Sand w/ Clay and Gravel (SM), reddish brown, slightly moist, med. dense.	
17							
18						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 3

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1						Grass Turf at Surface.	Consolidation
2	25	CAL		104	7.4	**Alluvium:** Silty Sand (SM), trace Gravel, tan brown, slightly moist, medium dense.	
3							
4	8	CAL				**Alluvium:** Silty Sand (SM), trace Gravel, medium brown, slightly moist, loose.	
5							
6	24	CAL		99	7.4	**Alluvium:** Gravelly Silty Sand (SM), medium brown, slightly moist, medium dense.	
7							
8							
9							
10							
11	31	CAL		115	15.5	**Alluvium:** Fine Sandy Clay w/ Gravel (CL), rust red, moist, very stiff.	
12							
13							
14							
15							
16	42	CAL					
17						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 4

Logged by: KO
Date Drilled: 7/30/2019
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Elevation: 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	27	CAL		124	10.4	**Alluvium:** Silty Sand (SM), dark brown, slightly moist, medium dense.	
4							
5							
6	28	CAL		108	12.6	**Alluvium:** Silty Sand w/ Clay (SM), medium brown, slightly moist, medium dense.	
7							
8							
9							
10							
11	28	CAL		87	7.6	**Alluvium:** Gravelly Silty Sand (SM), med. brown, slightly moist, medium dense.	
12						Total Depth: 11.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 5

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1434' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	36	CAL		92	8.0	**Alluvium:** Silty Sand w/ Clay (SM), trace Gravel, medium brown, slightly moist, dense.	
4							
5							
6	16	CAL		118	5.0	**Alluvium:** Silty Sand w/ Gravel (SM), reddish brown, slightly moist, medium dense.	
7							
8							
9							
10							
11	33	CAL		143	10.3	**Alluvium:** Gravelly Silty Sand w/ Clay (SM), med. brown, moist, cemented, medium dense.	
12						Total Depth: 11.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 6

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1434' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2	40	CAL		120	7.4	**Alluvium:** Silty Sand w/ Clay (SM), trace Gravel, reddish/medium brown, slightly moist, dense.	
3							
4	38	CAL					
5							
6	23	CAL		107	7.8		
7							
8	57	CAL		111	5.7	**Alluvium:** Gravel w/ fine to med. Sand and Silt (GW-GP), brown, slightly moist, dense.	
9							
10							
11	57	CAL		112	9.4	**Alluvium:** Gravelly Silty Sand (SM), reddish brown, slightly moist, dense.	
12							
13							
14							
15							
16	23	CAL		107	18.8	**Alluvium:** Clayey Silt w/ fine to med. sand (ML), reddish brown, moist, very stiff.	
17						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 7

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1434' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	31	CAL		115	6.0	**Alluvium:** Silty Sand (SM), trace Gravel, reddish brown, slightly moist, medium dense.	
4							
5	55	CAL		104	11.6	**Alluvium:** Fine to medium Sandy Clay (CL), reddish brown, slightly moist, hard.	
6							
7	55	CAL		103	10.9	**Alluvium:** Cemented Silty Sand w/ Clay (SM), trace Gravel, medium brown, moist, dense.	
8							
9							
10							
11	40	CAL		102	6.6	**Alluvium:** Silty Sand w/ Gravel (SM), brown, slightly moist, dense.	
12							
13							
14							
15							
16	36	CAL		107	14.9	**Alluvium:** Silty Sand w/ Clay (SM), trace Gravel, reddish brown, moist, dense.	
17						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 8

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1433' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2	39	CAL		112	6.2	**Alluvium:** Silty Sand (SM), trace Gravel, medium brown, slightly moist, dense.	
3							
4	47	CAL		94	3.8		
5							
6	37	CAL					
7							
8							
9							
10							
11	31	CAL		102	6.6	**Alluvium:** Sandy Clay (CL), red brown, slightly moist, mottled, very stiff.	
12							
13							
14							
15							
16	50	CAL		107	14.9	**Alluvium:** Fine to Medium Sand (SP), yellow brown, moist, dense.	
17						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
18							
19							
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21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 9

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/30/2019
Elevation: 1432' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	26	CAL		113	5.7	**Alluvium:** Silty Sand (SM), trace Gravel, medium-dark brown, slightly moist, medium dense.	
4							
5	44	CAL			4.8	Grades with up to 1/2" Gravel.	
6							
7	31	CAL		92	16.2	**Alluvium:** Fine Sandy Clay (CL), red-brown, moist, very stiff.	
8							
9							
10							Consolidation
11	28	CAL				**Alluvium:** Silt w/ fine-medium sand (ML), red-brown, slightly moist, very stiff.	
12							
13							
14							
15							
16	33	CAL		117	13.1	**Alluvium:** Silty Sand w/ Clay (SM), green brown, moist, medium dense.	
17							
18							
19							
20							
21	36	CAL		112	13.0	**Alluvium:** Silty Sand (SM), medium brown, moist, dense.	
22						Total Depth: 21.0 feet Groundwater not encountered Backfilled with tailings on 7/30/2019	
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 10

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1439' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	56	CAL		127	5.7	**Alluvium:** Fine to medium Sandy Clay (CL), trace gravel, med. brown, slightly moist, hard.	
4							
5							
6	42	CAL				**Alluvium:** Silty Sand (SM), trace Gravel, med brown, slightly moist, dense.	Direct Shear
7							
8	35	CAL				Grades more silt.	Consolidation
9							
10							
11	39	CAL		119	11.4	**Alluvium:** Fine to medium Sandy Clay (CL), red-brown, slightly moist, very stiff.	
12						Total Depth: 11.0 feet Groundwater not encountered Backfilled with tailings on 7/31/2019	
13							
14							
15							
16							
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BORING NO. 11

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1431' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1–2	21	CAL		97	6.9	**Alluvium:** Cemented Silty Sand w/ Gravel (SM), medium brown, slightly moist, medium dense.	#200 Wash 66% Passing #200 Sieve
3–4	26	CAL		117	7.5	**Alluvium:** Clayey Sand w/ Gravel (SC), medium-dark brown, slightly moist, medium dense.	
5–6	33	CAL		113	12.2	**Alluvium:** Sandy Clay (CL), mottled brown-gray, organics, slightly moist, very stiff.	
7–8	48	CAL		110	9.0	**Alluvium:** Clayey Sand (SC), trace Gravel, mottled red-brown, slightly moist, dense.	
9–10							
11	31	CAL		112	16.2		
12–15							
16	36	CAL		118	12.5		
17–30						Total Depth: 16.0 feet Groundwater not encountered Backfilled with tailings on 7/31/2019	

BORING NO. 12

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1431' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2							
3	26	CAL			6.9	**Alluvium:** Cemented Silty Sand w/ Gravel (SM), trace clay, med. brown, slightly moist, medium dense.	
4							
5							
6	51	CAL		113	11.1		
7							
8							
9							
10							
11	49	CAL		121	14.1	**Alluvium:** Silty Sand (SM), trace Gravel, red-brown, moist, dense.	
12						Total Depth: 11.0 feet Groundwater not encountered Backfilled with tailings on 7/31/2019	
13							
14							
15							
16							
17							
18							
19							
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29							
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LOG OF BORING

BORING NO. 13

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1432' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1							
2	27	SPT			9.2	**Alluvium:** Silty Sand (SM), red-brown, slightly moist, medium dense.	
3							
4	47	SPT			8.3	**Alluvium:** Sandy Clay (CL), trace Gravel, dark brown, slightly moist, hard.	
5							
6	58	SPT			8.9	Grades with up to 1/4" gravel, red-brown.	
7							
8							
9							
10							
11	43	SPT			15.3	**Alluvium:** Cemented Silty Sand (SM), red-brown, slightly moist, dense.	
12							
13							
14							
15							
16	49	SPT					
17						Total Depth: 16.5 feet Groundwater not encountered Backfilled with tailings on 7/31/2019	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

PERCOLATION TEST 1

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1432' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1–7						**Alluvium:** Silty Sand (SM), red-brown, slightly moist.	
8–10							
11	72	CAL		118	11.7	**Alluvium:** Cemented Silty Sand (SM), red-brown, moist, very dense.	
12–30						Total Depth: 11.0 feet Groundwater not encountered Perforated pipe and gravel installed for percolation test.	

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LOG OF BORING

PERCOLATION TEST 2

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1432' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1–7						**Alluvium:** Silty Sand w/ Clay (SM), dark brown, slightly moist.	
8–10							
11	27	CAL		103	20.8	**Alluvium:** Sandy Clay (CL), red-brown, moist, very stiff.	
12–30						Total Depth: 11.0 feet Groundwater not encountered Perforated pipe and gravel installed for percolation test.	

PERCOLATION TEST 3

Logged by: KO
Method of Drilling: 8-inch diameter hollow-stem auger - CME 75
Date Drilled: 7/31/2019
Elevation: 1432' msl

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
1–7						**Alluvium:** Silty Sand w/ Clay (SM), med. brown, slightly moist. Grades with Clay.	
8–10							
11	36	CAL		117	15.1	**Alluvium:** Sandy Clay (CL), trace Gravel, red-brown, moist, very stiff.	
12–30						Total Depth: 11.0 feet Groundwater not encountered Perforated pipe and gravel installed for percolation test	

APPENDIX C

LABORATORY TESTING PROCEDURES

APPENDIX C

LABORATORY TESTING PROCEDURES

1. Classification

Soils were classified visually, generally according to the Unified Soil Classification System. Classification tests were also completed on representative samples in accordance with ASTM D1140 ("200 Wash"). The test results are included on the Log of Borings.

2. Maximum Density

Maximum density tests were performed on a representative bag sample of the near surface soils in accordance with ASTM D1557.

3. Direct Shear

Direct Shear Tests were performed on in-place and remolded samples of site soils in accordance with ASTM D3080. Graphical plots of the tests are included in this appendix.

4. Consolidation

Consolidation tests were performed on representative, relatively undisturbed samples of the underlying soils to determine compressibility characteristics in accordance with ASTM D2435. Test results are presented in this appendix.

5. R-Value Testing

R-Value testing was completed in substantial compliance with Caltrans Test Method 301. Graphical plots of the tests are included in this appendix.

6. Expansion Index

Expansion Index testing was completed in accordance with the standard test method ASTM D4829. Test results are presented below.

Sample Location	Expansion Index	Expansion Classification
B-1 @ 0-5 ft	5	Very Low
B-10 @ 0-5 ft	15	Very Low

7. Corrosion

Chemical testing was performed on representative samples to determine the corrosion potential of the onsite soils. Testing consisted of pH, chlorides (CTM 422), soluble sulfates (CTM 417), and resistivity (CTM 643). Test results are as follows:

Sample Location	pH	Chlorides (ppm)	Sulfates (ppm)	Resistivity (ohm-cm
B-3 @ 0-5 ft	8.3	86	210	1,000

8. Agricultural Suitability

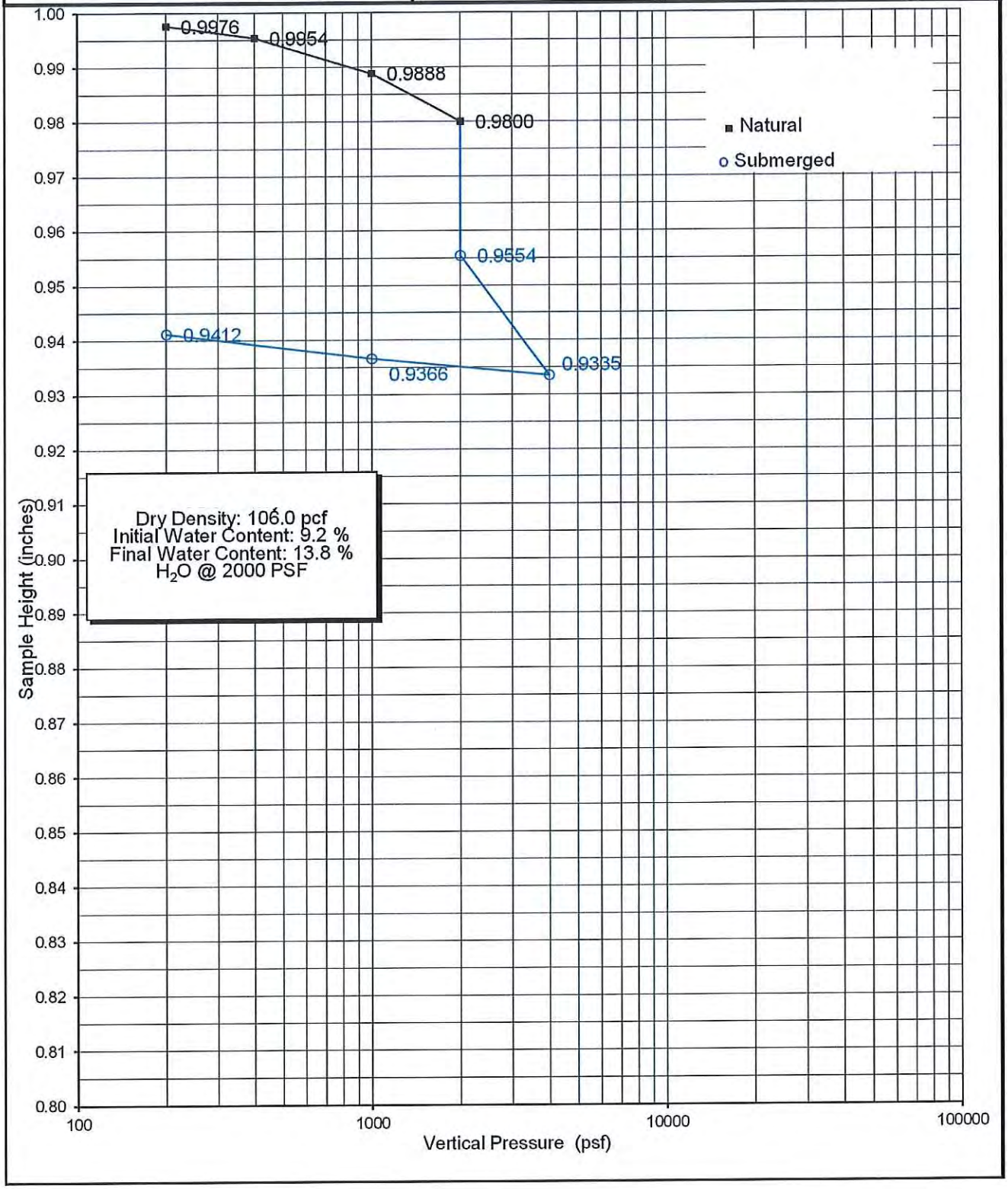
Agricultural suitability was conducted by Waypoint Analytical on of a representative sample of the site soils obtained by MTG$_L$, Inc. Analysis of the test results and recommendations regarding landscape installation is presented in Appendix E of this report.

MTGL # 8767A02

CONSOLIDATION TEST - ASTM D2435

Job No. 2012-0123

Boring / Sample No.	B-3	Depth:	3.0'	Date	08-08-19



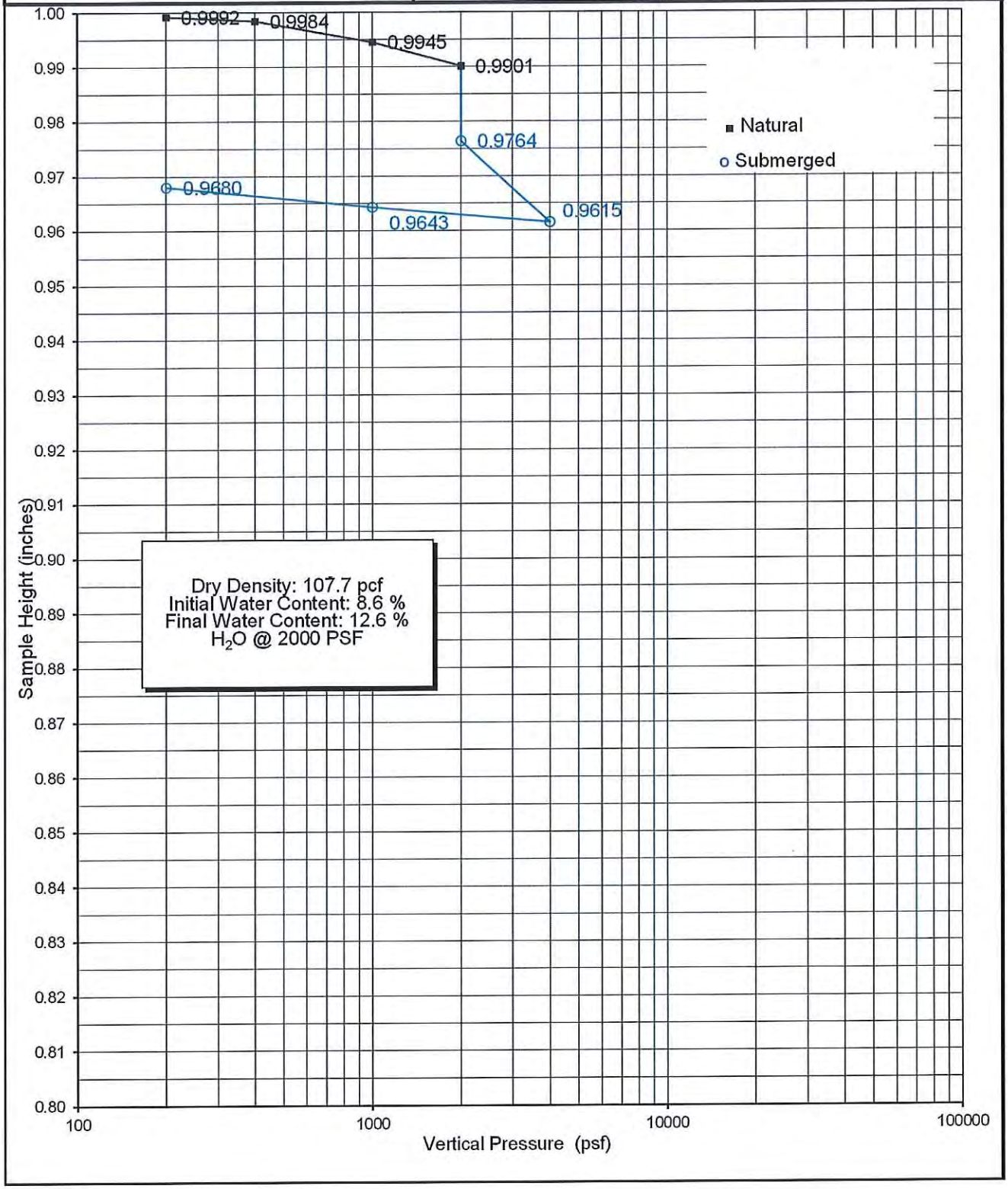
Geo-Logic ASSOCIATES

MTGL # 8767A02

CONSOLIDATION TEST - ASTM D2435

Job No. 2012-0123

Boring / Sample No.	B-10	Depth:	7.5'	Date	08-08-19



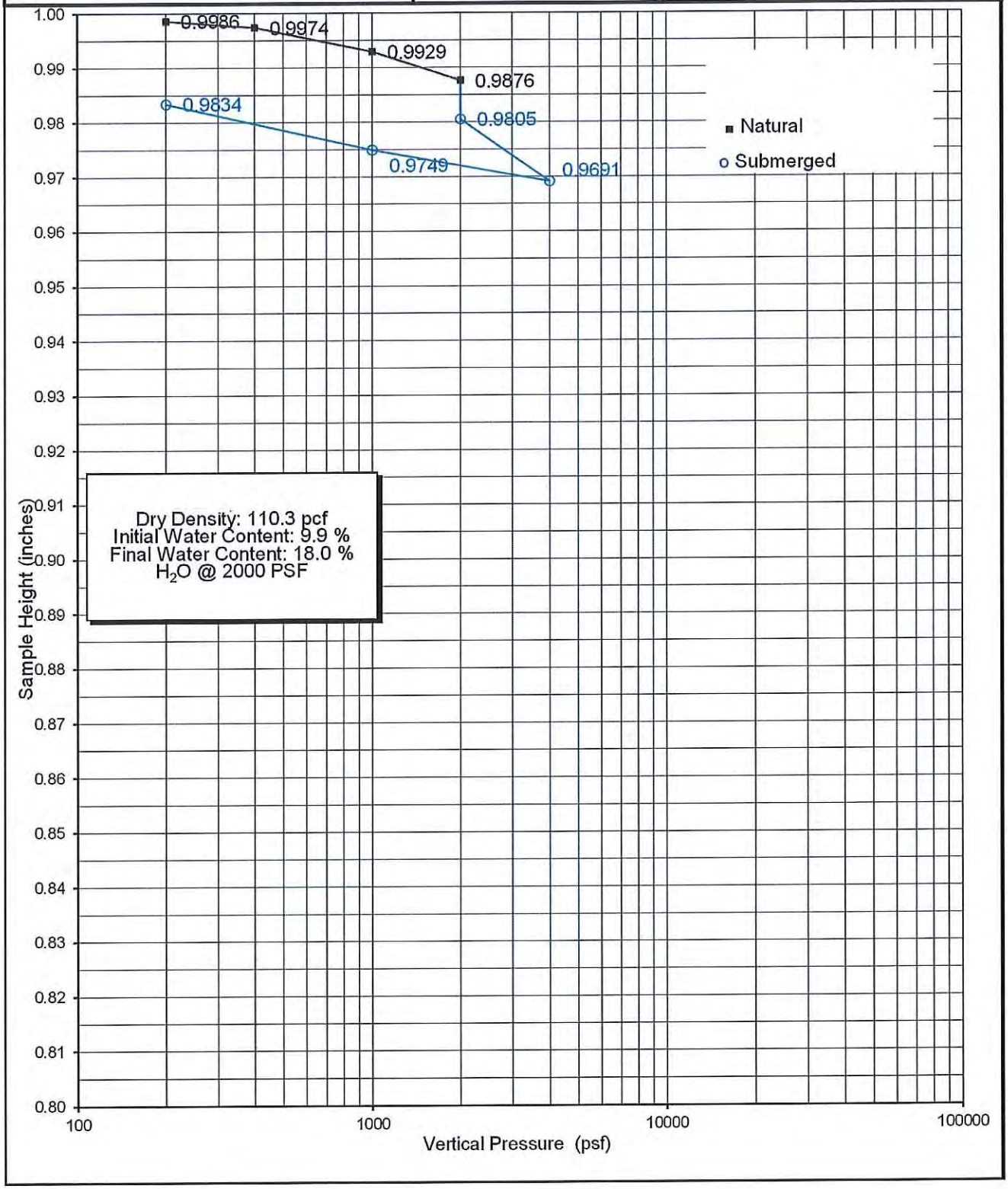
Geo-Logic ASSOCIATES

MTGL # 8767A02

CONSOLIDATION TEST - ASTM D2435

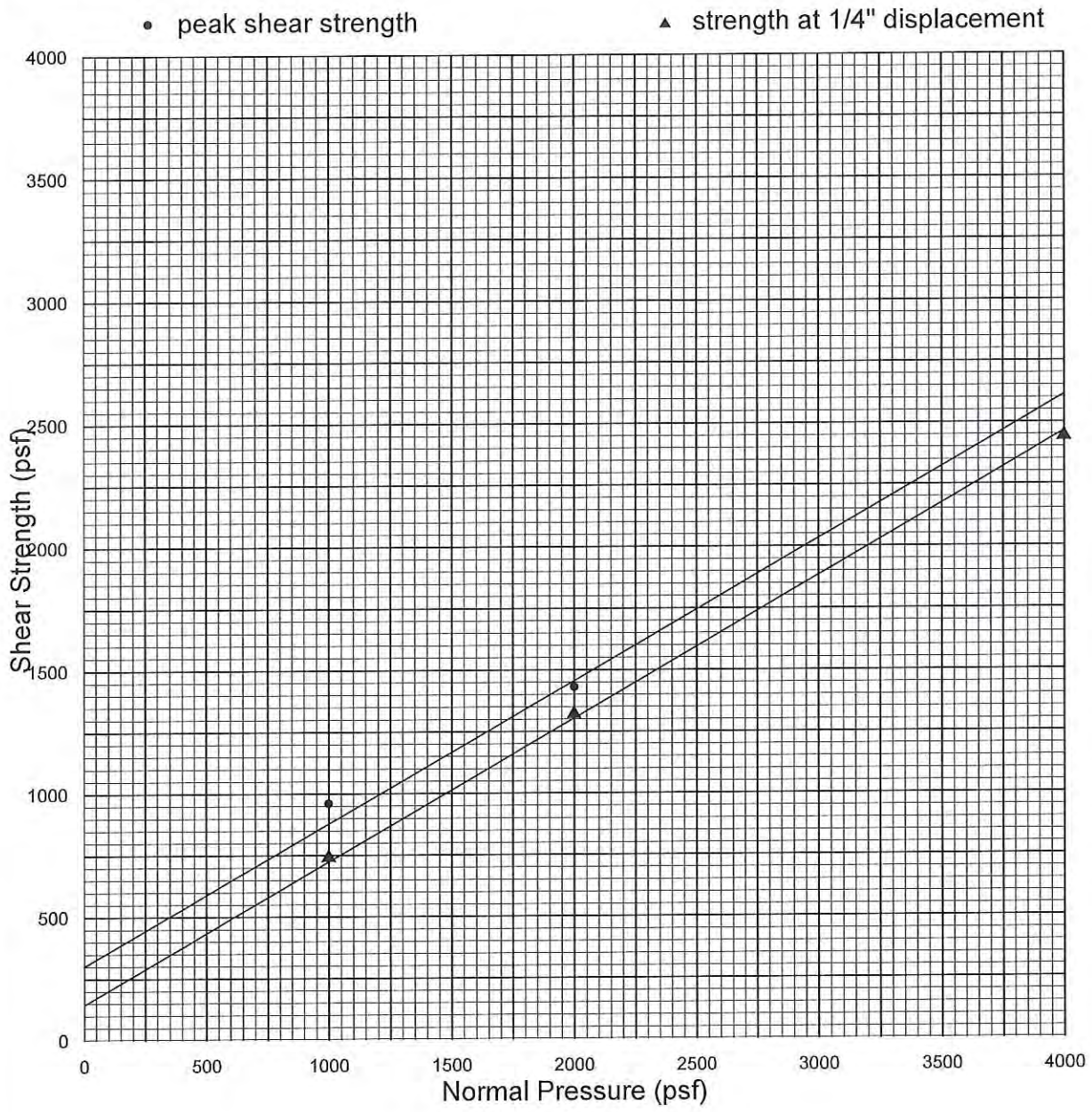
Job No. 2012-0123

Boring / Sample No.	B-9	Depth:	10.0'	Date	08-08-19



Geo-Logic ASSOCIATES

DIRECT SHEAR TEST - ASTM D-3080



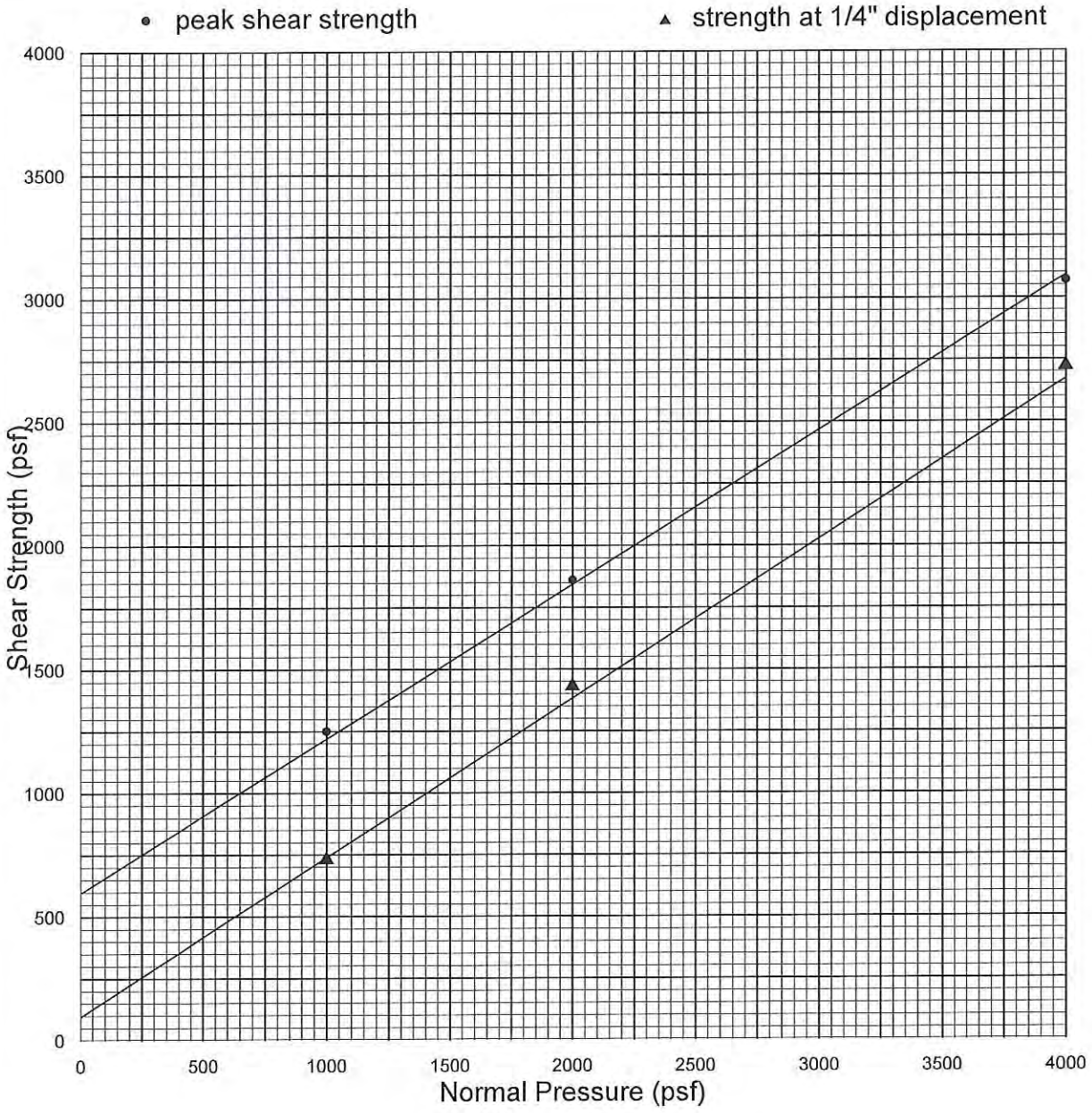
Strain Rate: 0.0084 in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
B1 @ 0-5'	Remolded & Saturated	Clayey Sand		10.5	15.7

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	960 @ 0.0655"	740
2000	1430 @ 0.0800"	1320
4000	2440 @ 0.2405"	2440
	C = 150 psf	C = 300 psf
	ϕ = 30 deg.	ϕ = 30 deg.

Date: 08-16-19

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

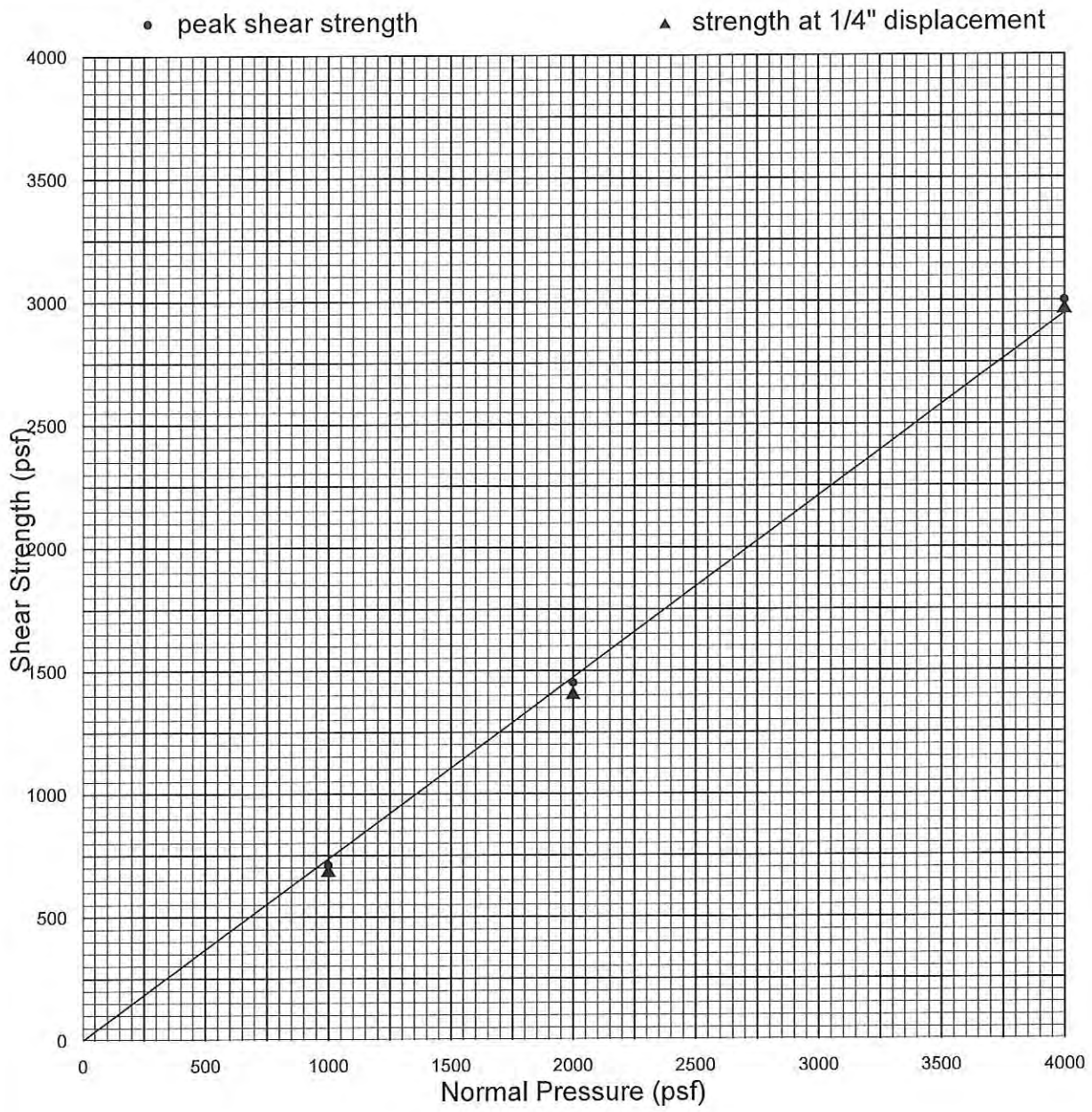
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
B2 @ 2'	Undisturbed & Saturated	Clayey Sand	129.5	7.8	12.8

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	1250 @ 0.0705"	730
2000	1860 @ 0.0900"	1430
4000	3070 @ 0.1150"	2720
	C = 600 psf	C = 100 psf
	ϕ = 31 deg.	ϕ = 31 deg.

Date: 08-16-19

GeoLogic Associates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

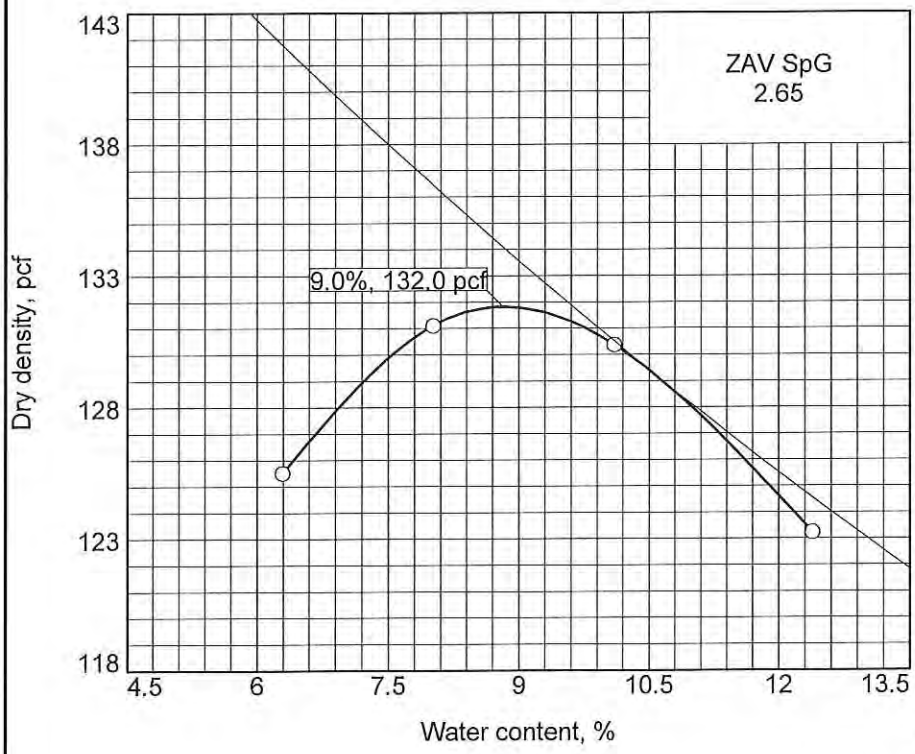
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
B10 @ 5'	Undisturbed & Saturated	Sandy Clay	119.1	5.7	14.4

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	710 @ 0.0755"	680
2000	1450 @ 0.1605	1400
4000	3000 @ 0.2055"	2960
	C = 0 psf	C = 0 psf
	ϕ = 36 deg.	ϕ = 36 deg.

Date: 08-16-19

GeoLogic Associates

COMPACTION TEST REPORT



Curve No.
565

Test Specification:
ASTM D 1557-12 Method A Modified

Preparation Method MOIST
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 25
Mold Size 0.03333 cu. ft.
Test Performed on Material Passing #4 **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) 2.65
%>#4 _____ **%<No.200** _____
USCS (CL) **AASHTO** _____
Date Sampled 7/30/19
Date Tested 8/1/19
Tested By RS

TESTING DATA

	1	2	3	4	5	6
WM + WS	6220.0	6296.0	6267.0	6143.0		
WM	4126.0	4126.0	4126.0	4126.0		
WW + T #1	369.3	349.1	316.9	327.8		
WD + T #1	328.6	317.1	293.4	308.4		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.4	10.1	8.0	6.3		
DRY DENSITY	123.2	130.4	131.1	125.5		

TEST RESULTS

Maximum dry density = 132.0 pcf

Optimum moisture = 9.0 %

Project No. 8767A02 **Client:**
Project: MENIFEE STADIUM

○ **Location:** B1@0-5' BULK **Sample Number:** 565

MTGL, Inc.

Anaheim, CA

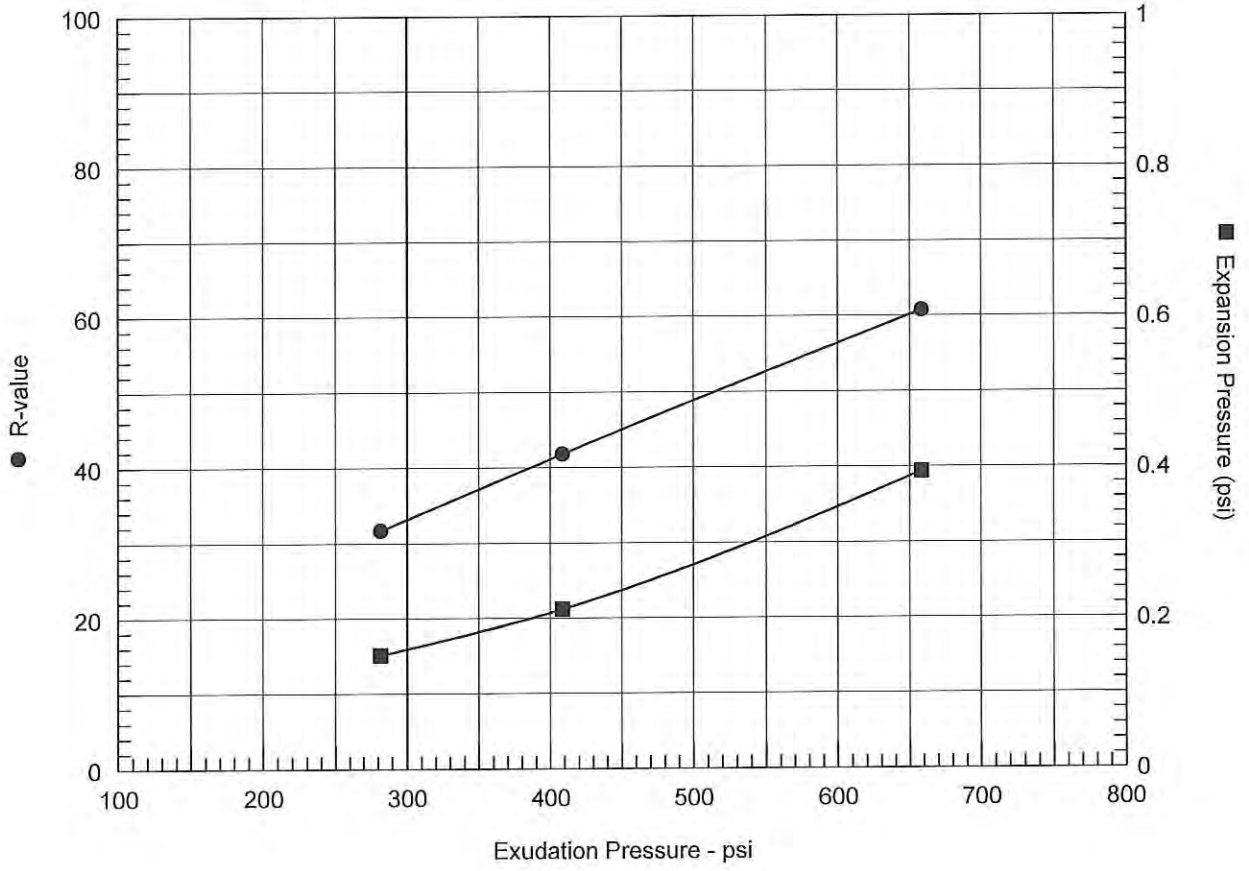
Material Description

Remarks:
SAMPLED BY: PN

Checked by: CF
Title: LAB SUPER

Figure

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	350	128.8	9.5	0.39	28	2.40	658	63.2	60.8
2	200	125.7	10.9	0.15	72	2.45	282	31.7	31.7
3	250	126.5	10.5	0.21	52	2.43	408	43.6	41.8

Test Results	Material Description
R-value at 300 psi exudation pressure = 33.2 **Exp. pressure at 300 psi exudation pressure =** 0.16 psi	

Project No.: 8767A02
Project: MENIFEE STADIUM
Location: B1@0-5' BULK
Sample Number: 565
Date: 8/6/2019

Tested by:
Checked by:
Remarks:

R-VALUE TEST REPORT

MTGL, Inc.

Figure ____

APPENDIX D

"Limited Engineering Geologic Hazard Evaluation of Property"
Anderson Geology Consulting, LLC,
Project No. 18030-01,
Dated August 20, 2018

Anderson Geology

August, 2019

Project No. 18030-01

To: MTGL Inc.
2992 East La Palma Avenue, Suite A
Anaheim, California 92806

Attention: Mr. Pablo Naranjo

Subject: Limited Engineering Geologic Hazard Evaluation of Property
Proposed Stadium Facility and Associated Parking/Support Structures
28237 La Piedra Road, City of Menifee, California

Introduction

At your request, ANDERSON GEOLOGY CONSULTING, LLC. (AG) has prepared a limited engineering geologic hazard evaluation for the proposed stadium structure and associated parking and support buildings at Mt. San Jacinto Community College, 28237 La Piedra Road, City of Menifee, California (Figure 1). It is our understanding that the proposed improvements include construction of a new sports complex consisting of an approximately 5000-seat stadium with associated parking and support structures along the southwest portion of the subject site. The purpose of this evaluation was to characterize site geologic and geotechnical conditions, to assess potential geologic and seismic hazards, and to provide generalized conclusions and recommendations with respect to the impact of the identified hazards to the proposed onsite development. Environmental hazards were not addressed as part of the current scope of work. This hazard evaluation has been prepared in general conformance with the *Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings (CGS Note 48, 2013).*

Scope of Services

- Review of the referenced geologic maps and reports for the subject site and surrounding area.
- Review of site specific geotechnical data provided by MTGL;
- Seismic and geologic hazard analysis for the site and surrounding area; and
- Preparation of this report and its illustrations.

This Report presents our findings, conclusions and recommendations of a limited engineering geologic hazard evaluation for the subject site. It should be noted that this hazard evaluation did not include subsurface exploration and it is understood that in-depth investigation of soil, geologic and foundation conditions, are outside the scope of services requested. This work does not warranty the future performance of the property in any respect, nor does the work constitute an approval or certification of prior or future work by other geotechnical consultants. The scope of work does not include laboratory testing of soil samples, nor specific recommendations for design and construction of the proposed improvements. AG's expertise and scope of services do not include assessment of potential subsurface environmental contaminants or environmental health hazards.

List of Illustrations

Figure 1 – Site Location and Seismic Hazards Map – Rear of Text
Figure 2 – Geologic Map– Rear of Text
Figure 3 – Regional Fault Map – Rear of Text
Appendix A – References
Appendix B – Seismic Deaggregation
Appendix C – Seismic Design Criteria

Site Location and History

The subject site is located at 28237 La Piedra Road, City of Menifee, California (Figure 1) within the Mt. San Jacinto Community College campus. The site is bounded to the north by La Piedra Road, east by the Valley Wide Recreation and Parks District Menifee Gym, south by Albion Lane and west by Antelope Road. Residential communities are located to the north, south and east of the subject site.

The proposed building area is situated along the southeast portion of the Mt. San Jacinto Community College campus. Based on a review of the site topographic map prepared by Cozad & Fox, Inc., the site is located at an elevation of approximately 1,434-feet above mean sea level (msl). The site is essentially level with maximum grade changes of less than 4-feet across the area of proposed development. Grade changes across the site are accommodated through gently sloping ground throughout the site. No significant retaining structures and or slopes were identified during our site review.

The site is currently developed as the Mt. San Jacinto Community College (Mt. San Jacinto Community College District) and is developed with classrooms, office and administrative space, athletic facilities, associated structures, asphalt paved parking and utility infrastructure. The location of the proposed development currently consists of a turf athletic area as well as undeveloped fields.

No information regarding past site grading or development was reviewed for the subject site and surrounding area. Past grading is anticipated to have occurred during construction of the building pads and associated structures, parking areas and hardscape improvements, as well as during construction of the adjacent streets and utility infrastructure.

Geologic Setting

The subject site is regionally located in the west-central portion of the Perris Block, within the northern Peninsular Ranges Geomorphic Province of Southern California, near the intersection of the east-central boundary of the Transverse Range Provence and southern boundary of the Mojave Desert Provence. The Perris Block is a relatively stable, internally unfaulted mass of crustal rocks bounded to the north-northeast by the San Jacinto Fault and to the south-southwest by the Elsinore Fault. Locally the site is situated within the Menifee Valley, located between Perris Valley to the north and Paloma Valley to the south. Based on regional geologic mapping (USGS, 1991) the site is anticipated to be underlain by Holocene age, younger alluvium (Qya) partially derived from the older alluvium in the surrounding area. The alluvial material is reported to consist of unconsolidated gray to brown medium to coarse-grained sandy alluvium. The alluvial material is anticipated to be underlain at depth by cretaceous age volcanic rocks of the Peninsular Range batholith and Mesozoic age meta-sedimentary and volcanic rocks.

Earth Materials

Exploratory borings performed by MTGL (2019) indicate that the site is underlain to a maximum-drilled depth of 51.5 feet by medium dense alluvial deposits. The alluvial deposits consist predominantly of dark reddish brown to brown clayey to silty sands and sandy silts. The alluvial deposits are reported to be generally moist and medium dense to stiff. Groundwater was not encountered to a maximum-drilled depth of 51.5-feet bgs.

GEOLOGIC HAZARDS

Structure

The alluvial deposits exposed at the site are generally massive clayey to silty sands and sandy silts with no significant geologic structure. The underlying bedrock is not exposed at the site, and is anticipated to be located at a depth of greater than 50-feet below existing ground surface. Since the bedrock is not present within sloping areas, and is covered by a massive sequence of alluvial deposits, there is no known adverse geologic bedding structure that is likely to affect stability at the site.

Slope Stability

Our findings indicate that the site is composed of massive alluvial deposits with no significant geologic structure. No evidence of deep-seated gross instability was noted at the site during our literature and map review, or during MTGL's site-specific investigation. Based upon the past performance of the site and nearby slopes, the site appears to have performed well since the site was originally constructed.

Slope creep is not expected to be significant on this lot due to the relatively flat nature of the site. Other slope effects such as erosion should not adversely affect proposed improvements providing appropriate foundation setbacks are utilized, runoff is controlled and slopes and drainage features are properly maintained.

To our understanding, no slopes are planned as part of the proposed construction. Planned structures are expected to obtain bearing at depths and setbacks outside of the influence of the existing slopes and or adjacent retaining walls. Any planned building structures that are constructed along the top of slopes should be constructed with deepened foundation elements as necessary to maintain setbacks from the bottom of the footings at least equal to a horizontal distance of H/3 to the slope surface. Perimeter footings should not be allowed to surcharge existing retaining walls on adjoining properties. In general, these conditions are not expected to affect foundation construction based on current conceptual plans.

Groundwater

Groundwater was not encountered during MTGL's site exploration to a maximum drilled depth of 51.5-feet bgs. Perched groundwater can occur at shallow depth within the alluvial deposits and at the alluvium-bedrock contact. Groundwater is anticipated to remain at depths greater than 50-feet and is not anticipated to be a significant design or construction constraint, provided proper surface drainage and subdrainage systems (if necessary) are incorporated into the project.

Water Infiltration

Introduction of subsurface water could adversely impact the subject site and/or neighboring properties. In general, surface and subsurface drainage should be directed toward approved offsite outlets. If onsite

infiltration is proposed, additional infiltration testing should be performed for the subject site by the geotechnical consultant.

Surficial Runoff

Proposed development should incorporate engineering and landscape drainage designed to transmit surface flow to the street and/or storm drain system via non-erosive pathways. Care should be taken to not allow water to pond or infiltrate soil adjacent to foundation elements.

Faulting / Seismic Considerations

The major concern relating to geologic faults is ground shaking that affects many properties over a wide area. Direct hazards from faulting are essentially due to surface rupture along fault lines that could occur during an earthquake. Therefore, geologists have mapped fault locations and established a criteria for determining the risks of potential surface rupture based on the likelihood of renewed movement on faults that could be located under a site.

Based on criteria established by the California Division of Mines and Geology (CDMG), now referred to as the California Geological Survey (CGS), faults are generally categorized as active, potentially active or inactive (Jennings, 1994). The basic principle of faulting concern is that existing faults could move again, and that faults which have moved more recently are the most likely faults to move again and affect us. As such, faults have been divided into categories based on their age of last movement. Although the likelihood of an earthquake or movement to occur on a given fault significantly decreases with inactivity over geologic time, the potential for such events to occur on any fault cannot be eliminated within the current level of understanding.

By definition, faults with no evidence of surface displacement within the last 1.6 million years are considered inactive and generally pose no concern for earthquakes due to renewed movement. Potentially-active faults are those with the surface displacement within the last 1.6 million years. Further refinement of potentially active faults are sometimes described based on the age of the last known movement such as late Quaternary (last 700,000 years) implying a greater potential for renewed movement. In fact, most potentially active faults have little likelihood of moving within the time frame of construction life, but the degree of understanding of fault age and activity is sometimes not well understood due to absence of geologic data or surface information, so geologists have acknowledged this doubt by using the term "potentially active." A few faults that were once thought to be potentially active, have later been found to be active based on new findings and mapping. Active faults are those with a surface displacement within the last 11,000 years and therefore most likely to move again. The State of California has, additionally, mapped known areas of active faulting as designated Alquist-Priolo (A-P) "Special Studies Zones," which requires special investigations for fault rupture to limit construction over active faults.

The site is not located within a fault-rupture hazard zone as defined by the Alquist-Priolo Special Studies Zones Act (CDMG, 1974) and no evidence of active faulting has been reported onsite (Figure 1). Also, based on mapping by the State (CGS, 2010 and Jennings, 1994), there are no active faults mapped at the site. The site is however bounded to the north-northeast by the San Jacinto Fault Zone and to the south-southwest by the Elsinore Fault Zone. Both of these fault zones are considered active and capable of producing significant ground shaking (magnitude 8+) during a seismic event.

The closest major active faults to the site are the San Jacinto Fault located approximately 22.18 km north-northeast of the site and the Elsinore Fault located approximately 12.21 km to the south-southeast of the site (Figure 3).

CBC Seismic Ground Motion Analysis

The seismic design criteria based on the 2016 California Building Code (CBC) is presented in the following table:

Selected Seismic Design Parameters from 2016 CBC/ASCE 7-10	*Seismic Design Values*	*Reference*
Latitude	33.6750 North	
Longitude	-117.1675 West	
Nearest Seismic Source	Elsinore Fault	USGS 2014
Distance to Nearest Seismic Source	7.6 Miles (12.2 km)	USGS 2014
Site Class per Table 20.3-1 of ASCE 7-10	D	OSHPD, 2019
Spectral Acceleration for Short Periods (Ss)	1.5 g	OSHPD, 2019
Spectral Accelerations for 1-Second Periods (S1)	0.6 g	OSHPD, 2019
Site Coefficient F_a, Table 11.4-1 of ASCE 7-10	1.000	OSHPD, 2019
Site Coefficient F_v, Table 11.4-2 of ASCE 7-10	1.500	OSHPD, 2019
Design Spectral Response Acceleration at Short Periods (S_{DS}) from Equation 11.4-4 of ASCE 7-10	1.0 g	OSHPD, 2019
Design Spectral Response Acceleration at 1-Second Period (S_{D1}) from Equation 11.4-4 of ASCE 7-10	0.6 g	OSHPD, 2019
Peak Ground Acceleration (MCE_R) Corrected for Site Class Effects from Equation 11.8-1 of ASCE 7-10	0.505 g	OSHPD, 2019
Seismic Design Category, Section 11.6 of ASCE 7-10	D	OSHPD, 2019

Historical Seismicity

A search of recorded historical seismic events within a 50km radius of the subject site was performed using the USGS website. A total of 12 seismic events with a magnitude of 4.5 or greater have occurred within a 50km radius since 1900. The closest seismic event was a magnitude 5.3 earthquake that occurred on September 23, 1985, approximately, 21.4 km east of the site (N33.704N, W-116.938). The largest reported seismic event was a magnitude 6.7 earthquake (San Jacinto Earthquake) that occurred on April 21, 1918 approximately 24.8 km west of the site (N33.647, W-117.433). No earthquakes are reported to have occurred below the subject site, however, the site and surrounding area will be subject to significant shaking during seismic events on local and regional faults and future earthquakes should be anticipated.

Secondary Seismic Hazards

Review of the Technical Background Report to the Safety Element of the General Plan -City of Menifee, Riverside County- (2010) indicates the site is not located within a zone of liquefaction or landslide susceptibility. These findings are in keeping with the results of our study.

Other secondary seismic hazards to the site include deep rupture, shallow ground cracking, lurching with lateral movement and settlement. With the absence of active faulting onsite, the potential for deep fault

rupture is not present. The potential for shallow ground cracking to occur during an earthquake is a possibility at any site, and may occur during significant seismic events on nearby faults. The potential for seismically induced lurching is considered low due to the gently sloping nature of the site and surrounding area. The potential for seismically induced settlement is considered moderate due to the presence of unconsolidated alluvial deposits underlying the site. The potential for settlement should be addressed during design and construction of the proposed improvements. The potential for tsunami inundation at the site elevation is nil.

The subject site is not located within a 100 or 500-year flood hazard area as identified by FEMA flood hazard maps and the City Menifee Safety Element (2010). The site is, however, located within a mapped potential dam inundation area.

CONCLUSION AND RECOMMENDATIONS

Based on our limited engineering geologic hazard evaluation of the subject site and our understanding of the proposed improvements, construction of the proposed stadium structure and associated parking and support buildings appears feasible from an geologic hazard standpoint, providing our recommendations are considered during design, grading and construction of the proposed improvements.

Conclusions

The geologic hazards at the site are primarily from shaking due to movement of nearby or distant faults during earthquake events. The site consists of a flat lot located on gently sloping alluvial deposits. There is no adverse geologic structure, active faulting beneath the site, shallow groundwater or other indications of geologic hazards that would affect the site as previously discussed.

- The subject site is anticipated to be underlain at depth by crystalline bedrock. The bedrock is overlain by alluvial deposits. The alluvial deposits are anticipated to generally consist of medium dense to stiff clayey to silty sands and sandy silts.
- No active faults are known to transect the site and therefore the site is not expected to be adversely affected by surface rupturing. It will, however, be affected by ground motions from earthquakes during the design life of the site. The potential for seismically induced liquefaction affecting the site is considered low.
- The potential for seismically induced settlement is considered moderate due to the presence of unconsolidated alluvial deposits underlying the site.
- Groundwater is not expected to be a concern during construction. Suitable drainage elements need to be installed at retaining walls to mitigate possible transient seepage.
- The potential for land sliding affecting the site is considered to be very low given the gently sloping nature of the site and the massive nature of the alluvial deposits underlying the site.

Recommendations

Proposed improvements to the subject site should be designed and built in conformance with current California Building Code standards (CBSC, 2016) and ASCE standards (ASCE, 2010) as well as the requirements of the City of Menifee and County of Riverside. The recommendations provided by MTGL should also be implemented during design, grading and construction of the proposed improvements.

Limitations

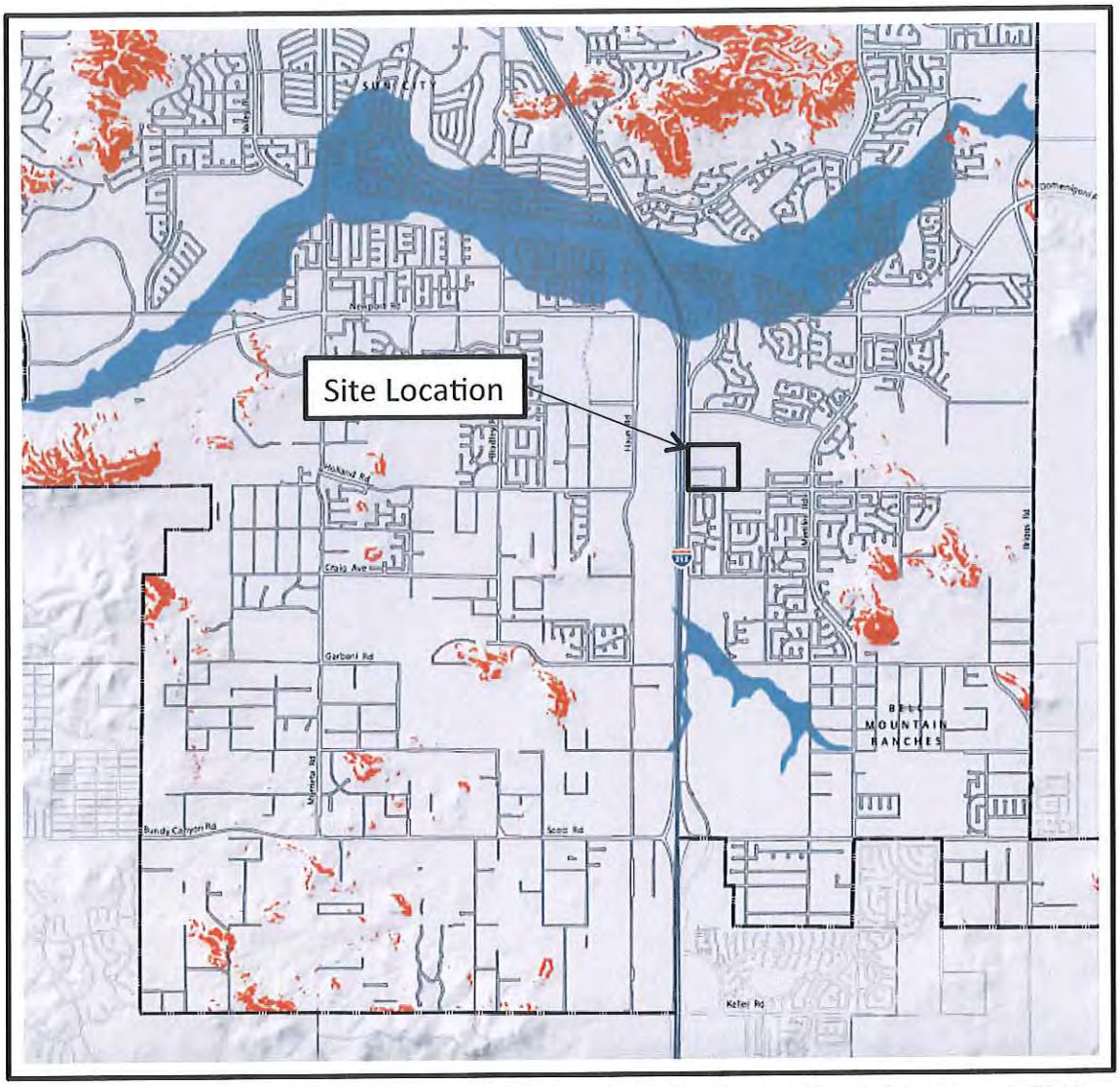
This report has been prepared for the exclusive use of our client, MTGL Inc, within the scope of services requested by our client for the specific property at 28237 La Piedra Road, City of Menifee described herein. This report or its contents should not be used or relied upon for other projects or purposes, or by other parties without the acknowledgement of AG and the consultation of a geotechnical professional. The means and methods used by AG for this study are based on local geotechnical standards of practice, care, and requirements of governing agencies. No warranty or guarantee, expressed or implied, is given.

Our findings, conclusions, and recommendations are professional opinions based on a review of available existing geologic/seismic data as well as site specific subsurface data collected at a given time by outside consultants. By nature, geologic conditions can vary from point to point, can be very different in-between exploration points, and can also change over time. Our conclusions and recommendations are, by nature, preliminary and subject to verification and/or modification during grading and construction when more subsurface data is exposed.

If you have any questions regarding this report, please contact our office. We appreciate the opportunity to provide our services.

Respectfully submitted,

Peter Anderson CEG 2596
Principal Engineering Geologist



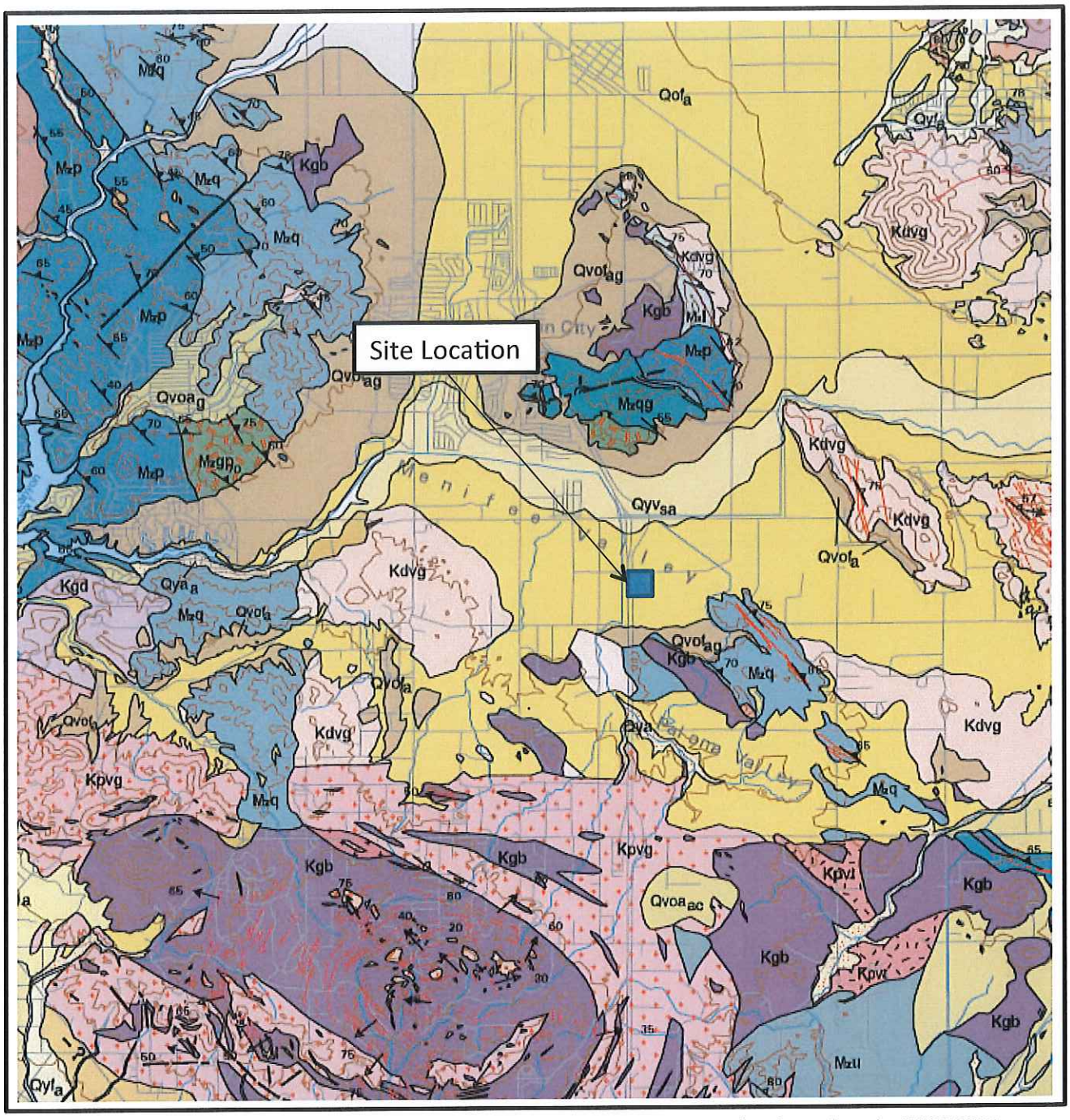
Source: City of Menifee General Plan-Safety Element, 2010

SEISMIC HAZARDS

Liquefaction: Areas where local geological and groundwater conditions suggest a potential for liquefaction.

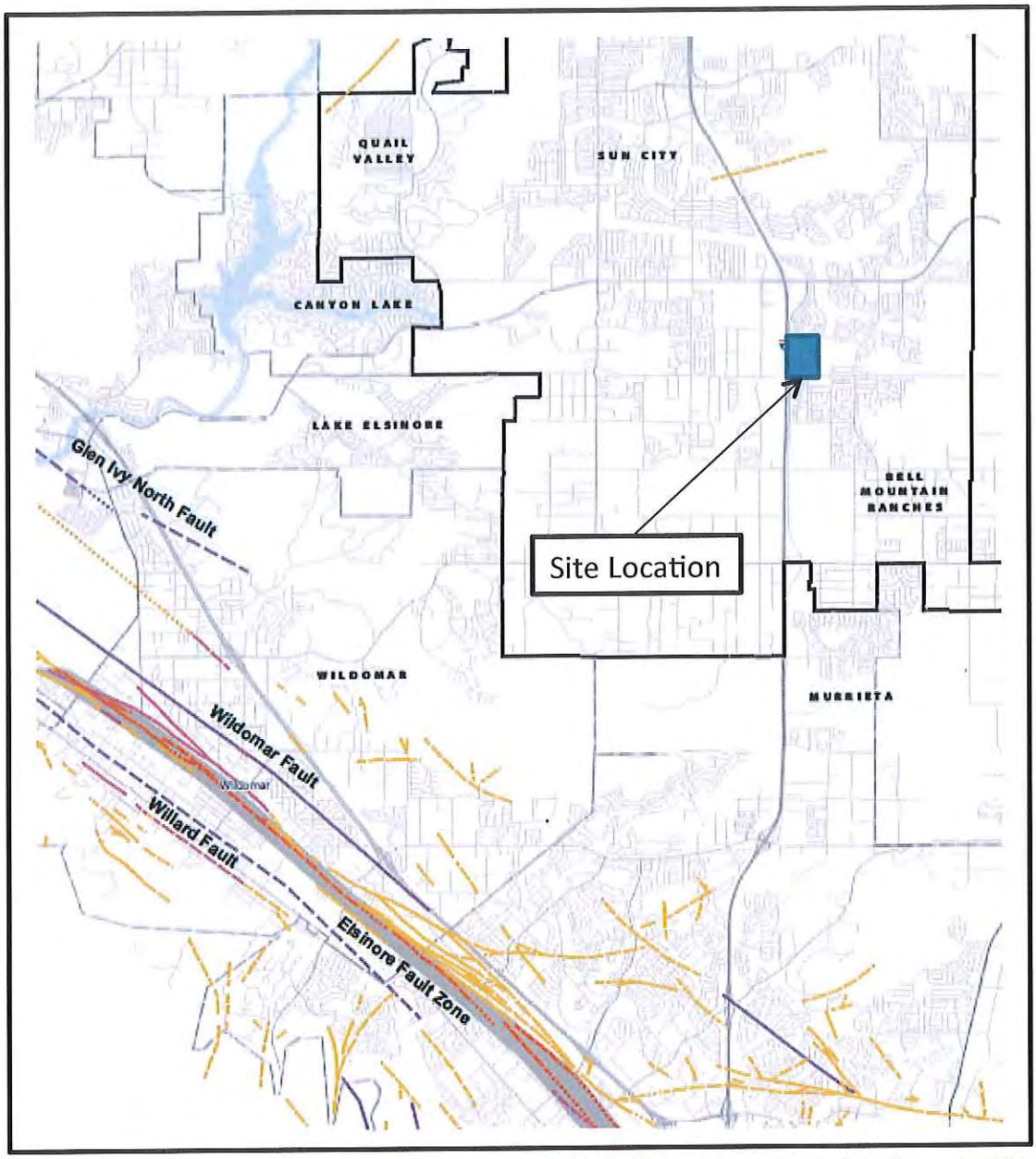
Landslide: Areas where local topographic and geological conditions suggest the potential for earthquake-induced landslides.

Site Location and Seismic Hazard Map		
Mt. San Jacinto Community College 28237 La Piedra Road City of Menifee, California	Project Number: 19016-01 Date: August 2019 Figure No. 1	A/G



Source: Source: Santa Ana 30'x60' Quadrangle, USGS 2004

Geologic Map		
Mt. San Jacinto Community College 28237 La Piedra Road City of Menifee, California	Project Number: 19016-01 Date: August 2019 Figure No. 2	A/G



Source: City of Menifee General Plan-Safety Element, 2010

Active fault zoned under the Alquist-Priolo Earthquake Fault Zone Act. (CGS; 2002)	Fault that has not moved in the Halocene or late Pleistocene. (Morton & Miller; 2006)	Fault that has moved in the Holocene or late Pleistocene. (Morton & Miller; 2006)	Faults that has moved in the Quaternary. (Jennings; 1994)	Faults that predates the Quaternary. (Jennings;1994)
Inferred Location	Inferred Location	Inferred Location	Inferred Location	Inferred Location
Approximate Location	Approximate Location	Approximate Location	Approximate Location	Approximate Location
Knoiwn Location	Known Location	Known Location	Known Location	Known Location

Fault Map

Mt. San Jacinto Community College
28237 La Piedra Road
City of Menifee, California

Project Number: 19016-01
Date: August 2019
Figure No. 3

A/G

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2014 (v4.

Spectral Period

Peak ground acceleration

Latitude

Decimal degrees

33.675

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes

-117.1675

Site Class

Please select...

Hazard Curve

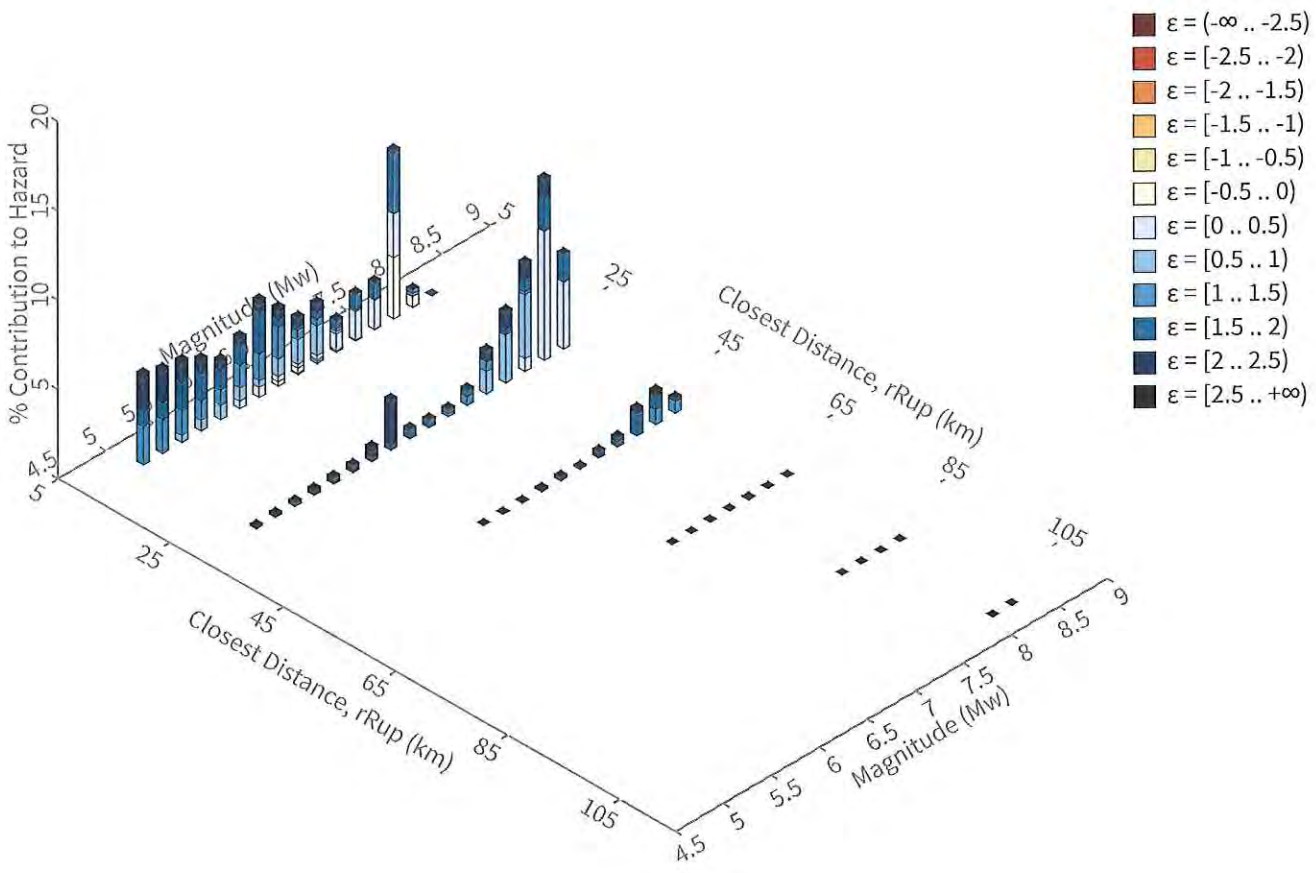
Please select “Edition”, “Location” & “Site Class” above to compute a hazard curve.

Compute Hazard Curve

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.85498778 g

Recovered targets

Return period: 2856.8418 yrs
Exceedance rate: 0.00035003688 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.12 %

Mean (for all sources)

r: 17.43 km
m: 6.94
ε_0: 1.24 σ

Mode (largest r-m bin)

r: 22.33 km
m: 8.1
ε_0: 0.81 σ
Contribution: 10.12 %

Mode (largest ε_0 bin)

r: 22.18 km
m: 8.1
ε_0: 0.36 σ
Contribution: 7.21 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM32	System							31.81
San Jacinto (Stepovers Combined) [2]		22.18	7.99	0.89	116.989°W	33.809°N	47.93	13.15
Elsinore (Temecula) rev [0]		12.21	7.48	0.74	117.249°W	33.590°N	218.65	9.59
Elsinore (Glen Ivy) rev [3]		19.07	6.44	1.72	117.373°W	33.685°N	273.48	1.87
San Andreas (San Bernardino S) [6]		45.07	7.96	1.79	116.820°W	33.959°N	45.38	1.74
Elsinore (Glen Ivy) rev [2]		24.66	6.53	1.96	117.428°W	33.721°N	282.02	1.53
UC33brAvg_FM31	System							31.69
San Jacinto (Stepovers Combined) [2]		22.18	8.00	0.89	116.989°W	33.809°N	47.93	13.23
Elsinore (Temecula) rev [0]		12.21	7.44	0.76	117.249°W	33.590°N	218.65	9.53
Elsinore (Glen Ivy) rev [3]		19.07	6.44	1.72	117.373°W	33.685°N	273.48	1.83
San Andreas (San Bernardino S) [6]		45.07	7.95	1.79	116.820°W	33.959°N	45.38	1.73
Elsinore (Glen Ivy) rev [2]		24.66	6.50	1.98	117.428°W	33.721°N	282.02	1.47
UC33brAvg_FM31 (opt)	Grid							18.26
PointSourceFinite: -117.168, 33.733		7.69	5.81	1.31	117.168°W	33.733°N	0.00	2.41
PointSourceFinite: -117.168, 33.733		7.69	5.81	1.31	117.168°W	33.733°N	0.00	2.41
PointSourceFinite: -117.168, 33.715		6.59	5.70	1.25	117.168°W	33.715°N	0.00	2.34
PointSourceFinite: -117.168, 33.715		6.59	5.70	1.25	117.168°W	33.715°N	0.00	2.34
UC33brAvg_FM32 (opt)	Grid							18.24
PointSourceFinite: -117.168, 33.733		7.69	5.81	1.31	117.168°W	33.733°N	0.00	2.40
PointSourceFinite: -117.168, 33.733		7.69	5.81	1.31	117.168°W	33.733°N	0.00	2.40
PointSourceFinite: -117.168, 33.715		6.59	5.70	1.25	117.168°W	33.715°N	0.00	2.34
PointSourceFinite: -117.168, 33.715		6.59	5.70	1.25	117.168°W	33.715°N	0.00	2.34

Mt San Jacinto CC

Latitude, Longitude: 33.6750, -117.1675

Date	4/15/2019, 10:47:55 AM
Design Code Reference Document	ASCE7-10
Risk Category	III
Site Class	D - Stiff Soil

Type	Value	Description
S_S	1.5	MCE_R ground motion. (for 0.2 second period)
S_1	0.6	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.5	Site-modified spectral acceleration value
S_{M1}	0.9	Site-modified spectral acceleration value
S_{DS}	1	Numeric seismic design value at 0.2 second SA
S_{D1}	0.6	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.505	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	0.505	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.759	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.7	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.672	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.659	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.505	Factored deterministic acceleration value. (Peak Ground Acceleration)

C_{RS}	1.035	Mapped value of the risk coefficient at short periods
C_{R1}	1.02	Mapped value of the risk coefficient at a period of 1 s

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APPENDIX E

AGRICULTURAL SUITABILITY AND ANALYSIS REPORT

Waypoint ANALYTICAL

Anaheim Office
Lab No: 19-214-0010
August 19, 2019

MTGL, Inc.
2992 E. La Palma Ave., Suite A
Anaheim, CA 92806

Attn: Pablo

Project: MSJC Job# 8767A02

Attached are the results of the analysis performed on a soil sample that was collected from the above mentioned project site by the client and received by our laboratory on 8/02/2019. This sample was analyzed for nutrient levels, agricultural suitability, and physical characteristics in preparation for a new landscape installation.

Analytical Results and Comments:

The texture of the soil is classified as a 'gravelly loam' based on the USDA soil classification standards. The estimated water infiltration rate, which may vary with the degree of soil compaction, is 0.28 inches per hour. Organic content is low indicated by the 0.3% by total dry weight reading.

The reaction of the soil is slightly alkaline at 7.6 on the pH scale, which could cause some plants to show yellowing of foliage beginning with the younger growth. Qualitative lime is favorably absent allowing for downward pH adjustment. Incorporating soil sulfur to a depth of 6 inches will adjust the pH downward. That change will happen slowly and most effectively to the depth of incorporation.

Salinity (ECe) is safely low at 1.4 dS/m. Soluble sodium is safely low and properly balanced by calcium and magnesium in regards to soil structure and water infiltration, as indicated by the safely low sodium adsorption ratio (SAR) of 4.5. Boron is safely and sufficient for plant nutrition measured at 0.36 ppm.

In terms of fertility, phosphorus and potassium levels are low. Nitrogen, calcium, and magnesium levels are sufficient for plant nutrition. With regard to the micronutrients, copper is ample while zinc, manganese, and iron levels are low.

Recommendations

Surface Soil Preparation for Turf, Groundcover, and Mass Planting

If feasible, prior to amending the areas where severe compaction exists, the surface soil should be ripped or tilled to a 9-inch depth. Uniformly broadcast and blend the following with existing soil to a 6-inch depth.

Materials	Amount per 1000 sq.ft.
Nitrogen fortified organic amendment (compost* or redwood or fir sawdust)	4 cu. yards
Soil Sulfur	8 lbs.
Triple superphosphate (0-45-0)	7 lbs.
Potassium sulfate (0-0-50)	10 lbs.

* Rates and fertilizers may have to be adjusted depending on analysis of selected compost.

Tree and Shrub Planting Guidelines

1. Excavate planting pits at least twice the diameter of the rootball.
2. The top of the rootball should be at or slightly above final grade.
3. To improve soil chemistry, uniformly blend 2 lbs. of iron sulfate per cubic yard of backfill soil. Handle iron sulfate with caution since it will severely stain moist concrete.
4. Organic material is not required in the backfill; however if you wish, the amended surface soil or a soil blend consisting of no more than 20% by volume organic matter can be placed in the upper 12 inches of backfill only. Soil below this depth should not contain any added organic matter because of the threat of plant disease and/or anaerobic soil conditions developing.
5. Place slow release fertilizer tablets in the upper 12 inches of backfill at manufacturer's recommended rates. If fertilizer amended soil is used as a backfill the addition of slow release fertilizer tablets is not necessary.
6. Do not cover the original rootball with other soil. Ideally, a temporary soil berm is often constructed around the outer edge of the rootball to help channel water into the rootball and then into surrounding soil until roots are established in the backfill and the rootball is no longer the sole source of water for the plant.
7. Ideally, a weed and turf free zone, preferably 2-3 ft. in diameter, should be maintained just beyond the diameter of the planting hole. A 2-4 inch deep layer of coarse mulch can be placed around the tree or shrub; mulch should be kept a minimum 4-6 inches from the trunk.

Maintenance Fertilization

For turf, groundcover, and mass planting areas, uniformly broadcast sulfur coated urea at the rate of 5 lbs. per 1000 sq. ft. The first application should occur approximately 30-45 days after planting, with repeat applications every 60-90 days or as growth and color dictate. In early fall and spring, substitute a complete fertilizer such as 16-6-8, or equal, for the sulfur coated urea at the rate of 6 lbs. per 1000 sq. ft. to ensure continuing supplies of phosphorus and potassium. Tree and shrub plantings can be maintained with the above fertilizers; however, the frequency between applications should be every 90-120 days, or as color and growth dictate, with the first application 90 days after planting. Follow each fertilization with a thorough irrigation. When plants have become well established, fertilizer applications can be less frequent.

As noted above, some of the micronutrients are below optimum. When these nutrients are low, especially in an alkaline soil, deficiencies can sometimes show in the plants. If deficiencies show once plants have become established, they may be addressed upon the first sign of deficiency. Symptoms of manganese deficiency may be seen as a general loss of color in the young leaves, followed by yellowing between veins and brownish-black spots appearing. Iron and zinc deficiency symptoms are often characterized by yellow, almost white, interveinal chlorosis on the youngest growth. If these symptoms are apparent once plants are established, then an application of iron, zinc, and/or manganese chelate at the manufacturer's label rate may improve appearance. Chelates are generally more effective on alkaline soils than some of the other forms of trace elements.

If we can be of any further assistance, please feel free to contact us.

Joe Kiefer

MTGL, Inc.
2992 E La Palma Ave., Suite A

Anaheim CA 92806

Waypoint ANALYTICAL

4741 East Hunter Ave. Suite A
Anaheim, CA 92807
Main 714-282-8777 ° Fax 714-282-8575
www.waypointanalytical.com

Project : MSJC
Job # 8767A02

COMPREHENSIVE SOIL ANALYSIS

Report No : **19-214-0010**
Purchase Order :
Date Recd : 08/02/2019
Date Printed : 08/12/2019

Sample Description - Sample ID	Half Sat %	pH	ECe dS/m	NO_3-N ppm	NH_4-N ppm	PO_4-P ppm	K ppm	Ca ppm	Mg ppm	Cu ppm	Zn ppm	Mn ppm	Fe ppm	Organic % dry wt.	Lab No.
	TEC	Qual Lime		Sufficiency Factors											
Site Soil	17	7.6	1.4	13	21	6	23	2380	514	1.2	0.5	4	8	0.3	06858
	171	None		1.0		0.3	0.1	1.1	1.7	0.7	0.1	0.3	0.1		

Saturation Extract Values						SAR	Gravel %		Percent of Sample Passing 2 mm Screen					USDA Soil Classification	Lab No.
									Sand			Silt	Clay		
Ca meq/L	Mg meq/L	Na meq/L	K meq/L	B ppm	SO_4 meq/L		Coarse 5 - 12	Fine 2 - 5	Very Coarse 1 - 2	Coarse 0.5 - 1	Med. to Very Fine 0.05 - 0.5	.002-.05	0-.002		
4.2	2.6	8.3	0.1	0.36	8.4	4.5	12.9	7.1	6.0	9.0	30.1	28.9	25.9	Gravelly Loam	06858

Sufficiency factor (1.0=sufficient for average crop) below each nutrient value. N factor based on 200 ppm constant feed. SAR = Sodium adsorption ratio. Half Saturation %=approx field moisture capacity. Nitrogen(N), Potassium(K), Calcium(Ca) and Magnesium(Mg) by sodium chloride extraction. Phosphorus(P) by sodium bicarbonate extraction. Copper(Cu), Zinc(Zn), Manganese(Mn) & Iron(Fe) by DTPA extraction. Sat. ext. method for salinity (ECe as dS/m),Boron (B), Sulfate(SO_4), Sodium(Na). Gravel fraction expressed as percent by weight of oven-dried sample passing a 12mm(1/2 inch) sieve. Particle sizes in millimeters. Organic percentage determined by Walkley-Black or Loss on Ignition.

* LOW , SUFFICIENT , HIGH

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Sample Description - Sample ID	Half Sat %	pH	ECe dS/m	NO_3-N ppm	NH_4-N ppm	PO_4-P ppm	K ppm	Ca ppm	Mg ppm	Cu ppm	Zn ppm	Mn ppm	Fe ppm	Organic % dry wt.	Lab No.
	TEC	Qual Lime		Sufficiency Factors											
Site Soil	17	7.6	1.4	13	21	6	23	2380	514	1.2	0.5	4	8	0.3	06858
	171	None		1.0		0.3	0.1	1.1	1.7	0.7	0.1	0.3	0.1		

Saturation Extract Values						SAR	Gravel %		Percent of Sample Passing 2 mm Screen					USDA Soil Classification	Lab No.
									Sand			Silt	Clay		
Ca meq/L	Mg meq/L	Na meq/L	K meq/L	B ppm	SO_4 meq/L		Coarse 5 - 12	Fine 2 - 5	Very Coarse 1 - 2	Coarse 0.5 - 1	Med. to Very Fine 0.05 - 0.5	.002-.05	0-.002		
4.2	2.6	8.3	0.1	0.36	8.4	4.5	12.9	7.1	6.0	9.0	30.1	28.9	25.9	Gravelly Loam	06858

Sufficiency factor (1.0=sufficient for average crop) below each nutrient value. N factor based on 200 ppm constant feed. SAR = Sodium adsorption ratio. Half Saturation %=approx field moisture capacity. Nitrogen(N), Potassium(K), Calcium(Ca) and Magnesium(Mg) by sodium chloride extraction. Phosphorus(P) by sodium bicarbonate extraction. Copper(Cu), Zinc(Zn), Manganese(Mn) & Iron(Fe) by DTPA extraction. Sat. ext. method for salinity (ECe as dS/m),Boron (B), Sulfate(SO_4), Sodium(Na). Gravel fraction expressed as percent by weight of oven-dried sample passing a 12mm(1/2 inch) sieve. Particle sizes in millimeters. Organic percentage determined by Walkley-Black or Loss on Ignition.

* LOW , SUFFICIENT , HIGH

APPENDIX F

STANDARD GRADING SPECIFICATIONS

APPENDIX F

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

GENERAL

These specifications present general procedures and requirements for grading and earthwork as shown on the approved grading plans, including preparation of areas to be filled, placement of fill, installation of subdrains, and excavations. The recommendations contained in the attached geotechnical report are a part of the earthwork and grading specifications and shall supersede the provisions contained herein in the case of conflict. Evaluations performed by the Consultant during the course of grading may result in new recommendations, which could supersede these specifications, or the recommendations of the geotechnical report.

EARTHWORK OBSERVATION AND TESTING

Prior to the start of grading, a qualified Geotechnical Consultant (Geotechnical Engineer and Engineering Geologist) shall be employed for the purpose of observing earthwork procedures and testing the fills for conformance with the recommendations of the geotechnical report and these specifications. It will be necessary that the Consultant provide adequate testing and observation so that he may determine that the work was accomplished as specified. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that he may schedule his personnel accordingly.

It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans.

Maximum dry density tests used to determine the degree of compaction will be performed in accordance with the American Society for Testing and Materials Test Method (ASTM) D1557.

PREPARATION OF AREAS TO BE FILLED

Clearing and Grubbing: All brush, vegetation and debris shall be removed or piled and otherwise disposed of.

Processing: The existing ground which is determined to be satisfactory for support of fill shall be scarified to a minimum depth of 6 inches. Existing ground, which is not satisfactory, shall be overexcavated as specified in the following section.

Overexcavation: Soft, dry, spongy, highly fractured or otherwise unsuitable ground, extending to such a depth that surface processing cannot adequately improve the condition, shall be overexcavated down to firm ground, approved by the Consultant.

Moisture conditioning: Overexcavated and processed soils shall be watered, dried-back, blended, and mixed as required to have a relatively uniform moisture content near the optimum moisture content as determined by ASTM D1557.

Recompaction: Overexcavated and processed soils, which have been mixed, and moisture conditioned uniformly shall be recompacted to a minimum relative compaction of 90 percent of ASTM D1557.

Benching: Where soils are placed on ground with slopes steeper than 5:1 (horizontal to vertical), the ground shall be stepped or benched. Benches shall be excavated in firm material for a minimum width of 4 feet.

FILL MATERIAL

General: Material to be placed as fill shall be free of organic matter and other deleterious substances, and shall be approved by the Consultant.

Oversize: Oversized material defined as rock, or other irreducible material with a maximum dimension greater than 12 inches, shall not be buried or placed in fill, unless the location, material, and disposal methods are specifically approved by the Consultant. Oversize disposal operations shall be such that nesting of oversized material does not occur, and such that the oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 feet vertically of finish grade or within the range of future utilities or underground construction, unless specifically approved by the Consultant.

Import: If importing of fill material is required for grading, the import material shall meet the general requirements.

FILL PLACEMENT AND COMPACTION

Fill Lifts: Approved fill material shall be placed in areas prepared to receive fill in near-horizontal layers not exceeding 6 inches in compacted thickness. The Consultant may approve thicker lifts if testing indicates the grading procedures are such that adequate compaction is being achieved with lifts of greater thickness. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to attain uniformity of material and moisture in each layer.

Fill Moisture: Fill layers at a moisture content less than optimum shall be watered and mixed, and wet fill layers shall be aerated by scarification or shall be blended with drier material. Moisture conditioning and mixing of fill layers shall continue until the fill material is at uniform moisture content at or near optimum.

Compaction of Fill: After each layer has been evenly spread, moisture conditioned, and mixed, it shall be uniformly compacted to not less than 90 percent of maximum dry density in accordance with ASTM D1557. Compaction equipment shall be adequately sized and shall be either specifically designed for soil compaction or of proven reliability, to efficiently achieve the specified degree of compaction.

Fill Slopes: Compacting on slopes shall be accomplished, in addition to normal compacting procedures, by backrolling of slopes with sheepsfoot rollers at frequent increments of 2 to 3 feet as the fill is placed, or by other methods producing satisfactory results. At the completion of grading, the relative compaction of the slope out to the slope face shall be at least 90 percent in accordance with ASTM D1557.

Compaction Testing: Field tests to check the fill moisture and degree of compaction will be performed by the consultant. The location and frequency of tests shall be at the consultant's discretion. In general, these tests will be taken at an interval not exceeding 2 feet in vertical rise, and/or 1,000 cubic yards of fill placed. In addition, on slope faces, at least one test shall be taken for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope.

SUBDRAIN INSTALLATION

Subdrain systems, if required, shall be installed in approved ground to conform to the approximate alignment and details shown on the plans or herein. The subdrain location or materials shall not be changed or modified without the approval of the Consultant. The Consultant, however, may recommend and, upon approval, direct changes in subdrain line, grade or materials. All subdrains should be surveyed for line and grade after installation and sufficient time shall be allowed for the surveys, prior to commencement of fill over the subdrain.

EXCAVATION

Excavations and cut slopes will be examined during grading. If directed by the Consultant, further excavation or overexcavation and refilling of cut areas, and/or remedial grading of cut slopes shall be performed. Where fill over cut slopes are to be graded, unless otherwise approved, the cut portion of the slope shall be made and approved by the Consultant prior to placement of materials for construction of the fill portion of the slope.

APPENDIX G

PERCOLATION TESTING

PERCOLATION TEST DATA

Project:	Menifee Stadium	Project No:	8767A02	Date:	8/10/2019
Test Hole No.:	P-1	Tested by:	J. Vargas		
Depth of Hole (in), D_T:	132	USCS Soil Classification:	SM		

Test Hole Dimensions (inches)			Length	Width	
Diameter (inches) =	8	Sides (if rectangular) =	N/A	N/A	

Sandy Soil Criteria Test *

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in)	Final Depth to Water (in)	Change in Water Level (in)	Greater than or Equal to 6" (y/n)
1	11:18 AM	11:43 AM	25	101.00	106	5	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_o Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	11:50 AM	12:20 PM	30	105.00	118.00	13.00	2.31
2	12:20 PM	12:50 PM	30	107.00	116.00	9.00	3.33
3	12:50 PM	1:20 PM	30	109.00	115.00	6.00	5.00
4	1:20 PM	1:50 PM	30	109.00	116.00	7.00	4.29
5	1:50 PM	2:20 PM	30	109.25	116.00	6.75	4.44
6	2:20 PM	2:50 PM	30	111.00	119.00	8.00	3.75
7	2:50 PM	3:20 PM	30	109.00	114.00	5.00	6.00
8	3:20 PM	3:50 PM	30	109.75	114.00	4.25	7.06
9	3:50 PM	4:20 PM	30	108.00	112.00	4.00	7.50
10	4:20 PM	4:50 PM	30	110.00	113.00	3.00	10.00
11	4:50 PM	5:20 PM	30	109.00	112.00	3.00	10.00
12	5:20 PM	5:50 PM	30	107.00	110.00	3.00	10.00
13							
14							
15							

COMMENTS:

PERCOLATION TEST DATA

Project:	Menifee Stadium	Project No:	8767A02	Date:	8/10/2017
Test Hole No.:	P-2	Tested by:	J. Vargas		
Depth of Hole (in), D_T:	60	USCS Soil Classification:	CL		

Test Hole Dimensions (inches)			Length	Width	
Diameter (inches) =	8	Sides (if rectangular) =	N/A	N/A	

Sandy Soil Criteria Test *

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in)	Final Depth to Water (in)	Change in Water Level (in)	Greater than or Equal to 6" (y/n)
1	10:40 AM	11:05 AM	25	78.25	78.5	0.25	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_o Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	11:06 AM	11:36 AM	30	78.50	78.75	0.25	120.00
2	11:36 AM	12:06 PM	30	78.75	79.00	0.25	120.00
3	12:06 PM	12:36 PM	30	79.00	79.25	0.25	120.00
4	12:36 PM	1:06 PM	30	78.50	78.75	0.25	120.00
5	1:06 PM	1:36 PM	30	78.50	78.75	0.25	120.00
6	1:36 PM	2:06 PM	30	78.25	78.50	0.25	120.00
7	2:06 PM	2:36 PM	30	78.25	78.75	0.50	60.00
8	2:36 PM	3:06 PM	30	78.00	78.25	0.25	120.00
9	3:06 PM	3:36 PM	30	78.50	79.00	0.50	60.00
10	3:36 PM	4:06 PM	30	78.00	78.25	0.25	120.00
11	4:06 PM	5:06 PM	30	78.00	78.25	0.25	120.00
12	4:36 PM	5:50 PM	30	78.50	78.75	0.25	120.00
13							
14							
15							

COMMENTS:

PERCOLATION TEST DATA

Project:	Menifee Stadium	Project No:	8767A02	Date:	810/19
Test Hole No.:	P-3	Tested by:	J. Vargas		
Depth of Hole (in), D_T:	132	USCS Soil Classification:	CL		
Test Hole Dimensions (inches)			Length	Width	
Diameter (inches) =	8	Sides (if rectangular) =	N/A	N/A	

Sandy Soil Criteria Test *

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in)	Final Depth to Water (in)	Change in Water Level (in)	Greater than or Equal to 6" (y/n)
1	10:35 AM	11:00 AM	25	113.00	113	0	No

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_o Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	11:02 AM	12:32 PM	30	113.00	113.25	0.25	120.00
2	12:20 PM	12:50 PM	30	113.25	113.50	0.25	120.00
3	12:50 PM	1:20 PM	30	113.25	113.50	0.25	120.00
4	1:20 PM	1:50 PM	30	112.00	112.75	0.75	40.00
5	1:50 PM	2:20 PM	30	112.00	112.50	0.50	60.00
6	2:20 PM	2:50 PM	30	112.50	112.75	0.25	120.00
7	2:50 PM	3:20 PM	30	112.50	112.75	0.25	120.00
8	3:20 PM	3:50 PM	30	112.00	112.50	0.50	60.00
9	3:50 PM	4:20 PM	30	112.00	112.25	0.25	120.00
10	4:20 PM	4:50 PM	30	112.00	112.25	0.25	120.00
11	4:50 PM	5:20 PM	30	112.25	112.50	0.25	120.00
12	5:20 PM	5:50 PM	30	110.50	110.75	0.25	120.00
13							
14							
15							

COMMENTS:

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

OFFICE LOCATIONS

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800.491.2990

SAN DIEGO DISPATCH
888.844.5060

www.mtglinc.com

October 25, 2019

MTG$_L$ Project No.: 8767A02
MTG$_L$ Log No.: 19-2597
MTG$_L$ Branch: Riverside

Mt. San Jacinto Community College District
1499 North State Street
San Jacinto, California 92583

Subject: **SUPPLEMENTAL GEOTECHNICAL INVESTIGATION**
Mt. San Jacinto College
5,000 Seat Stadium and Buildings at Menifee Valley Campus
28237 La Piedra Road
Menifee, Riverside County, California

References: "Geotechnical Investigation, Mt. San Jacinto College, 5,000 Seat Stadium and Buildings at Menifee Valley Campus, 28237 La Piedra Road, Menifee, Riverside County, California", dated August 30, 2019 by MTG$_L$, Inc., Project Number 8767A02, Log Number 19-2089

INTRODUCTION

In accordance with your authorization (proposal dated June 12, 2017), a Supplemental Geotechnical Investigation Report has been prepared for the above-referenced project. Due to a change in the layout of the proposed project, additional subsurface exploration and laboratory testing was required along with the preparation of this Supplemental Geotechnical Investigation. MTGL, Inc.'s scope of services consisted of the following:

- A review of the referenced Geotechnical Investigation dated August 30, 2019.
- Additional field investigation consisting of drilling, logging, sampling and backfilling of five (5) exploratory borings drilled with an 8" hollow stem auger drill rig to a maximum depth of 20 feet below existing grade.
- Laboratory testing of representative samples.
- Geotechnical engineering review of data and engineering recommendations.

- Preparation of this Supplemental Geotechnical Investigation Report summarizing MTGL, Inc.'s findings and presenting our conclusions and recommendations for the construction of the revised layout of the proposed site development.

SITE DESCRIPTION

The Menifee Valley campus of Mt. San Jacinto College is located at 28237 La Piedra Road, in the City of Menifee, Riverside County, California (see Site Vicinity Map, Figure 1). The school site is located at approximate 33.6750º North Longitude and -117.1675º West Latitude. The campus is bounded to the north by La Piedra Road, on the south by Albion Lan Lane and on the west by Antelope Road, all paved improved streets. The Valley Wide Recreation and Parks District Menifee Gym and residential developments are situated adjacent to the eastern boundary of the campus.

The proposed sports stadium is located in the southeastern portion of the school campus. Access to this areas is via asphalt concrete pavements in developed campus areas north of the proposed stadium development and dirt trails in undeveloped campus areas west of the proposed stadium development.

The portion of the campus investigated for the referenced report dated August 30, 2019 consists of a grass soccer (athletic) field and undeveloped fields. Subsequent to the issuance of the referenced report dated August 30, 2019, the location of the proposed stadium was moved to the west from the location originally planned onto the existing baseball field and adjacent facilities (see Boring Location Plan, Figure 2). An emergency generator is planned to be constructed just southeast of Building 700 in the main building campus area (Boring B-10 on Boring Location Plan, Figure 2).

An existing sewer line trends in a north-south direction through the eastern portion of the proposed development area. Topographically, the proposed stadium development area is essentially planar, gently sloping to the east/southeast at less than a 2 percent gradient. Elevation at the proposed stadium development area is approximately 1,434 feet above mean sea level. Drainage across the proposed stadium development area outside of the existing baseball and soccer fields is by sheet flow to the east/southeast into a north-south trending dirt drainage channel situated along the eastern edge of the main campus.

PROPOSED SITE DEVELOPMENT

Based upon information provided, MTG$_L$ understands that plans are to construct a 5,000 seat sports stadium and associated buildings/site improvements (see Boring Location Map, Figure 2). MTG$_L$ anticipates the stadium to have a synthetic turf and running track. Additional track and field sport facilities, pedestrian, vehicular, and fire apparatus pavement improvements (both asphalt concrete and Portland cement concrete) are also anticipated.

It is anticipated that the stadium grandstands will be metal frame structures supported by conventional shallow foundations. It is anticipated that any proposed new buildings will be single or two story, of wood frame construction with conventional continuous (perimeter) and isolated pad (column) foundations, with concrete slab-on-grade floors. Maximum foundation loads of 3,000 plf for continuous foundations and 200 kips for isolated pad foundations are anticipated. Sewage disposal, if needed, is anticipated to be by a public sewer system. Due to the relatively flat site topography at each site, maximum slope heights of 10 feet are anticipated.

FIELD INVESTIGATION

Prior to the field investigation, a site reconnaissance was performed by an engineer from MTG$_L$, Inc. to mark the boring locations, as shown on the Boring Location Plan (Figure 2), and to evaluate the locations with respect to obvious subsurface structures and access for the drilling rig. The additional subsurface investigation consisted of drilling and sampling five (5) test borings (Borings B-14, B-15, B-16, B-17 and B-18) utilizing a truck-mounted drill rig equipped with an 8" diameter hollow stem auger. See Appendix A for further discussion of the field exploration including the Logs of Borings.

Borings were logged and sampled using Modified California Ring (Ring) and Standard Penetration Test (SPT) samplers at selected depth intervals. Samplers were driven into the bottom of the boring with successive drops of a 140-pound weight falling 30 inches. Blows required to drive the last 12 inches of the 18-inch Ring and SPT samplers are shown on the boring logs in the "blows/foot" column (Appendix B). SPT was performed in the borings in general accordance with the American Standard Testing Method (ASTM) D1586 Standard Test Method. Representative bulk soil samples were also obtained from the borings.

Each soil sample collected was inspected and described in general conformance with the Unified Soil Classification System (USCS). The soil descriptions were entered on the boring logs (see Appendix B). All samples were sealed and packaged for transportation to MTGL, Inc.'s laboratory. After completion of drilling, borings were backfilled with the soil cuttings.

LABORATORY TESTING

Laboratory tests were performed on representative samples to verify the field classification of the recovered samples and to determine the geotechnical properties of the subsurface materials. All laboratory tests were performed in general conformance with ASTM or State of California Standard Methods. The results of the laboratory tests are presented in Appendix B of this report.

SITE SOIL CONDITIONS

The site is essentially planar, gently sloping to the east/southeast at less than a 2 percent gradient (Google Earth, 2016). Property adjacent the proposed development area is flat-lying and at approximately at the same elevation of the project site.

Five (5) 8-inch diameter hollow stem auger soil borings were advanced to characterize near-surface geologic conditions, to obtain soil samples for laboratory testing. Boring locations and pertinent data for each boring are presented in the table below.

Boring No.	Depth (ft.)	Latitude	Longitude	Approx. Fill Thickness (ft)	Groundwater Depth (ft. bgs)
B-14	21.5	33.6740°	-117.1656°	0	No GW
B-15	16.0	33.6745°	-117.1654°	0	No GW
B-16	16.0	33.6747°	-117.1658°	0	No GW
B-17	21.0	33.6743°	-117.1643°	0	No GW
B-18	16.0	33.6736°	-117.1660°	0	No GW

As shown on the attached boring logs (Appendix A), the site is underlain by alluvium. The site soils consist of highly interbedded silty sands, clayey sands, sandy gravel, relatively clean sands, sandy and clayey silts and sandy and silty clays (SM, SC, GP, SP, ML and CL soil types based upon the Unified Soil Classification System.

GROUNDWATER

Ground water was not encountered in the borings conducted for this report or for the report dated August 30, 2019 (maximum depth explored of 50 feet. Historic high groundwater levels in the immediate site vicinity are approximately 10 below existing ground surface (USGS, 1996).

LIQUEFACTION POTENTIAL

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, strength of the ground motion 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 nearby large magnitude earthquake.

The site is not within a Seismic Special Studies Zone as currently mapped by the California Division of Mines and Geology (see Geologic Hazard Evaluation Report in Appendix D of the report dated August 30, 2019). Based on the high relative density/consistency of the subsurface soils and depth to groundwater (in excess of 50 feet below the existing ground surface), the potential for liquefaction is very low. Based upon review of the City of Menifee General Plan (2010), the project site is not indicated as having a liquefaction susceptibility. Due to the fine-grained and/or dense nature of the subsurface soils, estimated dynamic settlement ("dry sand") settlement of the site soils are anticipated to be negligible.

CONCLUSIONS

Based on the additional study of the subsurface conditions and the results of the additional laboratory testing and engineering analysis, the geotechnical engineering conditions of the now proposed project development area are similar to those encountered in the referenced Geotechnical Investigation Report dated August 30, 2019). All conclusions, recommendations, and limitations of the referenced Geotechnical Investigation Report dated August 30, 2019 remain valid and apply to the now proposed site development.

CLOSURE

This report is intended to be made a part of, and incorporated with, the referenced report dated August 30, 2019. All conclusions, recommendations and limitations of that report, except as amended in this report, remain valid and apply to this report.

The findings and conclusions in this report were prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, either expressed or implied, is made. This report has been prepared for the Mt. San Jacinto Community College District, and their authorized agents, to be used solely of design purposes. Anyone using this report, or the referenced report, for any other purpose must draw their own conclusions regarding the soil engineering and soil infiltration characteristics and soil conditions at the site.

MTGL, Inc. appreciates this opportunity to be of continued service to you on this project. Should you have any questions regarding the information contained herein, please contact us at your earliest convenience.

Respectfully submitted,

MTGL, Inc.

Bruce A. Hick, GE 2284
Vice President | Engineering Manager

Figures
- Figure 1 – Site Location Map
- Figure 2 – Boring Location Plan

Appendix A
- Field Exploration Program
- Unified Soil Classification
- Logs of Borings – B-14 through B-18

Appendix B
- Laboratory Testing Procedures
- Laboratory Test Results

FIGURES

Source: Google Maps

SITE LOCATION MAP

APPROXIMATE LOCATION

MSJC Menifee Stadium
28237 La Piedra Road, Menifee, California

Project Number:	8767A02
Scale:	Not to Scale
Date:	10/25/2019
Figure No.	1

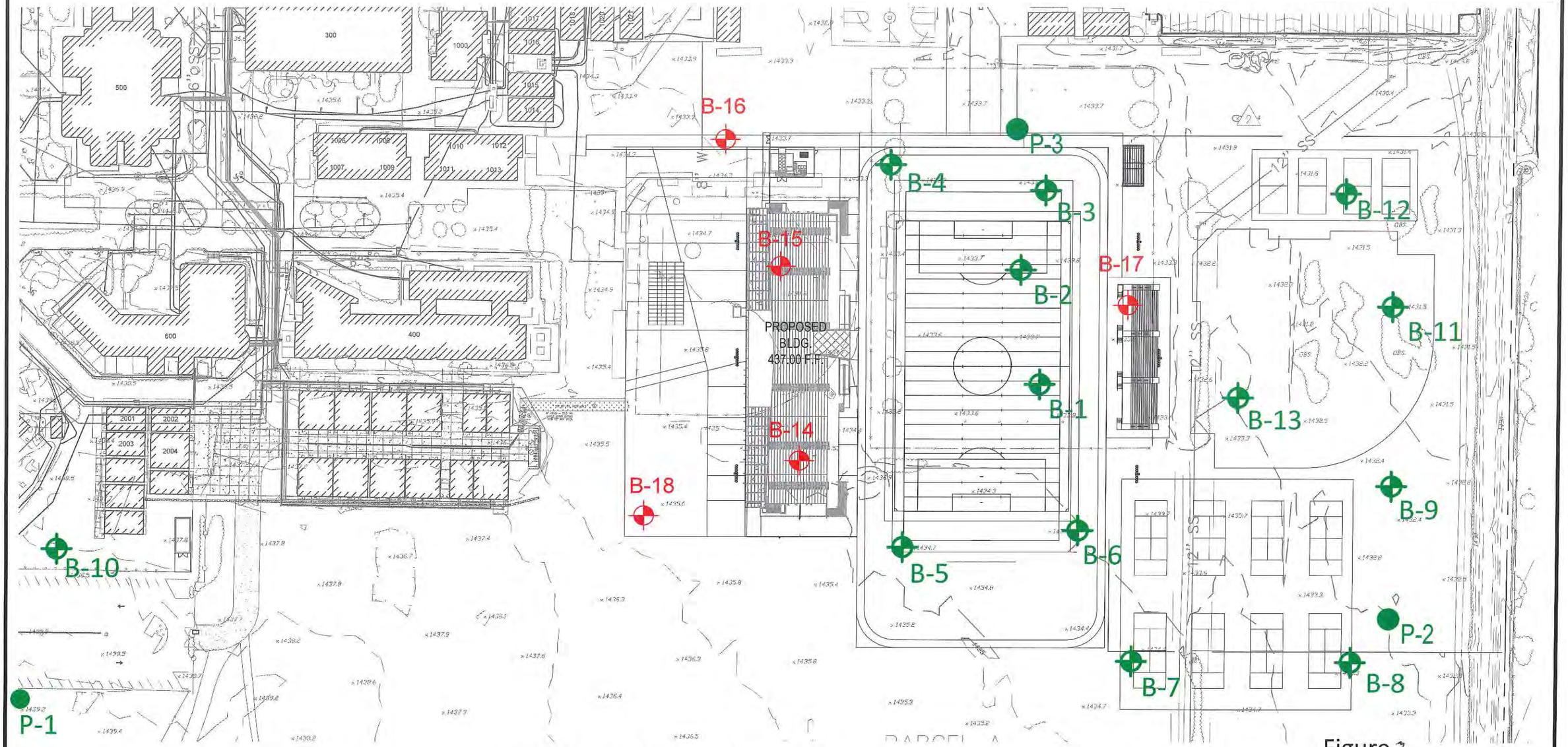


Figure 2

MSJC BORING LOCATIONS

SCALE: 1"=100'

LEGEND

P-3 PERCOLATION TEST LOCATION FROM REPORT DATED AUGUST 30, 2019

B-13 BORING LOCATION FROM REPORT DATED AUGUST 30, 2019

B-18 BORING LOCATION FOR THIS REPORT

1" = 100'

100 0 100 200

scale feet

MTGL

Boring Location Plan

28237 La Piedra Rd,
Menifee, CA 92584

APPENDIX A

FIELD EXPLORATION PROGRAM

The subsurface conditions for this Supplemental Geotechnical Investigation were explored by excavating exploratory borings with an 8-inch hollow-stem-auger. All drive samples were obtained by SPT or California Tube Sampler. The approximate locations of the borings are shown on the Boring Location Map (Figure 2). The field exploration was performed under the supervision of MTG$_L$, Inc.'s Geotechnical Engineer who maintained a continuous log of the subsurface soils encountered and obtained samples for laboratory testing.

Subsurface conditions are summarized on the accompanying Logs of Borings. The logs contain factual information and interpretation of subsurface conditions between samples. The stratum indicated on these logs represents 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

The exploratory borings were located in the field by using cultural features depicted on a preliminary site plan provided by the client. Each location should be considered accurate only to the scale and detail of the plan utilized.

The exploratory borings were backfilled with native soil cuttings, compacted, and patched where appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM					
No. 200 U.S. Standard Sieve is the smallest particle visible	Coarse-grained soils >1/2 of materials is larger than #200 sieve	GRAVELS are more than half of coarse fraction larger than #4 sieve	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
			Gravels with fines	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		SANDS are more than half of coarse fraction larger than #4 sieve	Clean Sands (less than 5% fines)	GM	Silty Gravels, poorly-graded gravel-sand-silt mixtures
			Sands with fines	GC	Clayey Gravels, poorly-graded gravel-sand-clay mixtures
	Fine-grained Soils >1/2 of materials is smaller than #200 sieve	SILTS AND CLAYS Liquid Limit Less than 50		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
				SM	Silty Sands, poorly-graded sands-gravel-clay mixtures
				SC	Clayey Sands, poorly-graded sand-gravel-silt mixtures
				ML	Inorganic clays of low to med plasticity, gravelly, sandy, silty, or lean clays
		SILTS AND CLAYS Liquid Limit Greater than 50		CL	Inorganic clays of low to med plasticity, gravelly, sandy, silty, or lean clays
				OL	Organic silts and clays of low plasticity
				MH	Inorganic silts, micaceous or diatomaceous fine sands or silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic silts and clays of medium to high plasticity
	Highly Organic Soils			PT	Peat, humus swamp soils with high organic content

GRAIN SIZE					SIZE PROPORTION
Description		Sieve Size	Grain Size	Approximate Size	Trace – Less than 5%
Boulders		>12"	>12"	Larger than basketball-sized	Few – 5% to 10%
Cobbles		3"- 12"	3"- 12"	Fist-sized to basketball-sized	Little – 15% to 20%
Gravel	Coarse	¾"- 3"	¾"- 3"	Thumb-sized	Some – 30% to 45%
	Fine	#4 - ¾"	0.19" - 0.75"	Peat-sized to thumb-sized	Mostly – 50% to 100%
Sand	Coarse	#10 - #4	0.079" - 0.19"	Rock salt-sized to pea-sized	**MOISTURE CONTENT**
	Medium	#40 - #10	0.017" - 0.079"	Sugar-sized to rock salt-sized	Dry – Absence of moisture
	Fine	#200 - #40	0.0029" - 0.017"	Flour-sized to sugar-sized	Moist – Damp but not visible
Fines		Passing #200	<0.0029"	Flour-sized or smaller	Wet – Visible free water

CONSISTENCY FINE GRAINED SOILS			RELATIVE DENSITY COARSE GRAINED SOILS		
Apparent Density	**SPT (Blows/Foot)**	**Mod CA Sampler (Blows/Foot)**	**Apparent Density**	**SPT (Blows/Foot)**	**Mod CA Sampler (Blows/Foot)**
Very Soft	<2	<3	Very Loose	<4	<5
Soft	2-4	3-6	Loose	4-10	5-12
Firm	5-8	7-12	Medium Dense	11-30	13-35
Stiff	9-15	13-25	Dense	31-50	36-60
Very Stiff	16-30	26-50	Very Dense	>50	>60
Hard	>30	>50			

BORING NO. 14

Logged by: JR
Date Drilled: 10/3/2019
Method of Drilling: 8-inch diameter hollw-stem auger - CME 75
Elevation: 1434'

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
						Surface: Warning Track of softball field, sand w/ trace gravel	
1-2	15	CAL				Sandy Clay/Clayey Sand (CL/SC), Dark Brown, Moist, Stiff	
3-4	26	CAL				Sandy Clay (CL), Dark Brown, Moist, Very Stiff	
5-6	19	CAL		112	17	Sandy Clay (CL), Brown, Moist, Stiff	
7-8	35	CAL				Sandy Clay (CL), Brown, Moist, Very Stiff	
9-11	26	CAL		100	14	Sandy Clay (CL), Brown, Moist, Very Stiff	
12-16	35	CAL		109	14	Clay (CL), Trace Sand, Brown, Moist, Very Stiff	
17-21	61	CAL		114	7	Silty Sand w/ Clay (SM), Trace Gravel, Brown, Very Dense	
22						End of Boring at 21' as Planned No Free Groundwater Encountered Backfilled with Tailings on 10/3/19	

BORING NO. 15

Logged by: JR **Date Drilled:** 10/3/2019

Method of Drilling: 8-inch diameter hollw-stem auger - CME 75 **Elevation:** 1434'

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
						Surface: Warning Track of Softball Field, Sand w/ Trace Gravel	
1							
2							
3	25	CAL				Sandy Clay (CL), Dark Brown, Moist, Stiff	
4							
5	20	CAL		110	15		
6							
7	29	CAL		105	13	Clayey Silt/Fine Sandy Silt (ML) w/ Clay, Brown, Moist, Very Stiff	59% Passing #200 Sieve
8							
9							
10							
11	27	CAL		116	15	Fine Sandy Silt w/ Trace Clay (ML), Brown, Moist, Very Stiff	
12							
13							
14							
15							
16	26	CAL		105	15	Sandy Clay (CL) w/ Trace Silt, Brown, Moist, Very Stiff	
17						End of Boring at 16' as Planned No Free Groundwater Encountered Backfilled with Tailings on 10/3/19	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 16

Logged by: JR **Date Drilled:** 10/3/2019

Method of Drilling: 8-inch diameter hollow-stem auger - CME 75 **Elevation:** 1434'

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
						Surface: Gravelly Sand	
1-2	81	CAL				Clayey Sand (SC), Trace Gravel, Brown, Moist, Very Dense	
3-4	39	CAL		110	6.0	Silty Sand (SM), Trace Clay and Gravel, Brown, Moist, Dense	
5-7	49	CAL		118	11.0	Clayey Sand (SC), Trace Silt, Brown, Moist, Dense	
8-12	29	CAL		113	9.0	Silty Sand w/ Trace Clay (SM), Brown, Moist, Medium Dense	39% Passing #200 Sieve
13-16	48	CAL		96	10.0	Sandy Silt w/ Trace Clay (ML), Brown, Moist, Very Stiff	
17						End of Boring at 16' as Planned No Free Groundwater Encountered Backfilled with Tailings on 10/3/19	

BORING NO. 17

Logged by: JR **Date Drilled:** 10/3/2019

Method of Drilling: 8-inch diameter hollow-stem auger - CME 75 **Elevation:** 1434'

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
						Surface: Gravelly Sand	
1							
2							
3	35	CAL				Silty Fine Sand (SM), Trace Gravel, Light Brown, Slightly Moist, Medium Dense	
4							
5	64	CAL		118	3.0	Silty Sand w/ Trace Gravel (SM), Light Brown, Slightly Moist, Very Dense	
6							
7	43	CAL		121	8.0	Clayey Silt w/ Trace Sand (ML), Brown, Moist, Very Stiff	
8							
9							
10							
11	30	CAL				Silty Clay (CL), Reddish Brown, Moist, Very Stiff	
12							
13							
14							
15							
16	46	CAL		112	12.0	Sandy Clay (CL), Brown, Moist, Very Stiff	
17							
18							
19							
20							
21	72	CAL		114	11.0	Silty Sand w/ Trace Clay (SM), Brown, Moist, Very Dense	
22						End of Boring at 21' as Planned No Free Groundwater Encountered Backfilled with Tailings on 10/3/19	
23							
24							
25							
26							
27							
28							
29							
30							

BORING NO. 18

Logged by: JR **Date Drilled:** 10/3/2019

Method of Drilling: 8-inch diameter hollow-stem auger - CME 75 **Elevation:** 1434'

DEPTH (FT)	BLOWS PER FT	DRIVE SAMPLE	BULK SAMPLE	DENSITY (PCF)	MOISTURE (%)	DESCRIPTION	LAB TESTS
						Surface: Gravelly Sand	
1–8	28	CAL				Silty Sand w/ Clay (SM), Dark Brown, Slightly Moist, Medium Dense	
	30	CAL		116	7.0		
	24	CAL		116	7.0		
9–12	50	CAL		118	14.0	Sandy Clay (CL), Dark Brown, Moist, Very Stiff	
13–16	60	CAL		122	9.0	Clayey Sand (SC), Trace Gravel, Dark Brown, Moist, Dense	
17						End of Boring at 16' as Planned No Free Groundwater Encountered Backfilled with Tailings on 10/3/19	

APPENDIX B

LABORATORY TESTING PROCEDURES

1. Classification

Soils were classified visually, generally according to the Unified Soil Classification System. Classification tests were also completed on representative samples in accordance with ASTM D1140 ("200 Wash"). The test results are included on the Log of Borings.

2. Maximum Density

Maximum density tests were performed on a representative bag sample of the near surface soils in accordance with ASTM D1557. The test results are presented in this Appendix.

3. Direct Shear

Direct Shear Tests were performed on in-place site soils in accordance with ASTM D3080. Graphical plots of the tests are included in this Appendix.

4. Consolidation

Consolidation tests were performed on representative, relatively undisturbed samples of the underlying soils to determine compressibility characteristics in accordance with ASTM D2435. Test results are presented in this Appendix.

5. Expansion Index

Expansion Index testing was completed in accordance with the standard test method ASTM D4829. Test results are presented below.

Sample Location	Expansion Index	Expansion Classification
B-14 @ 0-5 ft	14	Very Low

7. Corrosion

Chemical testing was performed on representative samples to determine the corrosion potential of the onsite soils. Testing consisted of pH, chlorides (CTM 422), soluble sulfates (CTM 417), and resistivity (CTM 643). Test results are as follows:

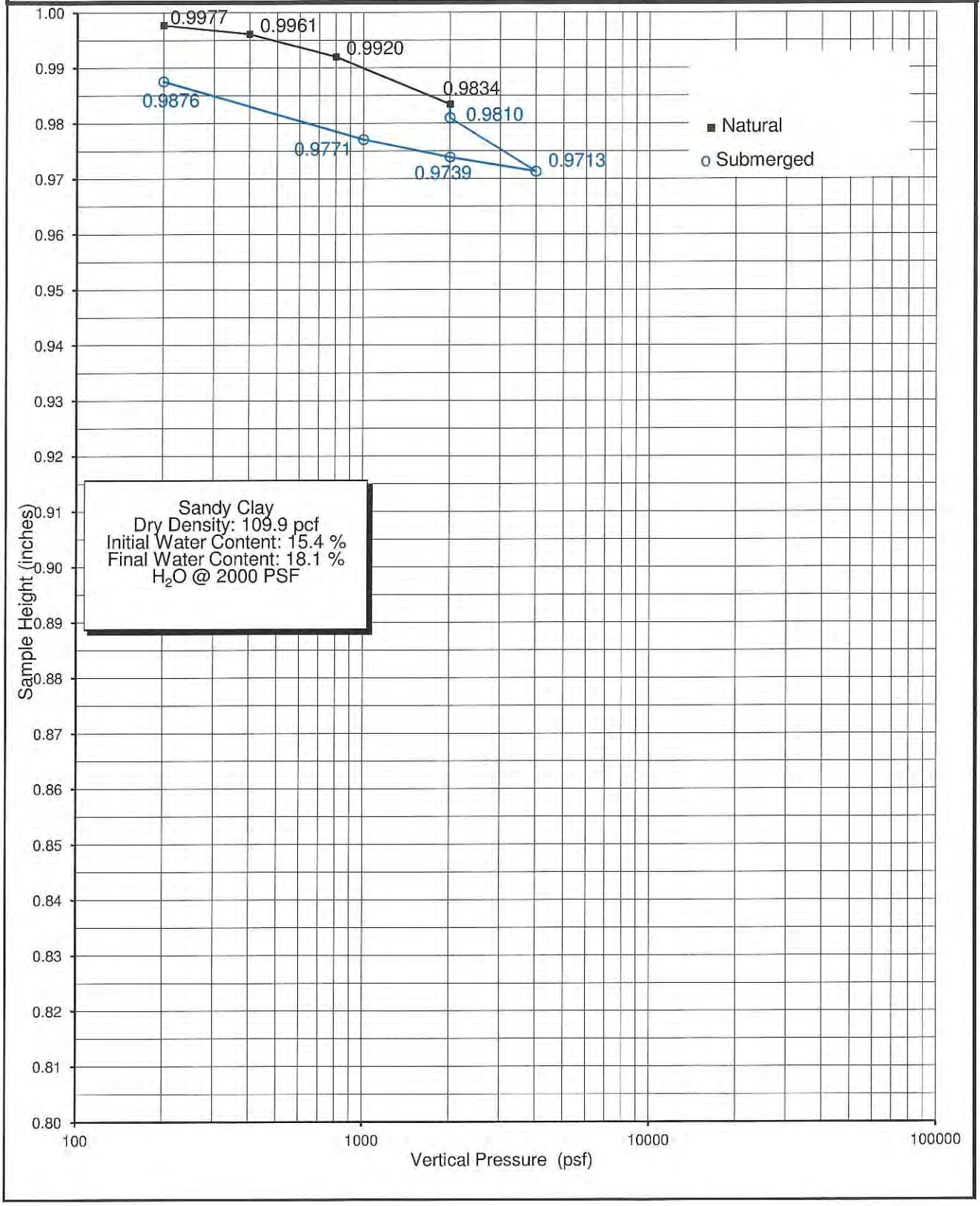
Sample Location	pH	Chlorides (ppm)	Sulfates (ppm)	Resistivity (ohm-cm
B-14 @ 0-5 ft	7.7	155	576	760

MTGL # 8767A02

CONSOLIDATION TEST - ASTM D2435

Job No. 2012-0123

Boring / Sample No.	B-15	Depth:	4'	Date	10-16-19



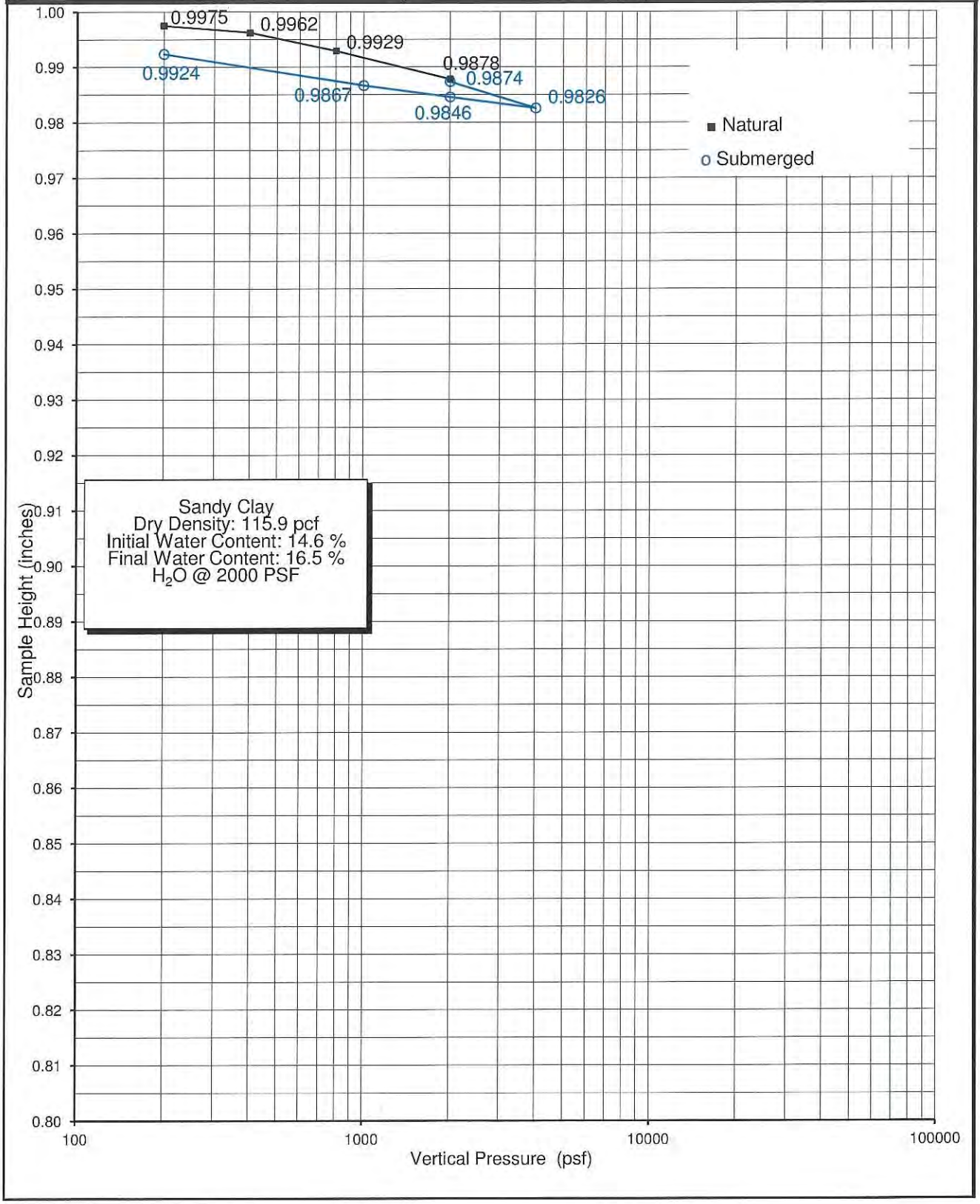
Geo-Logic ASSOCIATES

MTGL # 8767A02

CONSOLIDATION TEST - ASTM D2435

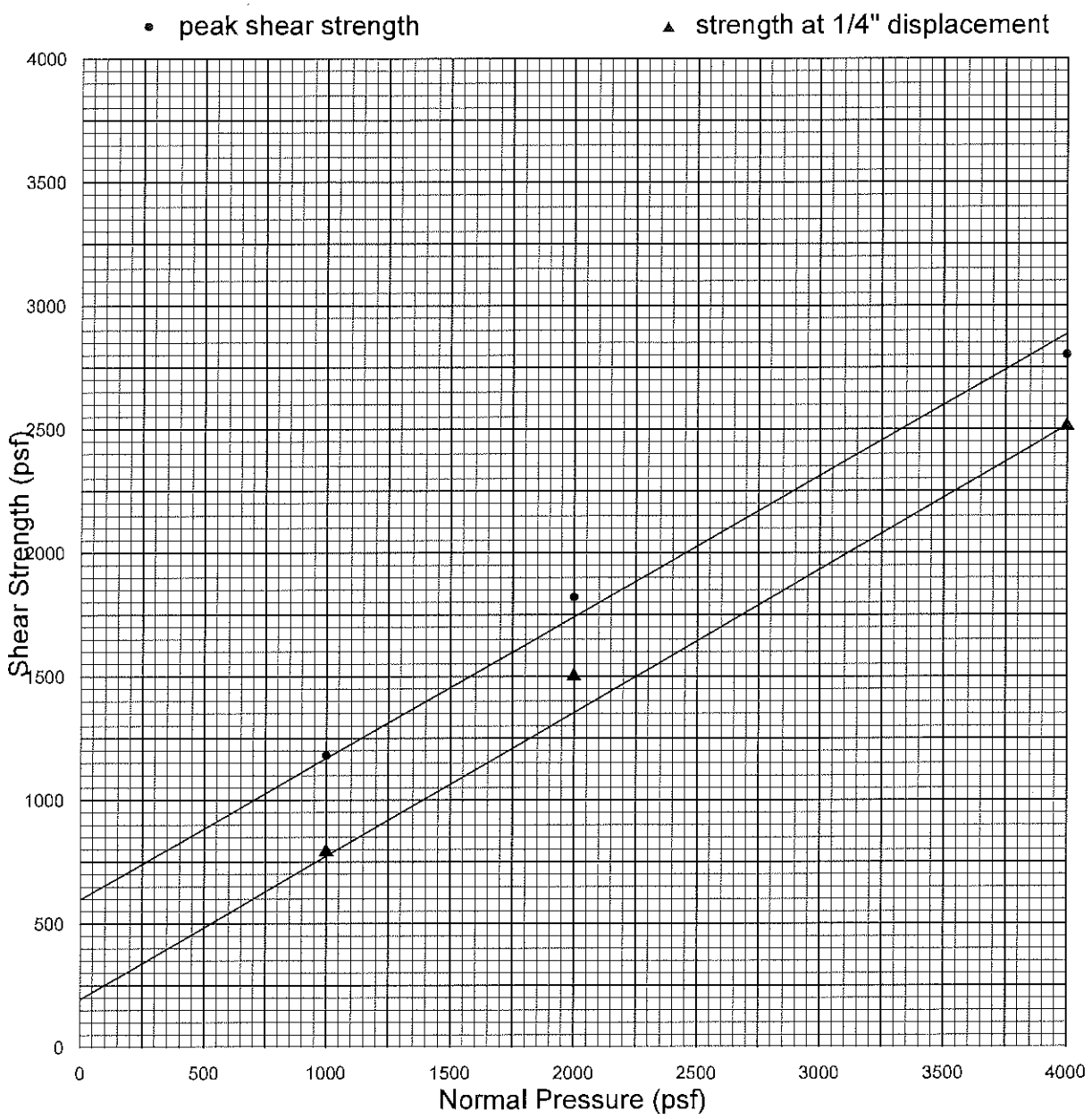
Job No. 2012-0123

Boring / Sample No.	B-15	Depth:	10.'	Date	10-16-19



Geo-Logic ASSOCIATES

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

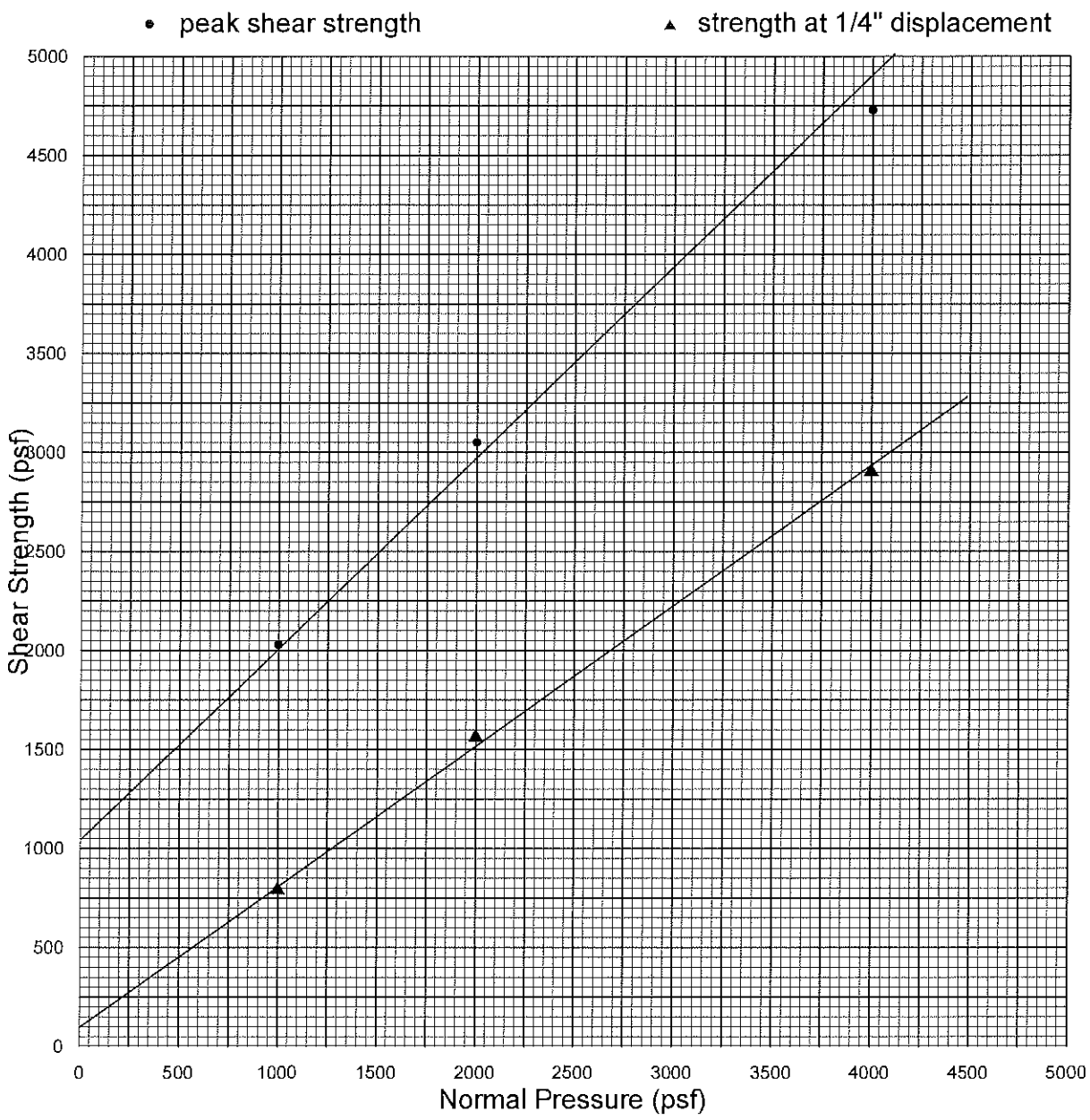
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
B14 @ 5'	Undisturbed & Saturated	Sandy Clay	112.3	17.1	19.0

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	1180 @ 0.0555"	790
2000	1820 @ 0.0655"	1500
4000	2800 @ 0.1250"	2510
	C = 600 psf	C = 200 psf
	ϕ = 30 deg.	ϕ = 30 deg.

Date: 10-21-19

GeoLogic Associates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

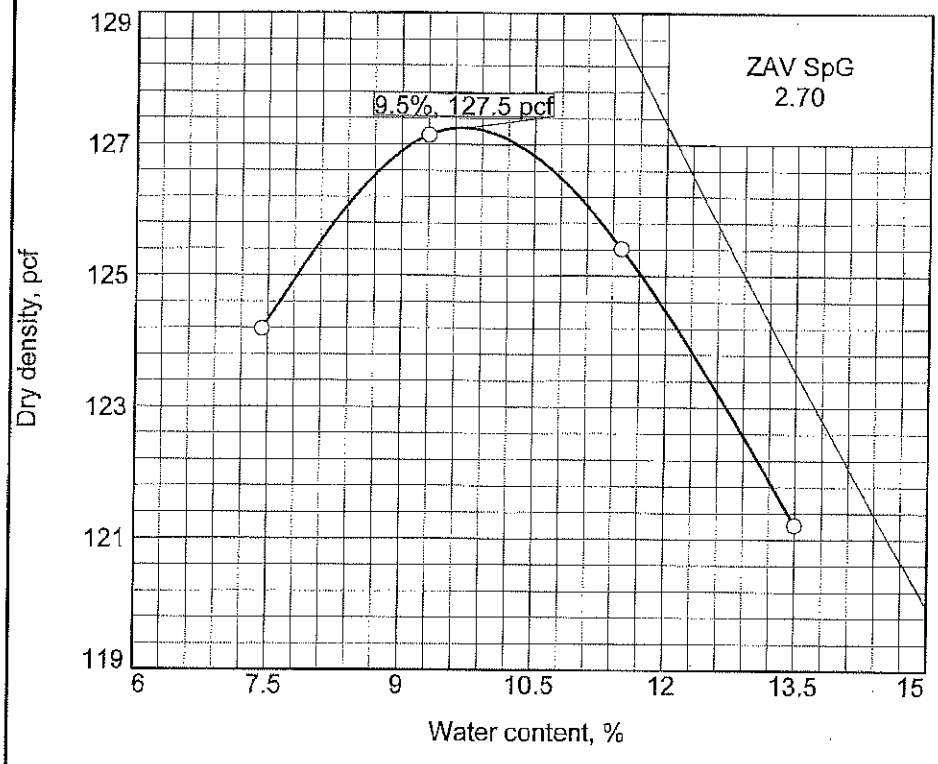
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
B18 @ 10'	Undisturbed & Saturated	Clayey Sand	118.2	13.6	18.1

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	2030 @ 0.0550"	790
2000	3050 @ 0.0700"	1560
4000	4730 @ 0.0500"	2900
	C = 1050 psf	C = 100 psf
	ϕ = 44 deg.	ϕ = 35 deg.

Date: 10-21-19

GeoLogic Associates

COMPACTION TEST REPORT



Curve No.
760

Test Specification:
ASTM D 1557-91 Procedure B Modified

Preparation Method	MOIST
Hammer Wt.	10 lb.
Hammer Drop	18 in.
Number of Layers	five
Blows per Layer	25
Mold Size	0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

NM		**LL**	**PI**
Sp.G. (ASTM D 854)	2.70		
%>3/8 in.		**%<No.200**	
USCS		**AASHTO**	
Date Sampled	10-03-2019		
Date Tested	10-14-2019		
Tested By	KC		

TESTING DATA

	1	2	3	4	5	6
WM + WS	6140.0	6224.0	6237.0	6203.0		
WM	4123.0	4123.0	4123.0	4123.0		
WW + T #1	341.0	347.8	276.4	318.7		
WD + T #1	317.4	318.2	247.9	280.8		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	7.4	9.3	11.5	13.5		
DRY DENSITY	124.2	127.1	125.4	121.2		

TEST RESULTS

Maximum dry density = 127.5 pcf

Optimum moisture = 9.5 %

Material Description

MED BROWN SILTY SAND W/ SOM CLAY

Remarks:

Project No. 8767A02 **Client:**
Project: MENIFEE STADIUM

○ **Location:** B-14 @ 0'-5' **Depth:** 0'-5' **Sample Number:** 760

MTGL, Inc.

Anaheim, CA

Checked by: PABLO NARANJO
Title: ENGINEER

Figure

PROJECT MANUAL

DRAINAGE IMPROVEMENTS PACKAGE

February 27, 2020

Menifee Valley Campus
Menifee, CA

WSP Project Number 31600017.00

Prepared For:

MSJC by WSP

506 W. Graham Avenue,
Suite 105

Lake Elsinore, CA 92530

951-253-4590
www.wsp.com

SIGNATURES

PROJECT

MVC Menifee Valley Campus. Drainage Improvements
WSP Project No. 31600017.00

OWNER

Mt. San Jacinto Community College
Menifee, California

CIVIL ENGINEER:

WSP
506 WEST GRAHAM AVE, SUITE 105
LAKE ELSINORE, CA 92530-3665

TABLE OF CONTENTS

SECTION 311000
SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities or abandoning site utilities in place.
7. Temporary erosion- and sedimentation-control measures.

B. Related Sections:
1. Section 312000 – Earth Moving

1.3 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other clean soil indicated to be stockpiled or otherwise remain District's property, cleared debris shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions on project bid doucments.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from District and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by District or authorities having jurisdiction.

B. Carefully remove items indicated to be salvaged and turn it over to the owner for storage.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion and sedimentation control and plant protection measures are in place.

E. The following practices are prohibited within plant protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

H. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 - Earth Moving.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Wrap a 1-inch blue vinyl tie tape flag around each tree trunk at 54 inches above the ground.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to District.

3.2 TREE AND PLANT PROTECTION

A. Protect trees remaining on-site.

1. Protect shrubs and other vegetation indicated to remain or be relocated.

2. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.3 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

2. Fill in all excavated holes and trenches with suitable compacted, non-expansive, satisfactory soil material per the satisfaction of the Project Geotechnical Engineer.

3.4 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and non-soil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.6 SITE IMPROVEMENTS

A. Remove existing above and below grade improvements as indicated and necessary to facilitate new construction. Demolish and remove all buried footings or foundations that are in conflict with new construction.

B. Sawcut and remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off District's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 31 2000
EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses and plants.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete walks pavements.
6. Subbase course and base course for asphalt paving.
7. Subsurface drainage backfill for walls and trenches.
8. Excavating and backfilling trenches for utilities and pits for buried utility structures.

A. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

1. Geotechnical Report Publication Information:
   Title: GEOTECHNICAL INVESTIGATION
   Mt. San Jacinto College
   5,000 Seat Stadium and Buildings at Menifee Valley Campus
   2823 7 La Piedra Road
   San Jacinto, Riverside County, California
   Prepared for
   Mt. San Jacinto Community College District
   1499 North State Street
   San Jacinto, California 92583Project No. 8767 A02

   Prepared by
   MTGL 14467 Meridian Parkway, Building 2A, Riverside, CA 92518
   Tel: 951 .653.4999, Fax: 951.653.4666

B. Related Sections:

1. Section 31 10 00 Site Clearing
2. Section 31 25 00 SWPC

1.3 UNIT PRICES

A. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following. Unit prices for rock excavation include replacement with approved materials.

1. 24 inches outside of concrete forms other than at footings.
2. 12 inches outside of concrete forms at footings.
3. 6 inches outside of minimum required dimensions of concrete cast against grade.
4. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
5. 6 inches beneath bottom of concrete slabs-on-grade.
6. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

1.4 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course, or the subgrade if there is no subbase course, and hot-mix asphalt paving or concrete paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course (Capillary Break): Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Construction Manager. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices changes in the Work.
2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by MSJC. Unauthorized excavation, as well as remedial work directed by Construction Manager, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades or to replace overexcavated soil.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch-maximum-width, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom

2. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for asphalt or concrete pavement.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase or base course if there is no subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.5 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct pre-excavation conference at Project site.

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
    a. Personnel and equipment needed to make progress and avoid delays.
    b. Coordination of Work with utility locator service.
    c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
    d. Extent of trenching by hand or with air spade.
    e. Field quality control.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long for each color.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 1557.

C. Pre-excavation Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.8 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: The MSJC will retain a DSA accepted testing agency according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.9 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from MSJC and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by MSJC or authorities having jurisdiction.
3. Maintain emergency vehicle access traffic ways at all times. If the Work impacts the emergency vehicle access traffic way, coordinate with the local Fire Marshal.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining MSJC's property will be obtained by the MSJC before award of Contract.

1. Do not proceed with work on adjoining property until directed by the Construction Manager.

C. Utility Locator Service: Retain a professional utility locator service and have all existing underground utilities located and surface-identified before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures are in place.

E. Do not commence earth-moving operations until plant-protection measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

I. Existing Utilities: Do not interrupt utilities serving facilities occupied by MSJC or others unless permitted in writing by MSJC and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify MSJC not less than five days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without MSJC's written permission.

J. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, free of rock or gravel larger than 4 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Expansion Index: Not more than 50 as measured by ASTM D 4829.
2. Upper 18 inches of subgrade fill under landscaped areas: Soil containing not more than 10% stones or lumps larger than 1-1/2 inches.

C. Unsatisfactory Soils: Soil Classification Groups OL, CH, MH, OH, and PT according to ASTM D 2487; Soil Classification Groups GC, SC, CL and ML where those soils are classified as medium or highly expansive by ASTM D 4829.

1. Unsatisfactory soils also include satisfactory soils not maintained above 2 percent of optimum moisture content at time of compaction.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; All Class 2 aggregate base shall conform to Caltrans Standard Specifications and be compacted to at least 95 percent relative compaction.

G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

H. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

I. Drainage Course (Capillary Break): Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.

J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.

K. Sand: ASTM C 33/C 33M; fine aggregate.

L. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:
    a. Grab Tensile Strength: 157 lbf; ASTM D 4632.
    b. Sewn Seam Strength: 142 lbf; ASTM D 4632.
    c. Tear Strength: 56 lbf; ASTM D 4533.
    d. Puncture Strength: 65 lbf; ASTM D 4833.
2. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.

3. Permittivity: 1.8 per second, minimum; ASTM D 4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:
   a. Grab Tensile Strength: 247 lbf; ASTM D 4632.
   b. Sewn Seam Strength: 222 lbf; ASTM D 4632.
   c. Tear Strength: 90 lbf; ASTM D 4533.
   d. Puncture Strength: 90 lbf; ASTM D 4833.
2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
3. Permittivity: 0.02 per second, minimum; ASTM D 4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.3 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Prior to grading, All surface vegetation, grass turf, existing landscaping, trash, debris, asphalt concrete, Portland cement concrete and underground utilities should be cleared and removed from the proposed construction sites. Underground facilities such as utilities, pipes or underground storage tanks may exist at the site. Removal of underground tanks is subject to state law as regulated by the County, City and/or Fire Department. If storage tanks containing hazardous or unknown substances are encountered, the proper authorities must be notified prior to any attempts at removing such objects. Any water wells, if encountered during construction, should be exposed and capped in accordance with the requirements of the regulating agencies. Depressions resulting from the removal of foundations of existing buildings, underground tanks and pipes, buried obstructions and/or tree roots should be backfilled with properly compacted material.Voids created by removal of buried material shall be backfilled with properly compacted soil in general accordance with the recommendations as follows:

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Geotechnical Engineer. The Contract Sum will be adjusted for rock excavation according to

unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the dimensions provided elsewhere in the Section.
3. Topsoil and vegetation layers, root zones, and similar surface materials shall be striped and stockpiled for either reuse in landscape surface areas or removed from the site. Site existing fill shall be considered suitable for re-use as compacted fills provided the recommendations contained herein are followed. If cobbles/boulders larger than 6-inches in largest diameter and expansive soils (EI>21) are encountered, these materials shall not be placed with the upper 3 feet of subgrade soils.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Building Footprints: Within the building footprint, existing soils within building or foundation areas be over excavated to a minimum depth of 2 feet below the bottom of the proposed footings or 4 feet below the existing grade, whichever is greater. The required horizontal limits of the over excavated area shall be defined as the area extending from the edge of the building perimeter/footing for a distance of 5 feet, where obtainable. Removals/over-excavation may be required depending on the actual conditions encountered pending verification by Geotechnical Engineer representative during grading to confirm encountered soils are suitable.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.
4. Abandoned underground utility lines shall be traced out and completely removed from the site. Each end of the abandoned utility line shall be securely capped at the entrance and exit to the site to prevent any water from entering the site. Soils loosened due to the removal of trees and other landscaping shall be removed and replaced as controlled compacted fill.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, Hardscape areas which include all paved areas will require a minimum depth of 2 feet of removal and recompaction. Processing for hardscape areas should extend a minimum distance of 2 feet outside the hardscape limits, where obtainable.

B. After completion of the recommended removal of existing fill soils and prior to fill placement, the exposed surface shall be scarified to a minimum depth of 8-inches, moisture conditioned as necessary to near optimum moisture content and recompacted using heavy compaction equipment to an unyielding condition. All structural fill within the building footprints shall be compacted throughout to 90 percent per ASTM D 1557.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. For the excavation of landscape irrigation trenches, see also Section for Planting Irrigation."

C. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit unless otherwise indicated.

D. Trench Bottoms:

1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

2. Unless indicated otherwise, excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

3. Unless indicated otherwise, excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Tree Protection and Trimming.

3.8 SUBGRADE INSPECTION

A. Notify Project Inspector when excavations have reached required subgrade. The Project Inspector will arrange for the MSJC's Testing Agency to review the subgrade.

B. If Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Testing Agency, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Testing Agency, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Construction Manager.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Construction Manager.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

2. Obtain MSJC's acceptance of stockpile locations prior to creation. If stockpile must be moved, obtain MSJC's acceptance.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, sub-drainage, damp-proofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for Record Documents.

3. Testing and inspecting underground utilities.

4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. Fill materials consisting of on-site soils or approved imported granular soils shall be spread in shallow lifts and compacted at near optimum moisture content to a minimum of 90 percent relative compaction, based on ASTM D1557. Depending on weather conditions preceding construction, the soils may be at very high moisture contents and could require drying back or processing to achieve stability prior to and during fill placement. This shall be investigated by the grading contractor prior to the commencement of site grading.

3.12 UTILITY TRENCH BACKFILL

A. Utility trenches shall be backfilled with compacted fill in accordance with the Standard Specifications for Public Works Construction, ("Greenbook"), 2018 Edition. Fill material above the pipe zone shall be placed in lifts not exceeding 8 inches in uncompacted thickness and shall be compacted to at least 90 percent relative compaction (ASTM D 1557) by mechanical means only. Site soils may generally be suitable as trench backfill provided these soils are screened of rocks over 1½ inches in diameter and organic matter. The upper 6 inches of backfill in all pavement areas shall be compacted to at least 95 percent relative compaction.

B. Where granular backfill is used in utility trenches adjacent moisture sensitive subgrades and foundation soils, we recommend that a cut-off "plug" of impermeable material be placed in these trenches at the perimeter of buildings, and at pavement edges adjacent to irrigated landscaped areas. A "plug" can consist of a 5-foot long section of clayey soils with more than 35-percent passing the No. 200 sieve, or a Controlled Low Strength Material (CLSM) consisting of one sack of Portland-cement plus one sack of bentonite per cubic-yard of sand. CLSM shall generally conform to "Greenbook", latest Edition. This is intended to reduce the likelihood of water permeating trenches from landscaped areas, then seeping along permeable trench backfill into the building and pavement subgrades, resulting in wetting of moisture sensitive subgrade earth materials under buildings and pavements.

C. Excavation of utility trenches shall be performed in accordance with the project plans, specifications and the California Construction Safety Orders. The contractor shall be responsible for providing a "competent person" as defined in Article 6 of the California Construction Safety Orders. Contractors shall be advised that sandy soils (such as fills generated from the onsite alluvium) could make excavations particularly unsafe if all safety precautions are not properly implemented. In addition, excavations at or near the toe of slopes and/or parallel to slopes may be highly unstable due to the increased driving force and load on the trench wall. Spoil piles from the excavation(s) and construction equipment shall be kept away from the sides of the trenches. Leighton Consulting, Inc. does not consult in the area of safety engineering.

D. Place backfill on subgrades free of mud, frost, snow, or ice.

E. The volume change of excavated onsite soils upon recompaction is expected to vary with materials, density, insitu moisture content, and location and compaction effort. The in-place

and compacted densities of soil materials vary and accurate overall determination of shall and bulking cannot be made. Therefore, we recommend site grading include, if possible, a balance area or ability to adjust grades slightly to accommodate some variation. Based on our geotechnical laboratory results, we expect a recompaction shall (when recompacted at 90 to 95 percent of ASTM D 1557) of 5- to 10-percent by volume, for the onsite fill. Subsidence due solely to scarification, moisture conditioning and recompaction of the exposed bottom of over-excavation, is expected to be on the order of 0.10 foot. This should be added to the above shall value for the recompacted fill zone, to calculate overall recompaction subsidence.

F. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

1. Unless otherwise indicated, provide pea gravel bedding for sanitary sewer and storm sewer piping.
2. Clean sand may be used for bedding under piping other than sewer piping.

G. Trenches under Footings: Unless otherwise indicated, backfill trenches excavated under footings and within the zone of influence of bottom of footings with concrete to elevation of bottom of footings.

H. Trenches under Roadways and Driveways: Unless otherwise indicated, provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below finished surface of roadways or driveways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course (or base course if no subbase course is indicted.) Backfill voids with satisfactory soil while removing shoring and bracing.

I. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of pea gravel or satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
    a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

J. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

K. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

L. Coordinate backfilling with utilities testing.

3.13 SOIL FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations.

D. Place soil fill on subgrades free of mud, frost, snow, or ice.

E. All imported soil material shall be approved by Geotechnical Engineer prior to hauling on site. Import soils and/or borrow sites, if needed, should be evaluated by us prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (EI<21) and have a low corrosion impact to the proposed improvements.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to above 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.

2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.

3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent, except for areas under structures, building slabs, pavements and walkways.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. All grading shall be performed per the applicable provisions of local ordinances and the 2016 California Building Code. All work within the public roadway area shall be done per the applicable codes, ordinances and requirements of the City of Lake Elsinore and will be performed under the inspection of that agency.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. If subdrainage textile is indicated on drawings, install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course material under hot-mix asphalt pavement.
3. Shape base course to required crown elevations and cross-slope grades.
4. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
5. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
6. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
7. Pavement Shallers: Place shallers along edges of subbase course and base course to prevent lateral movement. Construct shallers, at least 12 inches wide, of satisfactory soil

materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.18 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. If sub-drainage textile is indicated on drawings, install sub-drainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: MSJC will engage a qualified independent geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Project Inspector.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 100 feet or less of trench length but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Geotechnical Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off MSJC's property.

END OF SECTION 31 2000

SECTION 31 3201

FINISH GRADING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide materials, labor and equipment necessary for the completion of finish grading as indicated on the Drawings and specified herein.

B. The existing site of the work has been rough graded under a previous and separate contract; however, additional minor grading as may be required is covered under Section 312000, Earthmoving

C. Previous rough grading included grading to and providing the finished subgrade surface for asphalt surfaces and building pads to a tolerance of one-tenth of a foot and fields to a tolerance of half a contour of the elevations indicated on Drawings.

D. Related Sections:

1. Earthmoving, Section 312000

2. Storm Drain Utility Piping, Section 334000

PART 2 - PRODUCTS

2.01 MATERIALS

A. Refer to Section 312000 and 334000 - for material for fill.

PART 3 - EXECUTION

3.01 PREPARATION FOR FINISH GRADING

A. The entire area within the limits of grading as indicated on the Drawings shall be constructed to the lines, grades, elevations, slopes, and cross sections indicated on the Drawings. When the grading has been completed, the areas shall be rolled smooth with a steel tandem roller or equal.

Should low spots develop during the rolling operation, such spots shall be filled and rerolled smooth. Slopes, banks, and drainage depressions shall present a neat, uniform appearance on completion of the work.

B. Fine grade to bring areas to required lines and grades. The subgrade elevation within the building area for slabs on grade (without a base course) shall be within 0.50- inch along a 10-foot straight edge.

C. Slope finish grades to drain surface water away from buildings, walks, paving, and other structures. Generally, grade with uniform slope between points where elevations are given, or between such points and existing grades. Excavate and grade swales to provide drainage away from and around buildings.

D. Areas to Receive Paving or Surfacing: Review plans and details for each area. See plans for paving and base course thickness. Review Drawings for sitework details.

E. Areas to Receive Interior Building Slab-on-Grade: Review plans and details for thickness of slabs and granular fill under slabs.

F. Areas to Receive Topsoil and/or Planting: Where not otherwise indicated, areas outside of buildings shall be given uniform slopes between points for which finish grades are shown, or between such points and existing established grade, except that vertical curves or roundings shall be provided at abrupt changes in slope.

G. Rocks or cobbles larger than 1 inch in diameter shall not be placed in the upper 12-inches of planting area fill, and rocks or cobbles larger than 3/4-inch shall not appear on the finish graded surface.

H. Surplus or Imported Material:

1. Surplus material not needed for filling shall be removed from the site in a legal manner.

2. Provide additional earth material required shall be imported from an approved source at no additional cost to Owner.

3. All earth products to the site shall meet or exceed USEPA and State of California regulations for clean fill. Proof of compliance is the responsibility of the Contractor.

I. Preparation for Fills:

1. Prior to placing fills, the existing surface shall be scarified and recompacted to at least 90 percent maximum dry density per the ASTM D-1557 procedure.

3.02 FIELD QUALITY CONTROL

A. Compaction of soils performed on this project shall be at least 90 percent of the maximum dry density per the ASTM D-1557 procedure. New turf and planted areas shall be compacted to 85 percent. Aggregate bases shall be compacted to 90 percent.

END OF SECTION

SECTION 32 15 41
DECOMPOSED GRANITE SURFACING

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes decomposed granite (DG) surfacing.

B. Related Requirements:
   1. Section 31 20 00 "Earth Moving" for subgrade preparation.

1.3 DEFINITIONS

A. Decomposed Granite (DG): Non-stabilized aggregate surfacing materials as specified herein.

B. Stabilized DG: DG that is stabilized by adding binder to the aggregate mixture.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Color Verification: For all proposed aggregates:

   1. Quantity: 5 pounds

C. Samples for Analysis and Verification: For aggregates proposed for use in stabilized DG surfacing areas:

   1. After color verification samples have been approved, submit two identical samples: One to Architect and the other to binder manufacturer.
   2. Quantity: 5 pounds.
   3. Include aggregate supplier’s sieve analysis for grading.
   4. Allow two weeks processing time for binder manufacturer to perform additional analysis to determine blending formula.

5. Submit binder manufacturer's blending formula to MSJC Construction Manager for approval.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installer.

B. Manufacturer Certificates: Material Certificates: Signed by suppliers certifying that each material complies with requirements.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For stabilized DG surfacing to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Stabilized DG Surfacing Installer Qualifications: Installer shall have five years successful experience with projects of similar scope and design.

B. Stabilized DG Surfacing Mockup:

1. Build mockup to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
2. Construction of mock-up shall be the same as construction indicated on Drawings and in specifications.
3. Size: Approximately four feet by 10 feet by full thickness, including base.
4. Include edging.
5. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless MSJC Construction Manager specifically approves such deviations in writing.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Bulk Materials:

1. Accompany each delivery of bulk materials with appropriate certificates.
2. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
3. Do not move or handle materials when they are wet.
4. Protect bulk materials from erosion. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

B. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, name and address of manufacturer, and compliance with state and Federal laws if applicable.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit DG and stabilized DG surfacing to be installed according to manufacturer's written instructions. Do not install during rainy conditions or when temperature is below 40 degrees Fahrenheit and falling.

PART 2 - PRODUCTS

2.1 AGGREGATE MATERIALS

A. Igneous rock which has weathered in place or any sedimentary material principally derived from igneous rock.

B. Base: CalTrans Class II crushed granular road base.

C. Provide washed material free of organic material and other deleterious substances.

D. C-35, crushed 3/8" minus or ¼" minus conforming to the following gradation as determined by ASTM C 136:

Sieve Size	Percent Passing (by weight)
3/8 inch	100
No. 4	100
No. 8	93
No. 16	65
No. 30	44
No. 50	28
No. 100	16
No. 200	8.7

Resistance "R" value 82%

Sand equivalent value 61%

2.2 BINDER

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Stabilizer as distributed by Stabilizer Solutions, Inc.
2. Natracil as distributed by Gail Materials.
3. Or Equal.

B. Description: Colorless, odorless, non-toxic, organic polymer derived from psyllium husk, in concentrated powder form.

2.3 EDGING

A. Wood Edging: Wood edging and stakes of sizes shown and of the following wood species:

1. Species: Foundation Grade redwood.
2. Size: 2 x 10 or unless otherwise indicated on plans.
3. Stakes: Wood, same species, 1 x 2 by 18 inches long in nominal size with galvanized nails for anchoring headers and edging.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive DG surfacing, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Where surfacing is indicated to fit with other construction, verify dimensions of other construction by field measurements before proceeding with the Work.
2. Verify that subgrade is dry and in suitable condition to support surfacing and imposed loads.
3. Verify that no foreign or deleterious material has been deposited within DG surfacing area. Such materials include paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid.

B. If contamination by foreign or deleterious material or liquid is present within DG surfacing area, remove the contamination as directed by MSJC Construction Manager and replace with new uncontaminated sub-grade materials.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Proof-roll subgrade using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

3.3 INSTALLATION OF BASE AT STABILIZED DG SURFACING

A. Provide 3 inch deep compacted layer of specified base material.

B. Pre-soak base material with water and compact to 95% per ASTM D 1557.

C. Compaction testing to be performed by MSJC testing agency prior to installation of stabilized DG surfacing.

3.4 INSTALLATION OF EDGINGS

A. Wood Edging:
   1. Install wood edging at perimeter of surfacing except where DG surfacing abuts asphalt or concrete paving.
   2. Anchor edging with wood stakes spaced 36 inches maximum apart, driven at least 1 inch below top elevation of edging.
   3. Fasten edging to stakes with 2 galvanized nails per stake; nail length as necessary to penetrate both members and provide 1/2-inch clinch at point.
   4. Predrill stakes if necessary to avoid splitting stakes.

3.5 INSTALLATION OF NON-STABILIZED DG SURFACING

A. Place and compact surfacing material at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

   1. Shape material to grades as indicated on Drawings.
   2. Place materials in a single layer.
   3. Compacted thickness shall be 4 inches minimum.

B. Compact surfacing with 5 ton or larger rollers or using other equipment acceptable to MSJC Construction Manager. Compact with vibratory-plate compactors in areas inaccessible to rollers.

3.6 INSTALLATION OF STABILIZED DG SURFACING

A. Binder manufacturer’s technical representative shall visit site at start of stabilized DG surfacing installation to verify installer understands correct installation methods.

B. Blending

   1. For bidding purposes, mix at the rate of 15 pounds of binder per ton of aggregate. Actual rate will be determined by binder manufacturer based on analysis of submitted aggregate sample.
   2. Binder and aggregates must be dry during blending.
   3. Thoroughly pre-mix binder into aggregate per manufacturer’s recommendations, including mixing apparatus.
   4. Binder and aggregates must be dry during blending.
   5. The following techniques are not acceptable:
      a. Drop spreading binder over pre-placed aggregate.

b. Mixing by rototilling.
c. Bucket blending.

C. Placing

1. Do not place blended aggregate on filter fabric.
2. Place blended aggregate directly on prepared base.
3. Depth of blended aggregate: 4 inches minimum or as indicated on Drawings.
4. Place in equal thickness lifts not exceeding 3 inches per lift. (For example, two 2-inch lifts for 4-inch total; two 2-1/2 inch lifts for 5-inch total, etc.)
5. Level to grades and cross-sections indicated on Drawings.

D. Watering

1. Water heavily for even, full-depth moisture penetration of blended aggregate. Apply 25 to 45 gallons of water per ton of blended aggregate to achieve saturation. Perform random moisture depth tests using manufacturer recommended probing device which reaches full depth.
2. If surface of aggregate dries significantly quicker than subsurface material, lightly mist surface before compaction.
3. Do not compact until stabilized aggregate is able to accept compaction from a 2-5 ton roller without separation, plowing or any other physical compromise of aggregate. Obtain approval from Project Inspector.

E. Compaction

1. Complete compaction within 72 hours of after placing aggregate. Do not begin compaction if pumping or pancaking of the surface occurs.
2. Perform compaction using 2-5 ton double drum roller, making 3-4 passes. Do not use vibratory plate compactor or vibration feature on roller.
3. Compact stabilized aggregate to 90% relative compaction.
4. Carefully compact areas near planting and irrigation systems using 8-inch or 10-inch hand tamp.
5. Following compaction, lightly spray surface area with water. Do not disturb surface with spray action.

3.7 INSTALLATION TOLERANCES

A. Thickness: Compact to produce the thickness indicated within the following tolerances:

1. Surfacing Course: Plus 1/4 inch, no minus.

B. Surface Smoothness: Compact to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to surfaced areas:

1. Surfacing Course: 1/4 inch (6 mm).

3.8 INSPECTION

A. General: Finished compacted surface shall be smooth and uniform, firm throughout profile, with no spongy areas.

B. Stabilized DG Surfacing: Finished surface shall have no evidence of chipping or cracking. Loose material shall not be present on surface after installation.

C. Repair irregularities in surfacing to approval of MSJC Construction Manager.

3.9 REPAIRS

A. Excavate damaged area to depth of aggregate and square off edgings or adjacent pavements. If area is dry, moisten damaged portion lightly.

B. DG Surfacing: Install moisture conditioned aggregate matching existing material. Install in excavated area to match finish grade and profile indicated on Drawings.

C. Stabilized DG Surfacing: Pre-blend matching aggregate and binder as recommended by binder manufacturer. Add water to pre-blended material. Thoroughly moisten mix with 25-45 gallons water per 1 ton of pre-blended material, or to approximately 10% moisture content. Install moistened, pre-blended aggregate mixture in excavated area to match finish grade and profile indicated on Drawings.

D. Compact with an 8-inch or 10-inch hand tamp or 250-300 pound roller.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: MSJC will engage a qualified testing agency to perform the following tests and inspections:

1. Compaction of base material at stabilized DG surfacing areas according to ASTM D 1557; one test per 1,000 square feet of base.

3.11 CLEANUP AND PROTECTION

A. Cleanup: Promptly and carefully remove debris and excess excavated materials created by DG surfacing work. Debris includes paper, grass clippings, organic material. Remove by gentle mechanical blowing or hand raking. Legally dispose of materials off MSJC property.

B. Protection

1. Erect temporary fencing or barricades and warning signs as required to protect newly installed DG surfacing areas from traffic and public access. Maintain fencing in place for 72 hours minimum after completion of installation. Drying period might take longer due to weather conditions.
2. Do not permit vehicular traffic on finished surfacing.
3. Alert MSJC Construction Manager to nearby landscape irrigation that could possibly create damaging conditions during and after installation. Damaging conditions include standing water on or adjacent to surfacing.

3.12 MAINTENANCE SERVICE FOR STABILIZED DG SURFACING

A. Stabilized DG Surfacing Maintenance Service: Provide 90 day full maintenance by skilled employees of stabilized DG surfacing installer.

END OF SECTION 32 15 40

SECTION 32 3113
CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Chain-link fences.
2. Swing gates.
3. Horizontal-slide gates.
4. Privacy slats.

1.3 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1. Review required testing, inspecting, and certifying procedures.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Fence and gate posts, rails, and fittings.
b. Chain-link fabric, reinforcements, and attachments.
c. Gates and hardware.

B. Shop Drawings: For each type of fence and gate assembly.

1. Include plans, elevations, sections, details, and attachments to other work. Show locations of gates, posts, rails, and tension wires, and details of gate swing, or other operation, hardware, and accessories.
2. Indicate materials, dimensions, sizes, weights, and finishes of components.
3. Include accessories, hardware, gate operation, and operational clearances.

C. Samples for Initial Selection: For each type of factory-applied finish.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Product Certificates: For each type of chain-link fence and gate.

C. Product Test Reports: For framework strength according to ASTM F 1043.

D. Field quality-control reports.

E. Sample Warranty: For special warranty.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

B. Emergency Access Requirements: Comply with requirements of the Division of the State Architect (DSA) for gates serving as a required means of access.

C. Post and rail piping shall not be installed until the Project Inspector verifies that the material meets the specified weight per lineal foot for each pipe size to be used.

D. Post footing excavations shall be approved by the Project Inspector prior to setting any posts.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.8 WARRANTY

A. Special Warranty: Manufacturer and Installer agree to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
b. Fabric bowing, sagging, breakage or similar defects.

c. Fence framework failure.
d. Faulty operation of gate hardware.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

1. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMEWORK

A. Posts and Rails ASTM F 1043 for framework, including rails, braces, and line; terminal; gate; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:

1. Fence Height: 72 inches
2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.

a. Thread protectors shall not be used as couplings under any circumstances.
b. All pipe used in chain link fencing shall be stamped by the manufacturer, either with indelible ink or incused, indicating the pipe wall thickness, inside diameter, ASTM standard to which it conforms, and the manufacturer's name.
c. Line Post: 2.375 inches in diameter.
d. End, Corner, Gate, and Pull Posts: 2.875 inches in diameter.
e. Flanging of end (terminal) posts:

1) Terminal posts and gate posts shall only be flanged to assist in relocatable building moves.
2) A larger pipe shall be dropped over a smaller post only when a short run of existing fencing is terminated and when digging a new hole to install a bigger terminal post is impractical. This shall be used as a temporary repair, not as a permanent repair or installation.
3) If it is necessary to create a removable section of fence (to assist in relocatable building moves), a smaller pipe shall be sleeved into a smaller line post.
4) Sleeves sizes shall conform to ASTM A53, Schedule 40.

a) For a 2-inch Interior Diameter (ID) sleeve, insert 1 ½" ID pipe.
b) For a 2-1/2-inch ID sleeve, insert 2-inch ID pipe.
c) For a 3-inch ID sleeve, insert a 2 ½-inch ID pipe.

3. Horizontal Framework Members: Comply with ASTM F 1043.

a. Top Rails: Provide at all chain-link fencing. Fabricate top rail from lengths 21 feet or longer, with wedged-end or fabricated for expansion-type coupling, forming a continuous rail along top of chain-link fabric. Provide expansion couplings 6 inches long at each joint in top rails.Delete following paragraph if top rail is not used to carry water.

b. Intermediate Rails: Provide at tennis court and multi-purpose court wall fencing, and where indicated. Match top rail for finish and size.

c. Bottom Rails: Provide at athletic field, tennis and handball court, and multi-purpose court wall fencing. Also provide where decomposed granite, grass, planters and synthetic fields abut any fence line. Match top rail for finish and size.

4. Top Rails, Intermediate Rails, Bottom Rails and Brace Rails: 1.66 inches in diameter.
5. Post Brace Rails: Provide brace rail with truss rod assembly for each gate, end, and pull post. Provide two brace rails extending in opposing directions, each with truss rod assembly, for each corner post and for pull posts. Provide rail ends and clamps for attaching rails to posts.
6. Metallic Coating for Steel Framework:

   a. Type A: Not less than minimum 2.0-oz./sq. ft. average zinc coating according to ASTM A 123/A 123M; internal and external; hot-dipped after fabrication.

7. Polymer coating over metallic coating.

   a. Color: As selected by Architect from manufacturer's full range, according to ASTM F 934.

8. Schedule of Pipe Sizes: See following Table 1.

TABLE 1
ASTM A53 Threaded and Coupled Pipe

Nominal Size	**Outside Diameter**		**Wall Thickness**			**Weight**		
Inches	Inches	mm	Inch	mm	. No	lb/ft	Kg/m	Kg/ft
1/2"	0.084	21.3	0.109	2.77	40 (STD)	0.85	1.26	0.39
			0.147	3.73	80 (XS)	1.09	1.62	0.49
3/4"	1.050	26.7	0.113	2.87	40 (STD)	1.13	1.68	0.51
			0.154	3.91	80 (XS)	1.48	2.20	0.67
1"	1.315	33.4	0.133	3.38	40 (STD)	1.68	2.50	0.76
			0.179	4.55	80 (XS)	2.18	3.24	0.99
1 1/4"	1.660	42.2	0.140	3.56	40 (STD)	2.288	3.39	1.04
			0.191	4.85	80 (XS)	3.02	4.49	1.37
1 1/2"	1.900	48.3	0.145	3.68	40 (STD)	2.73	4.06	1.24
			0.200	5.08	80 (XS)	3.66	5.45	1.66
2"	2.375	60.3	0.154	3.91	40 (STD)	3.68	5.42	1.67

Black and Galvanized ½" to 6"

			0.208	5.54	80 (XS)	5.07	7.55	2.30
2 1/2"	2.875	73.0	0.203	5.16	40 (STD)	5.82	8.66	2.64
			0.276	7.01	80 (XS)	7.73	11.50	3.51
3"	3.500	88.9	0.216	5.49	40 (STD)	7.62	11.34	3.46
			0.300	7.62	80 (XS)	10.33	15.37	4.69
3 1/2"	4.000	101.6	0.226	5.74	40 (STD)	9.2	13.69	4.18
			0.318	8.08	80 (XS)	12.63	18.80	5.73
4"	4.500	114.3	0.237	6.02	40 (STD)	10.89	16.21	4.94
			0.337	8.56	80 (XS)	15.17	22.58	6.89
6”	6.625	168.3	0.280	7.11	40 (STD)	18.97	28.23	8.60
			0.312	7.92	80 (XS)	21.04	31.31	9.54

9.

2.3 TENSION WIRE

A. General: Provide horizontal bottom tension wire at all fence fabric not having a bottom rail.

B. Metallic-Coated Steel Wire: 0.177-inch-diameter, marcelled tension wire according to ASTM A 817 or ASTM A 824, with the following metallic coating:

1. Type II: Zinc coated (galvanized) by hot-dip process, with a Class 4 minimum coating weight; not less than 1.2 oz./sq. ft. of uncoated wire surface.

C. Polymer-Coated Steel Wire: 0.177-inch-diameter, tension wire according to ASTM F 1664, Class 2a or 2b over zinc-coated steel wire.

1. Color: Match chain-link fabric, according to ASTM F 934.

2.4 SWING GATES

A. General: Comply with ASTM F 900 for gate posts and single or double swing gate types. See Table 2 for sizes.

1. Gate Leaf Width: As required

B. Pipe and Tubing:

1. Zinc-Coated Steel: ASTM A 53, ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework; Schedule 40.
2. Gate Posts: Round hot-dipped galvanized tubular steel with inside dimensions and weight according to Table 2 for the gate leaf widths required.

a. All gate posts shall be of sufficient strength so that the total deflection of the gate and the post at the end of the gate leaf shall not exceed the lesser of 2% of the gate leaf width or 4 inches.

b. When necessary to meet this requirement due to the total weight of the gate leaf, the next larger size posts required shall be used. Gates shall not be equipped with rollers or casters for support.

3. Gate Frames and Bracing: Round hot-dipped galvanized tubular steel with minimum diameter of 1.900-inch. Provide diagonal cross-bracing, consisting of 3/8-inch diameter adjustable-length truss rods on welded gate frames, where necessary to obtain frame rigidity without sag or twist.

C. Frame Corner Construction: Welded, with 5/16-inch diameter adjustable truss rods for panels 5 feet wide or wider.

TABLE 2

Swing gate member sizes		
Gate opening	**Nominal size**	**lb/ft.**
Single leaf to 6 feet Double leaf to 12 feet opening	2 1/2"	5.79
Single leaf 6 to 13 feet Double leaf 12 to 26 feet opening	3 1/2"	9.11
Single leaf 13 to 18 feet Double leaf 26 to 36 feet opening	6"	18.97

D. Hardware:

1. Hinges: Heavy-duty offset, with swing.

   a. In addition to bolting, spotweld all hinges to posts.

2. Latch: Permitting operation from both sides of gate.

   a. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate.
   b. Single latches shall be industrial gravity type gate latch with automatic stop.
   c. Double latch shall be drop bar 1.315-inch diameter nominal pipe size securely bolted to gate frame and shall engage an iron gate stop. Drop bar shall engage 1.900-inch pipe diameter pipe sleeve set in concrete. Provide drop bar keeper on gate to secure it in lifted position.
   d. In addition to bolting, spotweld all latches to posts.

3. Padlock and Chain:

   a. Provide means of padlocking gates in the open position where indicated that gate must be locked in open position during activity hours.
   b. Chains: Provide each gate with 3-foot length of chain to secure gate to fence with a padlock when open. Install 3/4-inch round eye, cadmium plated harness snap on one end of chain. Secure chain with spotweld.

4. All screws and bolts shall be tamper-proof.

5. Provide center gate stops.
6. For all gates more than 5 feet wide, provide keepers.
7. Hardware for gates that are part of the access or egress system:

    a. Gates (in Path-of-Travel), hardware, maneuvering clearances, and operation shall comply with applicable portions of CBC accessibility requirements.
    b. Omit latch and make provisions to receive exit device hardware.
    c. Provide 16 gage steel plate for mounting of exit device on gate and exit device latch on post. Size plate to protect against unauthorized operation of the exit device from the exterior as shown.
    d. Mount operating hardware at minimum 30 inches and maximum 44 inches above grade or pavement surface.

2.5 FITTINGS

A. Provide fittings according to ASTM F 626.

B. Post and Line Caps: Hot-dipped galvanized pressed steel or hot-dipped galvanized cast iron. Provide weathertight closure cap for each post.

1. Provide line post caps with loop to receive top rail.

C. Rail and Brace Ends: Hot-dipped galvanized pressed steel or hot-dipped galvanized cast iron. Provide rail ends or other means for attaching rails securely to each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:

1. Top Rail Sleeves: Hot-dipped galvanized pressed steel or hot-dipped galvanized round-steel tubing not less than 6 inches long.
2. Rail Clamps: Hot-dipped galvanized pressed steel. Provide line and corner boulevard clamps for connecting intermediate [bottom rails to posts.

E. Tension and Brace Bands: Hot-dip galvanized pressed steel. Provide bands with projecting edges chamfered or eased.

F. Tension Bars: Hot-dipped galvanized steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading, rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:

a. Hot-Dip Galvanized Steel: 0.148-inch-diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.

2.6 CAST-IN-PLACE CONCRETE

A. General: Comply with ACI 301 for cast-in-place concrete.

B. Materials: Portland cement complying with ASTM C 150 Type II, aggregates complying with ASTM C 33, and potable water for ready-mixed concrete complying with ASTM C 94.

1. Concrete Mixes: Normal-weight concrete with not less than 3000-psi compressive strength (28 days), 4-inch slump, and 1-inch maximum size aggregate.

2.7 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.8 GROUNDING MATERIALS

A. Connectors and Grounding Rods: Listed and labeled for complying with UL 467.

1. Connectors for Below-Grade Use: Exothermic welded type.
2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

2.9 OTHER MATERIALS

A. Galvanizing Repair Material: Cold-applied, zinc-rich coating conforming to ASTM A 780.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by District Construction Manager.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

B. Clear fence line of trees, brush, and other obstacles to install fencing. Establish a graded, compacted fence line prior to fencing installation.

3.3 CHAIN-LINK FENCE INSTALLATION

A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.

1. Install fencing on established boundary lines inside property line.

B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

1. If rock is encountered, excavate in accordance with 31 20 00 “Earth Moving.”

C. Post Setting: Set posts in concrete footings at indicated spacing into firm, undisturbed or compacted soil. Using mechanical devices to set line posts per ASTM F 567 is not permitted.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices until concrete is sufficiently cured.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

a. Dimensions and Profile: As indicated on Drawings. Install concrete footings at all fence posts.

b. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water. Keep exposed concrete moist for at least 7 calendar days after placement, or cured with an approved membrane curing material.
c. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
d. Posts Set into Sleeves in Concrete: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with [nonshrink, nonmetallic grout or anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
e. Posts Set into Holes in Concrete: Form or core drill holes to depth indicated on drawings and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or [anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.

D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.

E. Line Posts: Space line posts uniformly as follows:

1. Standard fencing: 10 feet o.c.
2. Tennis and multi-purpose court wall fencing: 10 feet o.c.
3. Handball court fencing: 5 to 6 feet o.c., based on bay size.
4. High Security fencing: 8 feet o.c.

F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:

1. Extended along bottom of fence fabric. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.

H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved

runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

I. Bottom Rails: Where indicated, install and secure to posts with fittings.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2-inch bottom clearance between finish grade or surface and bottom selvage, and 1-inch unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released. Do not allow fabric to be in contact with finish grade.

K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 GROUNDING AND BONDING

A. Fences Enclosing Electrical Power Distribution Equipment: Ground according to IEEE C2 unless otherwise indicated.

B. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location.

C. Connections:

1. Make connections with clean, bare metal at points of contact.
2. Make above-grade ground connections with mechanical fasteners.
3. Make below-grade ground connections with exothermic welds.
4. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests.

B. Prepare test reports.

3.7 TOLERANCES

A. Maximum Offset From True Position: 1 inch.

B. Maximum Variation From Plumb: 1/4 inch. Vertical post tolerance of 1/4 inch shall be after the fabric has been stretched.

C. Components shall not infringe adjacent property lines.

3.8 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

3.9 GALVANIZING REPAIR

A. Clean and repair galvanized surfaces damaged by welding or abrasion, cut ends of fabric, and other cut sections with specified galvanizing repair material applied in conformance with manufacturer's printed instructions.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train District's maintenance personnel to adjust, operate, and maintain chain-link fences and gates.

END OF SECTION 32 31 13

SECTION 32 1600
CONCRETE CURBS, GUTTERS AND SIDEWALKS

PART 1 - GENERAL

1.1 SUMMARY

The work includes all necessary labor and materials for the extent of concrete curbs, walks and paving as shown on the drawings.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, Latest Demolition Operations-Safety Requirements.
2. Standard Specifications for Public Works Construction (Latest Edition), including the Latest County of Riverside Supplemental Amendments.
3. Standard Specifications for Public Works Construction (Latest Edition), including the Latest City of Menifee Standards.
4. State of California Department of Transportation (Caltrans) Standard Specifications, Latest Edition.
5. State of California Department of Transportation (Caltrans) "Manual of Traffic Control for Construction and Maintenance Works Zones" (Latest Edition).

B. Standard Drawings

1. City of Menifee Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
2. State of California Department of Transportation (Caltrans) Standard Plans, Latest Edition.
3. Standard Plans for Public Works Construction, as last amended, prepared by Southern California Chapter of the American Public Works Association.

1.3 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.

B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.4 SUBMITTALS

Furnish certified reports of each proposed mix for each type of concrete prior to deliver and installation.

1.5 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

A. Section 312000, "Earth Moving".

B. Division 1.

1.6 PROTECTION

A. The contractor shall notify DIG ALERT at 811 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

B. Prior to commencing the work, the Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.

C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Bernardino office is located at:

State of California
Department of Industrial Relations
Division of Occupational Safety and Health
464 West 4th Street, Suite 332
San Bernardino, CA 92401
Telephone: (909) 383-4321
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1. This project may include trenching in excess of 5 feet in depth which will require a permit from the California Division of Occupational Safety and Health (CAL-OSHA). The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

D. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Best Management Practices and the guidance provisions set forth in the Storm Water Pollution Prevention Plan as prepared by the Construction Contractor shall be complied with for all phases of the work.

E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan as prepared by the Construction Contractor will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.7 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property.

This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

1.8 QUALITY ASSURANCE

A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

B. Comply with applicable provisions of the following, except as otherwise indicated:

1. Applicable portions of the CBC including CCR, Title 24, Volume 2, Part 2, Chapters 18, 18A, 19, and 19A.
2. The U. S. Department of Justice American with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities with the Latest Revisions (ADAAG).
3. Conform to applicable City of Menifee code for paving work on public property.

C. Continuous surfaces, including walks and sidewalks, shall have a continuous common surface, not interrupted by steps or by abrupt changes in level exceeding 1/4 inch and shall be a minimum of 48 inches in width.

D. Surface cross slopes: Surface cross slopes shall not exceed 1/4 inch per foot.

E. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.

F. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

G. Concrete Testing Service: Engage a qualified independent testing agency to design concrete mixes.

H. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.

1. Build mockup panels not less than 20 square feet for each different integrally colored concrete paving and finish. Locate on site as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Obtain Architect's approval of mockups before starting construction.
4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
5. Demolish and remove non-approved mockups from the site.
6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

I. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

J. Before submitting design mixes, review concrete pavement mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete pavement to attend, including the following:

1. Contractor's superintendent.
2. Independent testing agency responsible for concrete design mixes.
3. Ready-mix concrete producer.
4. Concrete subcontractor.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Forms: Comply with Section 303-5 of Standard Specifications.

B. Aggregates: Comply with Sections 200-1.4 and 200-1.5 of the Standard Specifications.

C. Form release agent: Colorless form coating compounds that will not bond with, stain or adversely affect concrete surfaces.

D. Reinforcement:

1. Comply with the requirements of Section 201-2 of the Standard Specifications.
2. Reinforcing bars shall be new, deformed steel conforming to ASTM A615, Grade 40.

E. Concrete

1. Comply with the Standard Specifications.
2. Concrete Classification: Concrete class shall be 520-C-2500.
3. Maximum slump: 4 inches.

F. Finish in accordance with CBC Sections 11B-302 and 11B-403 and shall be stable, firm and slip resistant.

G. Joint Material:

1. Premoulded expansion joint filler: 1/2" thick, depth as required by slab thickness of premoulded, resilient, non-bituminous material, in compliance with Section 201-3.2 of the Standard Specifications.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION
Comply with Sections 301-1 and 303-1.2 of the Standard Specifications.

3.2 FORM WORK
Comply with Section 303-5.2 of the Standard Specifications.

3.3 REINFORCEMENT
Locate, place and support reinforcement as specified unless otherwise shown.

A. Walkway Duty Concrete: No. 3 bars at 18” on center, both ways.

3.4 CONCRETE PLACEMENT
Comply with the requirements of Section 303-5.3 of the Standard Specifications. Refer to this specification section for reinforcement requirements.

A. Walkway Duty Concrete: 520-C-2500 over 6” sand, see Architectural plans for thickness.

3.5 JOINTS

A. General: Construct expansion, weakened-plane (contraction), and construction joints at right angles to the centerline, unless otherwise shown, and in accordance with Section 303-5.4 of the Standard Specifications.

B. Weakened-Plane (Contraction) Joints: Provide weakened-plane joints consisting of saw cuts spaced at 6 feet on center each way or as shown on the plans, within 48 hours of concrete pour or as soon as concrete is cured enough to work on an safe to sawcut. Saw cuts shall be a minimum of 2 inches in depth and shall not exceed 1/8 inch in width. No tool joints shall be allowed, unless the width does not exceed 1/8 inch in width and will be followed by 2 inch deep sawcut.

C. Construction Joints: Place construction joints at the end of all pours and at location where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints. Construct joints as shown, or if not shown, use standard metal keyway section forms. Clean of laitance and embedded in mortar matrix.

D. Expansion Joints: Provide and install smooth dowels and pre-molded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structure, walks and other fixed objects. Locate in

slab where indicated, filled to full depth with expansion joint material, in curbs. Locate only 1/2 inch below top of concrete and seal exposed joints with joint sealer.

3.6 CONCRETE FINISHING

A. Portland cement concrete paving shall be stable, firm, and slip resistant and shall comply with CBC Sections 11B-302 and 11B-403. Comply with Section 303-5.5 of the Standard Specification.

B. Broomed finish: Provide a medium broom finish on all surfaces less than 6% and a heavy broom finish on all surfaces greater than 6%.

3.7 CURING AND PROTECTION

A. Comply with the requirements of Section 303-5.6 of the Standard Specifications.

B. Repair defective or damaged work in accordance with Section 303-5.7 of the Standard Specifications.

END OF SECTION 32 1600

SECTION 32 92 19
Hydroseeding

PART 1 - GENERAL

1.1 SUMMARY

A. Related Documents:
1. Drawings and general provisions of the Subcontract apply to this Section.
2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:
1. Preparation of slopes, fertilizing, hydroseeding (erosion control seeding) and protection of seed beds.

C. Related Sections:
1. Division 01 Section "General Requirements."
2. Division 01 Section "Special Procedures."
3. Division 32 Section "32 16 00”

1.2 REFERENCES

A. General:
1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

B. State of California - California Department of Transportation (CALTRANS):
1. Standard Specifications.

1.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "General Requirements."

B. Field and laboratory test reports of fiber performance, and certificates of inspection.

C. Hydroseeding time schedule.

D. Warranty.

1.4 QUALITY ASSURANCE

A. Certificates of Inspection: Submit Certificates of Inspection with each shipment invoice or order of stock as required by law for transportation.

1.5 WARRANTY

A. Special Warranty: Installer agrees to replace, as directed by University, seeding in areas that are not in healthy, thriving condition one year from the date of acceptance.

PART 2 - PRODUCTS

2.1 HYDROSEEDING MIXTURE

A. Stabilization materials for hydroseeding shall conform to the provisions of CALTRANS Standard Specification, "Erosion Control and Highway Planting," Section 20.

B. The materials shall consist of a mixture of fiber, seed, fertilizer and water mixed and applied in the following proportions per acre:

Fiber	1,300 pounds (520 Kg)
Seed	70 pounds (31.5 Kg)
Fertilizer	800 pounds (360 Kg)
Water	As needed for application

2.2 SEED

A. Seed proportions:

Species	Rate	% Purity	% Germ
De-awned “Zorro” Fescue	8 pounds (3.6 Kg)	90	85
Escholzia californicum	4 pounds (1.8 Kg)	95	70
Lupus nanus	6 pounds (2.7 Kg)	95	70
Wild Blue Rye, Berkeley Hills	16 pounds (7.2 Kg)	95	85
Nessella pulchra, Purple Needle Grass	6 pounds (2.7 Kg)	95	70

2.3 FERTILIZER

A. Commercial fertilizer with the following guaranteed chemical analysis:
1. Nitrogen 11 percent
2. Phosphoric Acid 8 percent
3. Water Soluble Potash 4 percent

2.4 FIBER

A. Fiber: Green colored fibrous, wood cellulose mulch containing no growth or germination inhibitors, manufactured so that it will form a uniformly suspended homogeneous slurry when added to the fertilizer, seed and water in a tank and agitated.

1. The fibers in the slurry will form a blotter-like ground cover impregnated with seed when hydraulically sprayed.
2. The fibers will allow the absorption of moisture and allow rainfall to percolate to the underlying soil.

B. Cellulose: Laboratory certified for laboratory and field testing of the product and that fiber content meets requirements indicated.

C. Each package of cellulose fiber shall be marked by the manufacturer with the air dry weight.

2.5 WATER

A. Clean and potable.

PART 3 - EXECUTION

3.1 EXAMINATION

3.2 HYDROSEEDING

A. Preparation:
1. Dress and grade the slope to provide a uniform surface. Do not compact.
2. Water the slope thoroughly for one week prior to seeding as needed. Exercise care to avoid erosion.

B. Application:
1. Apply the erosion control seed mixture at the rate of 70 pounds per acre (31.5 Kg per 4047 m²) to cut and fill areas not intended to receive paving or structures.
2. Apply the hydromulch mixture by hydraulic equipment mounted on a traveling unit. The equipment shall have with a built-in agitation system and sufficient capacity to deliver the hydromulch uniformly in a continuous non-fluctuating discharge in the specified quantities.

C. Notify the University 48 hours in advance of seeding.

3.3 PROTECTION

A. Provide and maintain temporary fencing and barriers as required to protect newly seeded areas from damage including erosion and pedestrian, vehicular traffic, or wild-life.

3.4 MAINTENANCE

A. Maintenance period shall begin after completion of hydroseeding operations with a general inspection and favorable review by the University. The maintenance period shall continue for at least 90 calendar days or until the entire project has been completed and accepted by the University, whichever is longer. Notify the University five day before the general inspection is to occur. Provide sufficient watering of hydroseeded area during the entire maintenance period as required to sustain a vigorous growth of new plants.

B. Make at least one weekly site inspection during the maintenance period.

C. Landscaping inspection will be conducted upon completion of any corrective work and at the end of the maintenance period. If corrective work and maintenance have not been performed, the maintenance period will continue at the Subcontractor's expense until such work has been completed. Notify the University five days before the landscaping inspection is to occur.

END OF SECTION 329219

SECTION 32 9300

LANDSCAPE PLANTING AND MAINTENANCE

PART 1- GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for the installation of the landscape planting and post Installation maintenance as shown on the drawings and described herein.

B. Related Sections:
   1) Section 31 2000 – Earth Moving
   2) Section 31 4000 – Storm Utility Drainage Piping

1.02 CONTROL

A. The selection of herbicides, application rates and methods are to be performed under the control and guidance of a licensed pest control advisor and applicator in the State of California.

B. Local, municipal and state codes, laws, rules and regulations governing or relating to any part of this project are hereby made part of these landscape construction documents.

C. All work shall be performed in compliance with the Uniform Building Code, Uniform Plumbing Code, Uniform Fire Code, American Disabilities Act and all other applicable building documents. It is the contractor's responsibility to notify the owner of any design element that may be in conflict with any applicable codes, laws, rules and regulations, prior to construction.

D. The Standard Specifications for Public Works Construction "Green Book", 2000 Edition and associated supplements.

E. Provisions of the 'General Conditions of the Contract for Construction', A.I.A. Document A201, latest edition, shall apply to the work as if part of this contract. Copies are available at the A.I.A. office, 233 'A' Street, San Diego, California 92101.

F. The contractor shall provide all necessary materials, labor, equipment, permits, supervision and all other services necessary to complete all construction work, as specified within these landscape construction documents. All work shall be performed and completed to the satisfaction of the owner or authorized representative.

G. Field revisions shall not be executed without prior written approval from the owner or authorized representative. The contractor shall assume the risk of not being compensated, when work is performed without an approved change order.

H. The landscape architect shall have the authority to make minor revisions in the field. Revisions shall be documented on a "punch-list" and circulated to the owner, landscape architect and landscape contractor. The owner, prior to proceeding shall approve all such revisions involving additional cost or significant modifications to the projects appearance.

1.03 DRAWINGS AND FIELD CONDITIONS

A. Prior to the initiation of any work, the contractor shall locate all cables, conduits and all other underground utilities that are commonly encountered and shall take the proper precaution not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the contractor shall promptly notify the owner and landscape architect, who will coordinate the relocation of the specified feature. The contractor shall proceed in the same manner if natural barriers, such as a solid rock sub-base or any other condition prevent the specified features from being installed as specified.

B. Discrepancies between the site conditions and the landscape improvement plans and/or design intent, affecting the successful completion and cost of the project shall be reported to the owner's representative and landscape architect immediately. Any continuation of work prior to the resolution of any discrepancies is at the contractor's risk and expense.

C. All scaled dimensions are approximate. Check and verify all site dimensions and receive Owner's representative's approval prior to proceeding with work under this section.

D. The contractor shall be coordinate the installations of the landscape material with all other trades, to avoid potential conflicts with the street improvements, utilities, grading, drainage, irrigation and plant material.

E. Keep the premises clean and free of excess equipment, materials and debris incidental to work.

F. Protect work and work of others at all times in performance of work.

G. Carefully note all finish grades before commencing work. Restore any finish grade changed during course of this work to original or intended grades.

H. The owner shall furnish the contractor with all applicable drawings, details, specifications, revisions (As requested by the landscape architect) and change orders. Recommendations received directly from the landscape architect must be reviewed and approved by the owner's representative prior to its execution.

I. These plans are prepared for the convenience of the contractor. The contractor shall verify all site conditions and dimensions shown on the plans affecting the intended design of the construction work. Any discrepancies shall be reported to the owner immediately.

J. The contractor shall carry all necessary compensation, liability and property damage insurance to cover their employees and installation so as to offer full protection to the owner from any possible damage suit or lien on the owner's property.

K. The contractor shall be liable for damage to all existing and/or recently installed utilities, construction features, irrigation and plant material and shall repair or replace all items damaged improvements, in a manner acceptable to the owner's representative.

L. The contractor shall apply and pay for all necessary permits and fees, required by the local governing agencies.

M. The contractor shall be responsible for any encroachment onto adjacent properties, right-of-ways, easements, setbacks or any other legal property restriction.

N. The prime landscape contractor shall accept the responsibility for all of their subcontractors and perform all work, coordination and supervision, as required to complete the contract.

O. The contractor shall inform the owner, prior to the initiation of any work, the names of all subcontractors proposed (if any). The owner will retain the right to reject any subcontractor proposed by the prime landscape contractor.

P. There shall be no documentation in the general contract that creates any contractual relationship between he owner and subcontractor.

Q. The Contractor shall submit the name and background experience of the proposed foreman/supervisor for this job.

R. The contractor shall provide appropriate supervision for all work performed. When absent from the job site, the job supervisor shall appoint an assistant capable of discussing minor matters with the landscape architect and/or owner.

S. The Contractor shall commence selection and verify the availability of all necessary plant material upon award of contract.

T. The contractor shall arrange the acquisition of any necessary deposits to set aside materials (either by owner or by contractor), as soon as possible.

U. The Contractor agrees by submitting a bid, that this project will receive a high priority on his work schedule. The only delays considered acceptable are only those, which can be proven to be beyond the control of the Contractor.

V. All plant materials shall be of the best quality available and shall be maintained in a prime condition until final acceptance.

W. Work shall be performed when weather conditions permit proper and satisfactory results.

X. The contractor shall furnish their contract, all shop drawings specified as part of the contract and a work sheet, which notes all of the deviations from the original contract, not otherwise covered.

Y. The contractor shall keep at the job site at all times a “Field Set” of drawings, shop drawings and the work sheet indicating updates and deviations as they occur.

Z. All construction items shall be located as dimensioned on the plans, unless otherwise indicated in notes, details, legends and specifications.

AA. Dimensions shall be taken from the vertical improvements unless otherwise noted on plans.

BB. The planting design, as indicated on the plans is diagrammatic. Scale dimensions are approximate. The contractor shall verify all site dimensions prior to proceeding with the work.

CC. Under no circumstances shall working dimensions be scaled from plans, elevations, sections or details from these plans.

DD. Where no construction detail are shown or noted for any part of the work, the construction shall be consistent with similar work, as shown within these plans.

EE. The owner shall establish all lot lines and site restrictions. All other improvements, grades and control shall be established by the contractor and shall verify consistency with dimensions, lines, grades, improvements with those indicated on the drawings.

1.04 QUALITY ASSURANCE

A. Nursery Inspections:
- Plants shall be subject to inspection and acceptance at place of growth or upon delivery to the site, for quality, size and variety. Such acceptance shall not impair the right of inspection and rejection at a later time or during progress of work, for size, condition of rootball, and latent defects or injuries.
- All landscape materials shall be shipped with certificate of inspections, as required by the governing agencies.
- No substitutions are permitted without prior written approval from the owner's representative. If the specified materials are not obtainable, the contractor shall submit proof of non-availability, including a list of all nurseries contacted to the owner's representative. Only the owner's representative may direct the landscape architect to provide substitutions.
- Provide plant material of the quantity, size, species and variety as specified within the approved plans. Provide only healthy vigorous stock, grown in recognized nurseries in accordance with sound horticultural practices and free of disease, insects, eggs, larvae and defects such as knots sun-scald, abrasions or disfigurement.
- Where formal arrangements or where consecutive order of trees or shrubs are specified, select plant material with a uniform height, spread and appearance.
- The landscape architect may inspect plant material at either the nurseries or at the job site, prior to planting, for compliance with the requirements of genius, species, variety, size and quality.
- The owner's representative and the MSJC inspector shall retain the right to further review plant material for size and condition and has the right to reject any unacceptable plant material, at any time during construction and subsequent maintenance period.
- Immediately remove rejected plant from the site.
- Trees, 24-inch box size and larger shall be accepted by Owner's representative prior to delivery.

B. Construction Inspections: The following inspections shall be made be Owner's authorized representative (as designated below). Request inspection at least two working days in advance of the time inspection is required.
- Materials delivered to the site.
- Upon completion of soil scarification and weed eradication and prior to planting.
- During soil preparation and fine grading.
- Preparation of backfill mix.
- Layout of trees and shrubs.
- Planting of trees, shrubs, and groundcover.
- Cleanup.

C. When cleanup has been completed. Acceptance in writing shall establish beginning of the maintenance period.

D. The Trade Contractor or his authorized representative shall be on site at the time of each inspection

E. If Trade Contractor requests an inspection and the site is not found to be in an acceptable condition to hold the inspection, the hourly fees of the personnel called for the inspection shall be paid by the Trade Contractor. No site visits will be scheduled until these fees have been paid.

F. Pre-Maintenance Period Inspection: The Trade Contractor shall request a pre-maintenance period inspection upon compliance with the following conditions:
- All work required in the plans shall be completed.
- All punch list and correction items shall be completed.
- All turf shall be mowed.

G. Maintenance Period Inspections:
- The entire project shall be inspected weekly during the maintenance period. The irrigation coverage and timing shall be checked and adjusted if necessary. A maintenance report on the Trade Contractor's stationary shall be submitted to the Owner's authorized representative on a weekly basis.
- Thirty days prior to the end of the maintenance period the Trade Contractor shall request an inspection. At this time the irrigation system shall be adjusted to meet MSJC watering requirements. The Trade Contractor shall submit all of the required turnover items Including Controller Charts, Irrigation System Guarantee, Equipment, and Record Drawings.

H. Trade Contractor shall incorporate all planting inspections into his construction schedule in accordance with the requirements of Progress Schedules.

1.05 TESTING AND REPORTS

A. Soil's Analysis
- The contractor shall be responsible to provide the owner's representative with an agricultural suitability test for on-site top soil prior to ordering soil amendments and fertilizer, as described:
- After completion of the grading operations, take two samples of on-site soil, at a depth of six to twelve inches, within the proposed planting areas. Samples should be taken from completely different locations on the job site.
- Submit samples to: Waypoint Analytical
  4741 East Hunter Avenue, Suite A
  Anaheim, CA 92807
  Phone: (714) 282-8777
  - Request testing for agricultural fertility and suitability (Test A05-1) with written recommendations for soil's amendments, hydroseeding, sod lawn, seed lawn, acid loving plants and post maintenance fertilization.
  - Samples of imported palm tree backfill sand shall be submitted to Soil and Plant Laboratory, for analysis prior to backfilling.
  - A copy of all soil testing results must be provided by the contractor to the owner's representative and landscape architect prior to the planting of any palm trees
  - Soil's report recommendations shall take precedence over the amendment and fertilizations rates, specified within these plans.

- Plant Material Certifications as follows:
  - Certificates of inspections, as required by the governmental agency.
  - Manufacturer's or vendors certified analysis for soil amendments and fertilizer material.
  - Labeled data that substantiates that the plant materials comply with the specified requirements.
  - Nursery receipts verifying that all of the plant material installed is consistent with the specifications within the approved plans.
  - Seed vendor's certified statement for each seed mixture required, stating the botanical name, common name, percentage by weight and the percentages of purity and germination for each species specified.

- Plant Material Photographs:
  - Submit 3" x 5" prints or email digital photos a minimum of ninety days prior to the installation, of representative plant material, to the owner's representative of each tree, shrub, vine and espalier specified.

- Pictures should include height, width and caliper specifications for trees and height and width specifications for shrubs, vines and espaliers. Tree photos individuals for scale must include the height of the person in the photograph.
- Photos shall be from the nursery and of the exact plant material proposed to be delivered to the site.
- All plant material shall be equal to or of better quality than the photos submitted for approval.

- Statements of Confirmation:
  - Submit at the time of delivery, invoice statements for organic amendments and fertilizers certifying delivery to the site and quantities by bulk and/or weight.
  - Submit supplier's statements of confirmation recording compliance of organic amendments and fertilizers with these specifications.
  - Submit certificates for the following items upon delivery to the job site:
    - Quantity of commercial fertilizer and organic fertilizer.
    - Quantity of soil amendments.
    - Quantity of other soil additives per agronomic soils test report.
  - Submit written certificate of delivery of container or bulk materials.
  - Submit written certificate of quantity and quality of all plant materials.
- Supplemental Landscape Materials:
  - The contractor shall submit a checklist which includes a line item list of all landscape products and materials, specified on the approved drawings. The checklist will identify which items the contractor will follow the specifications and which items the contractor proposes to deviate from the approved drawings
  - Should the contractor propose to deviate from the specified materials and products, they shall submit manufacturer's cut-sheets of all landscape materials and products to the district's representative Inspector for approval.
- Mulch:
  - Submit a quart-size bag sample to the district's representative for approval.

1.06 FINAL ACCEPTANCE

A. The Trade Contractor shall notify the Owner's authorized representative seven (7) days prior to completion of the maintenance period. Deficiencies noted during inspection shall extend the maintenance period until noted deficiencies are corrected.

B. Upon completion of all work, the contractor shall request a final review with the owner and landscape architect, at which time the contractor must be present. All modifications and existing conditions shall be noted at time and the contractor shall specify when and how an unacceptable condition will be repaired or replaced. Upon completion of all documented exceptions and the contract area cleaned and cleared of all debris, the job shall be considered complete and the contract executed.

C. The contractor shall unconditionally guarantee that all work performed, materials and equipment furnished under the contract, against defects in materials and workmanship for a period of one year from the date of final acceptance by the Owner of the completed work, except where noted in these specifications.

D. Neither the completion of the job nor the final payment shall relieve the contractor of their responsibility for the guarantees as stated in the contract or of the responsibility for faulty materials or poor craftsmanship. The contractor shall quickly remedy any defect, which occurs during the guarantee period, as specified in the contract. The owner will forward a notice indicating all observed defects to the contractor, for the contractor's review and response. The contractor will return written documentation to the owner, indicating what action was taken to correct the defect.

E. The warranty for lawn and groundcovers shall continue through the completion of the specified maintenance period.

F. The warranty for shrubs shall continue one year past the date of final acceptance.

G. The warranty for trees shall continue one year past the date of final acceptance and shall include defects including death, poor growth and/or form.

H. All unsatisfactory plant material found to be dead, disfigured or in an unhealthy condition, shall be replaced within fourteen calendar days of notification. Plant material replaced at the end or after the maintenance period, shall be subject to an additional warranty period, initiated when the replacement plant material has been approved by the owner's representative.

I. End of maintenance for each phase of the project shall occur only upon written acceptance by the District's authorized representative.

PART 2 - MATERIALS

2.01 GENERAL

A. Provide materials of best quality obtainable, which comply strictly with drawings and specifications.

2.02 STATEMENTS OF CONFIRMATION

A. Submit at time of delivery invoice statements certifying quantities by bulk and/or weight, for all organic amendments and fertilizers. Submit suppliers' certificates of compliance with these specifications. Owner's representative for analysis may take random samples.

B. No substitutions of the specified plant material shall be made without prior written approval from the Ditrict's representative.

2.03 SOIL AMENDMENTS

A. Organic soil amendments shall be blended commercially processed soil conditioner consisting of an organic-based conditioner, prepared by mixing a light, friable, siliceous material with nitrogen-fortified, finely ground bark, wood chips and/or saw dust. The material shall contain a long-lasting form of iron and shall be Wilbur-Ellis "Organo-Life" soil amendment or approved equal.

B. Organic soil amendments shall have the following properties:
- Particle size: Minimum of 95% passing through a 4 mesh screen.
  Minimum of 80% passing through a 8 mesh screen.
- Nitrogen content: (All values based on dry weight):
  0.5% for Redwood sawdust.
  0.7% for Fir sawdust.
  1.0% for Cedar sawdust.
  1.0% for Fir or Pine bark.
  * Pine sawdust is not acceptable.
- Salinity: The saturation extract conductivity shall not exceed 3.5 milliohms/CM at 25ºC.All plant material shall be equal to or of better quality than the photos submitted for approval.
- Organic Content: Minimum of 90% by weight.

Organic amendment shall be reviewed and approved by owner's representative before purchase and delivery.

C. FERTILIZER AND MINERALS
- The fertilizer types and quantity shall be based on recommendations given in the soils analysis.
- The contractor shall provide commercial fertilizers uniform in composition, free-flowing, suitable for application with approved equipment, delivered to the site in un-opened containers, each fully labeled according to applicable fertilizer laws and bearing the name or mark of the manufacturer.
- The contractor shall use the complete fertilizers of neutral character, per the soil report's recommendations.
- Calcium carbonate lime shall be the first quality commercial lime.
- Agricultural gypsum shall be a (CASO4-H2O) calcium sulfate 94.3%. 90% shall pass through a fifty mesh screen.
- Iron sulfate shall be expresses as metallic-derived from sulfate-deep green (FESO4-H2O) a minimum analysis of 200% and 98.3% retained on a 10 mesh screen.
- Soil sulfur shall be shall first quality commercial grade. 95% minimum elemental sulfur.
- Planting tablets for a standard application shall be Gro-Power 7-Gram (12-8-8) planting tablets.

D. BACKFILL MIX
- Planting backfill for trees, shrubs, vines and groundcovers shall be a thoroughly blended mixture of excavated soil from the planting pits with soil amendments and fertilizer at the rates recommended in the soil's report.

2.04 PLANT MATERIAL

A. Quantity and size of plants as stated on the Plans and Plant List. The root system shall fill the container but not be root bound. Plants shall be fresh and vigorous, of normal growth, and free of diseases, weeds, harmful insects, or their insect eggs and larvae.

B. Provide all plant material of the size, genus, species, variety and branching configuration, as specified in the planting legend and per American National Standards for Nursery Stock (ANSI Z60.1). Provide single trunk trees except where special formed trees are specified.

C. Trees to include a single strong central leader with no branches extending at an angle greater than 45 degrees from the main trunk. If the tree does not display a single strong central leader, a tree may be approved if the developer's arborist or landscape architect of record can demonstrate that a single central leader can be achieved through structural pruning.

D. Provide healthy and vigorous, free of weeds, insect infestation, plant disease, sun scald, broken foliage, bark abrasions and other disfigurements. Quality and approval of the plant material shall be determined by the District's representative.

E. The size shall be that normally expected for commercially available nursery stock for the species/varieties specified in these plans. Size in accordance with the plant material specifications, shall be determined by the District's representative.

F. Plants are subject to inspection and approval or rejection at place of growth and/or on project site at any time before or during progress of work for size, variety, condition, latent defects and injuries. Remove rejected plants from site immediately and replace with approved plants.
- Protect all plants from damaging sun and wind. Damage will be cause for rejection even after initial approval.
- Substitutes: Not permitted unless specifically approved in writing.
- Nomenclature: Conforms to customary nursery usage.
- Quantities: Provide materials as needed to complete indicated work.

G. Container sized stock shall have been grown in the container for at least six month, but no more than two years.

H. No container plants that have cracked or have broken root-balls, when taken from the container, shall be planted.

I. Athletic field sod shall be GN-1 Hybrid Bermuda, campus sod to be medallion dwarf w/ bonsai, both available from Pacific Sod.

J. Plant material shall be handled and stored to be protected from the sun, wind and other conditions that may cause injury or damage. Damaged plant material may be rejected at any time prior to the completion of the contractor's warranty period.

K. Circles, dots and other symbols represented on these plans are to be used to determine the actual plant quantities. Plant quantities shown in the planting legend are approximate and there is no assurance that the quantities provided within the planting legends are consistent with the symbols shown on the plans. The contractor has the responsibly to verify all plant quantities prior to submitting their bid.

L. Provide ground cover plants established and well rooted in flat removable containers, with not less than the minimum number and length of runners, as required by ANZI Z60.1 for the pot size specified.

M. Remove rejected plant material from the site immediately and replace at no additional cost to the District.

2.05 STAKING AND GUYING MATERIALS

A. Tree Stakes: Sound treated pine of uniform size, pointed at one end. Stake as detailed.

B. Two Ties per tree ties shall be TWIST-BRACE as manufactured by V.I.T. Products, Inc.,

2.06 LANDSCAPE MOUNDING

A. Approved Import soil. Landscape Contractor to submit soils analysis for import soil.

2.07 MULCH

A. Bark mulch and/or wood chip mulch shall be free of debris and other deleterious materials.

B. For planter areas, mulch shall be: shredded Cedar, as manufactured by SoCal Mulch, Inc. (951) 351-5355

2.08 MISCELLANEOUS LANDCSPAE ACCESSORIES

A. Root barriers shall be one of the following:
- Root barriers shall be 19-1/2" deep Bio-Barrier, as manufactured by Bio-Barrier. See plans for locations.
- Copolymer polypropylene, injection molded .08 thick root barrier, Model UB-24-2AS as manufactured by Deep Root Corporation (800) 458-7668. See plans for locations.

B. Tree Staking
- Tree stakes shall be ten foot long straight grained lodge pole pine, free of knots, checks, splits and disfigurements. Lodge poles shall be treated with copper napthenate.
- Tree ties shall be VI.T. CT-32 cinch-tie or approved equal.

PART 3 - INSTALLATION PROCEDURES

3.01 SEQUENCING & SCHEDULING

A. Proceed with and complete landscape work as rapidly as possible, as portions of the site become available. Work shall be performed during those periods when weather and soil conditions are suitable in accordance with the locally accepted horticultural practices.

B. All trees and specimen shrubs shall be planted prior to the installation of the irrigation system and water by hand until the irrigation system becomes operational.

C. Plant trees and shrubs after final grades have been established and prior to the planting of groundcover, unless otherwise approved by the District's representative.

3.02 LANDSCAPE MOUNDING

A. Mounding to be constructed in 1' increments per plan, with the Hardscape/curbs adjacent to landscape mounding assumed as 0' elevation.

B. Landscape contractor to construct the mounding following the same guidelines and specifications as the earthwork section. The mounding is to smoothly crest at the top. At no time should the mound be flat or come to a point.

3.03 PRELIMINARY GRADING

A. Finish grades shall be as indicated on the civil engineer's drawings and/or landscape improvement plans.

B. Finish grades shall be measured as the final water compacted and settled surface grades and shall be within 0.1 foot of the spot elevations conveyed on the grading plans.

C. All undulations and irregularities in the planting surfaces resulting from tilling and other operations shall be leveled and floated out, prior to initiating the installation of the plant material.

D. The contractor shall take every precaution to protect and avoid damage to sprinkler heads and equipment, as well as other underground dry and wet utilities.

E. Final finish grades shall insure positive drainage away from all buildings and walls and towards roadways and engineered drainage facilities.

F. General: Do not work soil when the moisture content is so great that excessive compaction will occur, nor when it is so dry that dust will form or that clods will not break readily. Apply water necessary, to provide ideal moisture content for tilling and planting. Perform preliminary grading in such a way as to anticipate the finish grade after the installation of soil conditioners. Remove or redistribute excess soil before application of soil amendments.

G. Ripping: Rip soil in two opposing directions to a minimum depth of 10 inches to relieve compaction, except 2:1 slopes.

H. Slope Scarification: Scarify slope surface 1 inch to relieve surface compaction and aid seed germination. Repair rivulets caused by erosion prior to seeding.

I. Finish: Grade all shrub and ground cover areas to a depth of 1 inch below the adjacent pavement surface. Grade all turf areas to a depth of 1/2 inch below walks, curbs, catch basins) and elevations shown to provide a smooth a continual plane. Rake and level as necessary to obtain true and even surfaces. Verify all grades and swells on Engineer's Plan, and grade to drain. All turf areas shall be re-graded after soil amendments to ensure a final grade meets civil engineer's drawings.

J. Remove and dispose of rocks over 2 inches diameter, construction debris, weeds, etc., within the limits of the project prior to applying soil amendments.

K. Grading and soil preparation shall only be performed during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy the soil's structure, spreading and grading operations shall be suspended until the moisture content is increased or decreased to acceptable levels and the desired results are more likely to be obtained.

L.

3.04 SOIL PREPARATION

A. The contractor shall have obtained the results from the soils testing to determine if soil is to be imported or if on-site soil will be amended.

B. Finish grading, mounding, soils testing and weed control shall be completed prior to the preparation of planting areas.

C. All median planting areas shall be cross ripped to a depth of 24".

D. Amending On-Site Topsoil:
- Cross-rip on grade planting areas to a depth of twelve inches in two directions.
- Apply organic amendments, commercial fertilizer, soil sulfur, agricultural gypsum and/or additional amendments as recommended in the soil's report.
- Broadcast the organic soil amendments uniformly over the surface of the planting areas. Incorporate amendments into the soil by cultivating, spading or tilling to a depth of six inches and fine grade to the specified depth, below adjacent curbs and/or paving surfaces.
- Remove all rocks and debris larger than one inch from the site and clean mineral and amendment stains from paving.
- The soil shall not be worked when the moisture content is so great that excessive compaction will occur and not when it is so dry that dust will form in the air. Water shall be applied, as necessary to provide optimum moisture conditions.

E. Hydro-seeded Slope Areas: Based on Soil Analysis, apply necessary nutrients as recommended as approved by Owner. Chemicals may be incorporated in Hydroseed mix, or applied by hand depending on nature of chemicals and/or quantity required.

F. Organic amendments and fertilizer shall be premixed at the factory and certification of mix provided to Owner's Authorized Representative prior to placement.

G. Distribution: Distribute the organic amendment and fertilizer over the planting area to a uniform depth. Secure approval from Owner's representative prior to working amendments into soil. No credit for organic amendment will be given if this procedure is not used.

H. Cultivation: Work into soil by cultivation or roto-tilling to a depth of at least 8 inches. Finish grades to smooth finish 1 inch below adjacent paving and curbs. Remove all debris and weeds from site.

I. Roll entire turf area smooth with a 2-ton steel tandem roller prior to placement of sod.

I. Backfill Mix:
- For standard backfill mixes, use imported topsoil, stockpiled topsoil or on site soil based on the recommendations within the soils report. The following mix should be used for bidding purposes only and is subject to change, based on the soil report's recommendations. Blend per cubic yard:
  - Topsoil or imported soil: 6 parts by volume
  - Organic amendments: 4 parts by volume
- For acid-loving plant backfill mixes, use imported topsoil, stockpiled topsoil or on site soil based on the recommendations within the soils report. The following mix should be used for bidding purposes only and is subject to change, based on the soil report's recommendations. Blend per cubic yard:
  - Topsoil or imported soil: 1 parts by volume
  - Nitrolizing organic amendments: 5 parts by volume
  - Compost leaf mold: 4 parts by volume

J. Raised Planter Backfill Mix:

- Install backfill only after waterproofing, drain-lines, irrigation lines and electrical wires have been installed.
- Cut and place filter blanket with fabric towards backfill, fitting tightly to the edges of the planter. Joints shall be overlapped a minimum of three inches.
- Place raised planter backfill in all raised planters in two inch lifts, lightly watering and thoroughly tamping soil between lifts.
  - Continue placing, watering and tamping until the raised planter backfill forms an even layer at the specified depth below the top of the planter.

3.05 WEED ERADICATION

A. Procedures: All planting areas as designated on the plans to receive groundcover shall receive the following weed eradication procedures after the irrigation system has been installed and accepted and after all boxed trees have been installed and accepted, but prior to the installation of shrubs and groundcover.

B. Clean up work: Manually remove all existing vegetation and dispose of it off-site in a suitable and lawful manner.

C. Fertilizer: Fertilize all planting areas with 15-15-15 commercial fertilizer at the rate of 8 pounds per 1,000 S.F. and begin watering process.

D. Watering Process: Water all planting areas thoroughly and continuously for a period of three (3) weeks. The Owner's representative shall approve a specific watering duration and frequency program designed to germinate all residual weeds.

E. First Weed Spray: Discontinue watering process for two (2) days and then apply a contact weed killer at maximum label rate. The Trade Contractor shall apply the above agent to a planting area of approximately 1000 square feet and then evaluate effective coverage of weed species involved. The Trade Contractor shall make application adjustment such as the inclusion of additional spreading agent or spraying techniques in order to maximize the effective use of the contact weed killer as specified above. No irrigation water shall be applied for a minimum of four (4) days following application of the contact weed killer.

F. Watering Process: Water all planting areas thoroughly and continuously for a period of three (3) additional weeks. A shorter watering period may be permissible at the discretion of the Owner's

representative if he so determines that germination of the balance of weed seeds is sufficient for an effective kill.

G. Second Weed Spray: Discontinue watering process for two (2) days and then apply a contact weed killer at maximum rates. The Trade Contractor shall apply the above agent to a planting area of approximately 1000 square feet and then evaluate effective coverage of weed species involved. The Trade Contractor shall make application adjustment such as the inclusion of additional spreading agent or spraying techniques in order to maximize the effective use of the contact weed killer as specified above. Allow a minimum of four (4) days without irrigation for effective, final wed kill.

H. Clean-up work: Manually clean and remove all weeds from the work area and continue planting process as noted and detailed.

3.06 PLANTING

A. Delivery & Storage:
- Deliver packaged materials in containers showing the weight, analysis and name of the manufacturer.
- The contractor shall protect all materials from deterioration during delivery and while stored at the site.
- Do not prune trees or shrubs prior to deliver, unless otherwise approved by the District's representative. Do not bend or bind-tie trees or shrubs in such a manner to damage bark, break branches or destroy the natural shape. Provide protective covering during delivery.
- Do not remove container grown stock from the containers, until plant material is ready to be planted.

B. Percolation Testing:
- Upon completion of the rough grading of the site, the owner's representative shall identify a typical location for one of the largest trees specified. The contractor shall excavate the pit for the tree, as specified in the tree planting details.
- With the owner's and governing agencies representative present, the contractor shall fill the pit with water to a depth of twelve inches (if possible). The length of time required for the water to percolate into the soil, leaving the pit empty will be measured by the owner's and/or governing agencies representative.
- Within six hours of the time the water has been drained from the pit, the contractor (with the owner's and governing agencies representative present, shall re-fill the pit with water to a depth of twelve inches.
- If the water has not completely percolated into the soil within a nine hour period, a determination will be made by the Owner's representatives as to whether or not either a deeper tree pit is required or a supplemental tree drainage system is required.

C. Pre-plant Approvals: Obtain approval from District's Representative of planting holes, premixed backfill, plants and locations prior to planting.
- Trees and shrubs shall not be planted until construction work in the area has been completed, final grades established, and the planting areas properly graded and prepared.
- Stake plant locations or place approved quantities of plants in containers on locations. Secure approval before excavating pits, making necessary adjustments as directed.
- All scaled dimensions are approximate. Prior to proceeding with any work, carefully check and verify all dimensions and immediately inform the District's representative of any discrepancy between the drawings and/or specifications and actual field conditions.

D. Planting trees, shrubs & Vines:
- The District's representative shall approve the placement of all plant material, prior to planting pits being excavated. The contractor shall layout the plant material for approval, as follows:

- Locations for trees 30" boxed size and larger, shall be marked with a stake, and flag the north side of the trees box, identifying the side to be facing north.
- Locations for trees 24" boxed size and smaller, shall be marked with a stake.
- Locations for shrubs and vines shall be identified by placing the specified quantities of plants (while still in the container), at the locations where the plants are specified on the plans.

- The contractor shall have all plant material located prior to the owner's representative's visit to the site.
- Trees shall be planted at least five feet from any building, wall, underground utilities, waterlines, sewer, gas or dry utilities.
- Plant material shall not be installed where it would cause a line of site problem with vehicular, bicycle or pedestrian traffic. Any proposed omission of plant material must be brought to the attention of the owner's representative immediately.
- Begin plant material installation as soon as the site is available and weather conditions are suitable for performance and sequence of the specifications.
- Plant material should not be installed in overly saturated soil conditions.
- Container grown stock in cans shall be removed without disturbing the root ball. Stock grown in boxes shall have the bottoms removed. All used containers shall be removed from the site or to a discrete storage area.
    - Each tree and shrub shall be placed in the center of the hole and set plumb. Remove the sides of the boxes and hold plumb and rigidly until backfill mix has been tamped around the hole.
    - No plant will be accepted if the rootball is broken or cracked, either before or after the process of installation.
    - For container grown stock, excavate as specified for size of container width and depth.
    - Set plants in the center of, in a vertical position, so that the crown of the plant is one inch above the adjacent finish grade. Backfill pit half-way with backfill mix, add water and continue backfilling until complete. Form a shallow basin around the outer perimeter of the rootball and water to saturate roots.
    - After planting of an area is complete, fine grade around all plants and dispose of excess soil.
    - When directed by the owner's representative, the contractor shall prune, thin-out and shape trees and shrubs in accordance with the standard horticultural practices. Prune trees to retain required height and spread. Unless otherwise directed by the owner's representative, do not cut tree leaders and remove only injured or dead branches and/or foliage. Prune trees and shrubs to retain the natural character.
    - Remove and replace excessively pruned or mis-formed plant material, resulting from improper pruning.
    - Stake trees immediately after planting, as specified in the planting details. All trees shall be doubled staked and driven plumb. The contractor shall avoid driving stakes into the tree's roots or rootball. Tree ties shall be used per the tree staking detail.
    - Install root barriers adjacent to all paving surfaces and utility services and lines, where located within ten of a tree's trunk. Root barriers shall extend a distance of ten feet from each side of the tree's trunk, a total distance of twenty feet.
    - Root barriers are not permitted to be installed around the tree's rootball, unless specifically directed by the owner's representative.
    - Provide a three inch layer of mulch in all non-turf areas where the gradient is 3:1 or less.

E. Turf:
- Install sod in all areas designated for turf:
- After lawn areas that are to be sodded are roto-tilled, soil conditioners incorporated, rocks and debris removed, the Trade Contractor shall install approved sod.
- Prior to placement of sod, the areas shall be graded smooth and rolled in two perpendicular directions, with a 2-ton steel tandem roller; with a uniform grade between walk, curbs, steps and buildings. The Trade Contractor shall obtain approval of finish grades prior to placement of sod.

- Sod shall be laid in staggered rows, following the grade elevations. (Do not lay sod perpendicular to slope of grade.)
- Sodded areas shall be thoroughly watered and kept continuously moist as required.
- Resodding: Sodded areas which do not show a prompt catch of grass within ten (10) days after installation, shall be resodded until an acceptable stand of grass is assured.
- Protection: Protect all turf areas against damage, including erosion and trespass. Provide whatever facilities and safeguards are necessary to accomplish this. Take special care to prevent erosion. All damages shall be the Trade Contractor's responsibility during the life of the Contract.
- Sod shall be rolled with a 2-ton steel tandem roller in two perpendicular directions immediately after placement and again at 20 days after placement.

F. Ground Cover Installation:
- Groundcover shall extend underneath all trees and shrubs.
- Plant groundcover in straight rows, evenly spaced used triangular spacing at the on center spacing specified on the plans and/or legend.
- Dig holes large enough to allow for spreading of roots and backfill with the specified backfill mix.
- Moisten soil prior to groundcover installation.
- For planting areas not susceptible to animal browsing, place one standard seven gram tablet planting tablets shall be placed with each flatted material or liner.
- Work soil around roots to eliminate air pockets.
- Retain a slight depression around each plant and finish with a neat and uniform finish grade.
- Water thoroughly after planting, taking caution not to cover crowns of plants with wet soils or mulch.
- Plants shall not be allowed to dry out prior to or after the installation. Continue to water regularly, as required for a minimum of thirty days.

3.07 MAINTENANCE

A. Term:
- The maintenance period shall begin on the first day after all of the work, as defined in the contractor's contract, is complete and accepted with written approval from the District's representative
- Maintenance shall continue for 90 days after acceptance of completed project and filing of the Notice of Completion, and as much longer as is necessary to establish thriving plants.
- Maintenance Period for sod is 6 months.
- The contracted maintenance period will be extended when it of the opinion of the District's representative, that contractor has not complied with their maintenance responsibilities, as defined in their contract. The contractor will be responsible, at their own expense, for the additional maintenance required until the landscaped areas are accepted by the District's representative.

B. Scope of the Work:
- The contractor shall continuously maintain all involved areas of the contract during the progress of the work and during the maintenance period, until final acceptance of the work.
- The contractor shall maintain trees, shrubs and other plants by pruning, mowing, cultivating, weeding and fertilizing, as required to sustain healthy growth. .
- The contractor shall restore plant water basins, tighten and repair tree stakes and guy support and adjust trees and shrubs, as required, to maintain vertical and plumb growth.
- The contractor is responsible for maintaining adequate protection of the landscape areas. Damaged areas shall be repaired immediately at the contractor's expense.
- The complete maintenance of the landscape installation on site including, but not limited to, the following:
  - Irrigation:
    - Properly and completely maintain all irrigation systems, clean all lines, valves, heads and other
    - portions of such systems to assure their continual proper operations. Lubricate as needed.

- Make all adjustments necessary to avoid over spray onto buildings and pavements.
- Program controller on a weekly basis considering weather, the water requirements of each sectional valve, and the application rate each area is capable of receiving, without runoff.

- Planting:
  - Fertilization: Apply 5 pounds per 1,000 square feet of 15-15-15 to all planting areas 20 and 50 days after planting.
  - Cultivation and Weeding: After any period of more or less continuous watering, during which soil moisture is maintained at near saturation point, cultivate all ground cover areas by scarifying the surface 1-inch. Do not change grade, remove basins or berms in the process of such cultivation. Follow the cultivating by a period of non-irrigation, to aid the killing off of weeds, and soil aeration.
  - Pruning and Staking: Unless otherwise directed, only to remove dead or broken branches of trees or shrubs. Re-stake, re-align and re-tie all trees as necessary.
  - Insect Management: Examine all plants frequently, especially any which are subject to common insect depredation such as aphids, mealy bugs, ants, etc., to establish need for counter measures.
  - Wash foliage with strong streams of water. Notify Owner's rep. if further measures seem warranted.
  - Replacement: Immediately replace any and all plant materials, which for any reason are damaged or die during the maintenance period. Replace as originally specified.

  - Protection: Protect all planting against damage, including erosion, rodents, and trespass, and providing proper safeguards as needed. Repair damage to the work made by pedestrians, animals, vehicular traffic, or any other cause until acceptance.

    - Turf:
      - The establishment of turf includes all the work normally required to establish the sod and to grow a healthy, uniform turf of smooth and even textures and grades.
      - Between the 15th and 20th days of the maintenance period, re-sod all spots or areas in which normal rooting is not evident.
      - Within the first 20 days of maintenance period:
        - Remove all rocks or other debris that would constitute a hindrance to subsequent mowing or present an untidy appearance.
        - Repair all damage caused in performance of work.
        - Fill all depressions and eroded channels with sufficient backfill mix to raise to proper grade. Fill gaps between rolls and small holes with clean wash sand.
        - Roll all lawn areas with a 2-ton steel tandem roller to compact the soil around the roots and provide a smooth, even mowing surface (at 20 days).
        - Mow turf weekly to a height of 1/2 inch.
      - All turf shall be mowed at least once a week. Grass clippings shall be removed off-site.
      - Fertilize twice, once at 30 days and once at 90 days.
      - Paved Areas: Clean all paved areas of debris or silt by sweeping and hosing.

3.8 CLEAN-UP

A. During landscape construction, the contractor shall maintain all paving surfaces in a clean and orderly condition.

B. The contractor shall protect all work and materials from damage due to landscape operations, work by other trades and trespassers. The contractor shall maintain protection during installation and throughout the maintenance period. Repair or replace damaged landscape work as required.

3.9 GUARANTEE AND REPLACEMENT

A. Planting: Guarantee all planting until end of maintenance period and acceptance. Replace any trees or plants that die or lose form and size as originally specified even though they have taken root and are growing after the die back or loss of form or size.

B. Trees: Guarantee all trees in writing to live in a healthy condition for one year after filing of Notice of Completion. Replace dead or unhealthy trees immediately. All replacements, including planting, staking, training, etc., shall be as originally specified, without cost to the Owner.

END OF SECTION

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SECTION 33 4000
STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Reference Standards:

1. Standard Specifications for Public Works, current edition, including Regional and City of Lake Elsinore Supplemental Amendments.
2. City of Lake Elsinore Standard Specifications for Public Works Construction (Whitebook), current edition.

1.2 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure transition couplings.
3. Cleanouts.
4. Drains.
5. Encasement for piping.
6. Cleanouts.
7. Channel drainage systems.
8. Catch basins.
9. Stormwater inlets.
10. Pipe outlets.
11. Stormwater disposal systems.

B. Related Requirements:

1. Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling, and underground warning tapes.
2. REFERENCES
The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

C. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, 1983 Demolition Operations-Safety Requirements.

2. Standard Specifications for Public Works Construction (Latest Edition), including the Riverside County and City of Lake Elsinore specifications.

D. Standard Drawings

1. City of Lake Elsinore Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
2. EVMWD Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

E. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1. Drop inlets.
2. Cleanouts and drains.
3. Pipe and fittings.

B. Shop Drawings:

1. Cleanouts: Include plans, elevations, sections, details, frames, and covers.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.

B. Field quality-control reports.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic cleanouts, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle cleanouts according to manufacturer's written rigging instructions.

D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by District or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify District Construction Manager no fewer than three days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without District Construction Manager's written permission.

PART 2 - PRODUCTS

2.1 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 74, Service and Extra-Heavy classes.

B. Gaskets: ASTM C 564, rubber.

C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.2 PVC PIPE AND FITTINGS

A. PVC Gravity Sewer Piping SDR-35:

1. Pipe and Fittings: ASTM F 679, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F 477, elastomeric seals for gasketed joints.

B. PVC Pressure Piping:

1. Pipe: Pipe: ASTM D 1785, Schedule 80 PVC, with plain ends for solvent-cemented joints.
2. Fittings: ASTM D 2467, Schedule 80 PVC, socket type.

2.3 CONCRETE PIPE AND FITTINGS

A. Reinforced-Concrete Drain Pipe and Fittings: ASTM C 76.

1. Bell-and-spigot or tongue-and-groove ends and gasketed joints with ASTM C 443, rubber gaskets where indicated.

2.4 NONPRESSURE TRANSITION COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Concrete Pipes: ASTM C 443, rubber.
2. For Cast-Iron Soil Pipes: ASTM C 564, rubber.
3. For Fiberglass Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
4. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
5. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fernco Inc.
   b. Mission Rubber Company.
   c. NDS Inc.
   d. Or Equal.

2. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Ring-Type, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fernco Inc.
   b. Logan Clay Pipe.
   c. Mission Rubber Company.
   d. Or Equal.
2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.5 CLEANOUTS

A. Concrete Cleanouts:

1. Materials and dimensions according to City of Lake Elsinore standards. Cleanout types and additional dimensions as indicated on Drawings. Provide heavy duty frames and grates.

B. Plastic Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. NDS Inc.
   b. Sioux Chief Manufacturing Company, Inc.
   c. Zurn Industries, LLC.
   d. Or Equal.
2. Description: PVC body with PVC threaded plug. Include PVC drain pipe fitting and riser to cleanout of same material as drain piping.

2.6 DRAINS

A. Precast Concrete Area Drains, H-20 Loading, ADA complaint Grate and Frame:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Old castle.
   b. Jensen Precast
   c. Or approved Equal.
2. Description: ASME A112.6.3 gray-iron round body with anchor flange and round secured grate. Include bottom outlet with inside calk or spigot connection, of sizes indicated.
3. Top-Loading Classification(s): Medium and Heavy Duty.

B. Cast-Iron Trench Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Smith, Jay R. Mfg. Co.

b. Watts; a Watts Water Technologies company.

c. Zurn Industries, LLC.

d. Or Equal.

2. Description: ASME A112.6.3, 6-inch-wide top surface, rectangular body with anchor flange or other anchoring device, and rectangular secured grate. Include units of total length indicated and quantity of bottom outlets with inside calk or spigot connections, of sizes indicated.

3. Top-Loading Classification(s): Medium, Heavy, and Extra-Heavy Duty.

C. Steel Trench Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Rockford Sanitary Systems, Inc.

b. Or Equal.

2. Description: Factory fabricated from ASTM A 242/A 242M, welded steel plate, to form rectangular body with uniform bottom downward slope of 2 percent toward outlet, anchor flange, and grate. Include units of total length indicated, bottom outlet of size indicated, outlet strainer, acid-resistant enamel coating on inside and outside surfaces, and grate with openings of total free area at least two times cross-sectional area of outlet.

3. Plate Thicknesses: 1/8 inch and 1/4 inch.

4. Overall Widths: 7-1/2 inches and 12-1/3 inches.

a. Grate Openings: 3/8 inch circular or 3/8-by-3-inch slots.

2.7 POLYMER-CONCRETE, CHANNEL DRAINAGE SYSTEMS

A. General Requirements for Polymer-Concrete, Channel Drainage Systems: Modular system of precast, polymer-concrete channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling. Include quantity of units required to form total lengths indicated.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ACO USA.

2. Innovative Plastic, Inc.

3. Polycast: Hubbell Power Systems, Inc.

4. Or Equal.

C. Drainage Specialties: Precast, polymer-concrete units.

1. Large Catch Basins:

a. 24-by-12-inch polymer-concrete body, with outlets in quantities and sizes indicated.

b. Gray-iron slotted grate.

c. Frame: Include gray-iron or steel frame for grate.

2. Small Catch Basins:

a. 19- to 24-inch by approximately 6-inch polymer-concrete body, with outlets in quantities and sizes indicated.

b. Gray-iron slotted grate.

c. Frame: Include gray-iron or steel frame for grate.

3. Oil Interceptors:

a. Polymer-concrete body with interior baffle and four steel support channels and two 1/4-inch-thick, steel-plate covers.
b. Steel-plate covers.
c. Capacity: As indicated on drawings.
d. Inlet and Outlet: As indicated on drawings.

4. Sediment Interceptors:
a. 27-inch-square, polymer-concrete body, with outlets in quantities and sizes indicated.
b. 24-inch-square, gray-iron frame and slotted grate.

D. Supports, Anchors, and Setting Devices: Manufacturer's standard unless otherwise indicated.

E. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

2.8 PLASTIC, CHANNEL DRAINAGE SYSTEMS

A. General Requirements for Plastic, Channel Drainage Systems:
1. Modular system of plastic channel sections, grates, and appurtenances.
2. Designed so grates fit into frames without rocking or rattling.
3. Number of units required to form total lengths indicated.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACO USA.
2. NDS Inc.
3. Zurn Industries, LLC.
4. Or Equal.

C. Fiberglass Systems:
1. Channel Sections:
a. Interlocking-joint, fiberglass modular units, with built-in invert slope of approximately 1 percent and with end caps.
b. Rounded or inclined inside bottom surface, with outlets in quantities, sizes, and locations indicated.
c. Width: 6 or 8 inches.
2. Factory- or field-attached frames that fit channel sections and grates.
a. Material: Manufacturer's standard metal.
3. Grates with slots or perforations that fit frames.
a. Material: Gray iron.
4. Covers: Solid gray iron if indicated.
5. Drainage Specialties:
a. Large Catch Basins: 24-inch-square plastic body, with outlets in quantities and sizes indicated. Include gray-iron frame and slotted grate.
b. Small Catch Basins: 12-by-24-inch plastic body, with outlets in quantities and sizes indicated. Include gray-iron frame and slotted grate.

D. Supports, Anchors, and Setting Devices: Manufacturer's standard unless otherwise indicated.

E. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

2.9 CATCH BASINS

A. Standard Precast Concrete Catch Basins:

1. Materials and dimensions per City of Lake Elsinore standards.

2. Type of catch basin and additional dimensions as indicated on Drawings.

2.10 STORMWATER INLETS

A. Curb Inlets: Made with vertical curb opening, of materials and dimensions according to City of Lake Elsinore standards.

B. Gutter Inlets: Made with horizontal gutter opening, of materials and dimensions according to City of Lake Elsinore standards. Include heavy-duty frames and grates.

C. Combination Inlets: Made with vertical curb and horizontal gutter openings, of materials and dimensions according to City of Lake Elsinore standards. Include heavy-duty frames and grates.

D. Frames and Grates: Heavy duty, according to City of Lake Elsinore standards.

2.11 PIPE OUTLETS

A. Riprap Basins: Broken, irregularly sized and shaped, graded stone according to NSSGA's "Quarried Stone for Erosion and Sediment Control."

1. Average Size: As indicated on drawings.

B. Filter Stone: According to NSSGA's "Quarried Stone for Erosion and Sediment Control," No. FS-2, No. 4 screen opening, average-size graded stone.

2.12 STORMWATER DISPOSAL SYSTEMS

A. Chamber Systems:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Advanced Drainage Systems, Inc.

b. Contech Drainage Systems

c. Hancor Inc.

d. Or approved Equal.

2. Storage and Leaching Chambers: Molded PE with perforated sides and open bottom. Include number of chambers, distribution piping, end plates, and other standard components as required for system total capacity.

3. Filtering Material: ASTM D 448, Size No. 24, 3/4- to 2-1/2-inch washed, crushed stone or gravel unless shown otherwise.

4. Filter Mat: Geotextile woven or spun filter fabric, in one or more layers, for minimum total unit weight of 4 oz./sq. yd..

B. Pipe Systems: Perforated manifold, header, and lateral piping complying with AASHTO M 252M for NPS 10 and smaller, AASHTO M 294M for NPS 12 to NPS 60. Include proprietary fittings, couplings, seals, and filter fabric.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Advanced Drainage Systems, Inc.
    b. Hancor Inc.
    c. Or approved Equal.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install cleanouts for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing drain is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

F. Install gravity-flow, nonpressure drainage piping according to the following:

1. Install piping pitched down in direction of flow.
2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
3. Install piping with 36-inch minimum cover unless drawings indicate otherwise.
4. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
5. Install corrugated steel piping according to ASTM A 798/A 798M.
6. Install PE corrugated drain piping according to the following:
    a. Encase in Type C rock envelope according to City of Lake Elsinore Standard Drawing SDS110. Surround crushed rock with filter fabric.
    b. Pipe with less than 2 feet of cover: Encase in concrete according to Regional Standard Drawing S-7.
    c. Backfill trench and compact.
7. Install PVC drain piping according to ASTM D 2321 and ASTM F 1668.

8. Install concrete drain piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

G. Install corrosion-protection as indicated on drawings.

3.2 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure drainage piping according to the following:

1. Join hub-and-spigot, cast-iron soil piping with gasketed joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
3. Join corrugated steel drain piping according to ASTM A 798/A 798M.
4. Join corrugated PE piping according to ASTM D 3212 for push-on joints.
5. Join PVC profile gravity drain piping according to ASTM D 2321 for elastomeric-seal joints or ASTM F 794 for gasketed joints.
6. Join concrete drain piping according to ASTM C 14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
7. Join dissimilar pipe materials with nonpressure-type flexible couplings.

B. Join force-main pressure piping according to the following:

1. Join PVC pressure piping according to ASTM D 2855 for solvent-cemented joints.
2. Join dissimilar pipe materials with pressure-type couplings.

3.3 CLEANOUT INSTALLATION

A. Concrete Cleanouts: Construct concrete cleanouts according to City of Lake Elsinore standards. Set cleanout frames and covers flush with finished surface.

B. Plastic Cleanouts: Use cast-iron soil pipe fittings in drain pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in drain pipe.

1. Install cleanouts and riser extensions from drain pipes to cleanouts at grade.
2. Use commercially manufactured 45 degree wye and 45 degree bend fittings in storm drain pipes and risers for cleanouts.
3. Install piping so cleanouts open in direction of flow in storm drain pipe.
4. Unpaved Areas: Set cleanout tops 1 inch above surrounding earth grade.
5. Paved Areas (Walkways, Roadways, etc.): Set cleanout tops flush with pavement surface.

3.4 DRAIN INSTALLATION

A. Install type of drains in locations indicated.

1. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.
2. Use Medium-Duty, top-loading classification drains in paved foot-traffic areas.
3. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service and parking areas.

4. Use Extra-Heavy-Duty, top-loading classification drains in roads.

B. Embed drains in 4-inch minimum concrete around bottom and sides.

C. Fasten grates to drains if indicated.

D. Set drain frames and covers with tops flush with pavement surface.

E. Assemble trench sections with flanged joints.

F. Embed trench sections in 4-inch minimum concrete around bottom and sides.

3.5 CATCH BASIN INSTALLATION

A. Construct in accordance with City of Lake Elsinore standards.

B. Construct to sizes and shapes indicated on Drawings

C. Set frames and grates to elevations indicated.

3.6 STORMWATER INLET AND OUTLET INSTALLATION

A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.

B. Construct riprap of broken stone, as indicated.

C. Install outlets that spill onto grade, anchored with concrete, where indicated.

D. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.

E. Construct energy dissipaters at outlets, as indicated.

3.7 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.8 CHANNEL DRAINAGE SYSTEM INSTALLATION

A. Install with top surfaces of components, except piping, flush with finished surface.

B. Assemble channel sections to form slope down toward drain outlets. Use sealants, adhesives, fasteners, and other materials recommended by system manufacturer.

C. Embed channel sections and drainage specialties in 4-inch minimum concrete around bottom and sides.

D. Fasten grates to channel sections if indicated.

E. Assemble channel sections with flanged or interlocking joints.

F. Embed channel sections in 4-inch minimum concrete around bottom and sides.

3.9 STORMWATER DISPOSAL SYSTEM INSTALLATION

A. Chamber Systems: Excavate trenches of width and depth, and install system and backfill according to chamber manufacturer's written instructions. Include storage and leaching chambers, filtering material, and filter mat.

B. Piping Systems: Excavate trenches of width and depth, and install piping system, filter fabric, and backfill, according to piping manufacturer's written instructions.

3.10 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping in building's storm building drains.

B. Connect force-main piping to building's storm drainage force mains.

C. Make connections to existing piping and underground manholes or cleanouts.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes, cleanouts, and structures by cutting into existing unit and creating an opening large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, cleanout, or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.

b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping, manholes, cleanouts, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

D. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure-type flexible couplings where required to join gravity-flow, nonpressure drain piping unless otherwise indicated.

a. Shielded flexible couplings for same or minor difference OD pipes.

b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.

c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

2. Use pressure-type pipe couplings for force-main joints.

3.11 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with at least 8-inch-thick, brick masonry bulkheads.
2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Abandoned Manholes, Cleanouts, and Structures: Excavate around manholes, cleanouts, and structures as required and use one procedure below:

1. Remove manhole, cleanout, or structure and close open ends of remaining piping.
2. Remove top of manhole, cleanout, or structure down to at least 36 inches below final grade. Fill to within 12 inches of top with stone, rubble, gravel, or compacted dirt. Fill to top with concrete.

C. Backfill to grade.

3.12 IDENTIFICATION

A. Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use warning tape or detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.13 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:
    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
    d. Infiltration: Water leakage into piping.
    e. Exfiltration: Water leakage from or around piping.
3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.

4. Submit separate report for each test.
5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
    a. Exception: Piping with soil-tight joints unless required by authorities having jurisdiction.
    b. Option: Test plastic piping according to ASTM F 1417.
    c. Option: Test concrete piping according to ASTM C 924.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.14 CLEANING

A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION 33 4000

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SECTION 33 4600
SUBDRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Related Requirements

1. Section 33 40 00 "Storm Utility Drainage Piping".

1.2 SUMMARY

A. Section Includes:

1. Perforated-wall pipe and fittings.
2. Drainage panels.
3. Geotextile filter fabrics.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Drainage conduits, including rated capacities.
2. Drainage panels, including rated capacities.
3. Geotextile filter fabrics.

1.4 COORDINATION

A. Coordinate foundation drainage system installation with excavating, trenching, and backfilling.

B. Coordinate drainage panel installation with waterproofing of walls below grade.

C. Coordinate piping termination with storm drainage system.

PART 2 - PRODUCTS

2.1 PERFORATED-WALL PIPES AND FITTINGS

A. General: Include pipes, fittings, couplings, and joint materials.

B. Perforated PVC Sewer Pipe and Fittings: ASTM D 2729, bell-and-spigot ends, for loose joints.

2.2 MOLDED-SHEET DRAINAGE PANELS

A. Description: Prefabricated composite drainage panels, made with drainage core and faced with filter fabric, for use as part of foundation drainage system.

1. Subject to compliance with requirements, provide products by the following:
   a. Carlisle Coatings & Waterproofing, Inc..
   b. Grace Construction Products; W.R. Grace & Co.
   c. Polyguard Products, Inc.
   d. Or Equal.
2. Drainage Core: Three-dimensional, non-biodegradable, molded-plastic-sheet material designed to effectively conduct water to foundation drainage system under maximum soil pressures.
   a. Flow Rate: 9 to 15 gpm/ft. at hydraulic gradient of 1.0 and 3600 psf normal pressure when tested according to ASTM D 4716.
   b. Minimum Compressive Strength: 18,000 lbf/sq.ft.
3. Filter Fabric: Nonwoven needle-punched geotextile, manufactured for subsurface drainage, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with the following properties determined according to AASHTO M 288:
   a. Survivability: Class 1
   b. Apparent Opening Size: No. 40 sieve, maximum.
   c. Permittivity: 0.5 per second, minimum.

2.3 SOIL MATERIALS

A. Soil materials are specified in Section 31 20 00 "Earth Moving."

2.4 WATERPROOFING FELTS

A. Material: Comply with ASTM D 226, Type I, asphalt-saturated organic felt.

2.5 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of polypropylene (PP) or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested according to ASTM D 4491.

B. Structure Type: Nonwoven, needle-punched continuous filament.

1. Survivability: AASHTO M 288 Class 2.
2. Styles: Flat and sock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Verify that drainage panels installed as part of foundation wall waterproofing is properly positioned to drain into subdrainage system.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 31 20 00 "Earth Moving."

3.3 FOUNDATION DRAINAGE INSTALLATION

A. Place impervious fill material on subgrade adjacent to bottom of footing after concrete footing forms have been removed. Place and compact impervious fill to dimensions indicated, but not less than 6 inches deep and 12 inches wide.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for foundation subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Install drainage panels on foundation walls as follows:

1. Coordinate placement with other drainage materials.
2. Comply with manufacturer's written instructions for securing drainage panels to substrate. Use adhesives and mechanical fasteners recommended by manufacturer. Lap edges of fabric and extend fabric around foundation drainage pipe according to manufacturer's recommendations. Do not penetrate waterproofing. Protect installed panels during backfilling
3. Lay perforated drainage pipe at base of footing. Install as indicated in Part 3 "Piping Installation" Article.
4. Separate 4 inches of fabric at beginning of roll and cut away 4 inches of core. Wrap fabric around end of remaining core.
5. Attach panels to wall beginning at subdrainage pipe. Place and secure molded-sheet drainage panels, with geotextile facing away from wall.

J. Place backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Final backfill to finish elevations and slope away from building.

3.4 UNDERSLAB DRAINAGE INSTALLATION

A. Excavate for underslab drainage system after subgrade material has been compacted but before drainage course has been placed. Include horizontal distance of at least 6 inches between drainage pipe and trench walls. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for underslab subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping with drainage course to elevation of bottom of slab, and compact and wrap top of drainage course with flat-style geotextile filter fabric.

G. Install horizontal drainage panels as follows:

1. Coordinate placement with other drainage materials.
2. Lay perforated drainage pipe at inside edge of footing.
3. Place drainage panel over drainage pipe with core side up. Peel back fabric and wrap fabric around pipe. Locate top of core at bottom elevation of floor slab.
4. Butt additional panels against other installed panels. If panels have plastic flanges, overlap installed panel with flange.

3.5 RETAINING-WALL DRAINAGE INSTALLATION

A. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

B. Place supporting layer of drainage course over compacted subgrade to compacted depth of not less than 4 inches.

C. Install drainage piping as indicated in Part 3 "Piping Installation" Article for retaining-wall subdrainage.

D. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

E. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

F. Place drainage course in layers not exceeding 3 inches in loose depth; compact each layer placed and wrap top of drainage course with flat-style geotextile filter fabric.

G. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

H. Install drainage panels on wall as follows:

1. Coordinate placement with other drainage materials.
2. Comply with manufacturer's written instructions for securing drainage panels to substrate. Use adhesives and mechanical fasteners recommended by manufacturer. Lap edges of fabric and extend fabric around foundation drainage pipe according to manufacturer's recommendations. Do not penetrate waterproofing. Protect installed panels during backfilling.
3. Lay perforated drainage pipe at base of footing as described elsewhere in this Specification. Do not install aggregate.
4. If weep holes are indicated instead of drainage pipe, cut 1/2-inch-diameter holes on core side at weep-hole locations. Do not cut fabric.
5. Cut panel as necessary to keep top 12 inches below finish grade.
6. For inside corners, bend panel. For outside corners, cut core to provide 3 inches for overlap.

I. Fill to Grade: Place satisfactory soil fill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.6 LANDSCAPING DRAINAGE INSTALLATION

A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive or tape.

E. Add drainage course to top of drainage conduits.

F. After satisfactory testing, cover drainage conduit to within 12 inches of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.7 PIPING INSTALLATION

A. Drawings indicate general location and arrangement of foundation drainage system piping.

B. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Foundation and Retaining Wall Subdrainage: Install piping pitched down, at a minimum of 1 percent unless otherwise indicated.

2. Underslab Subdrainage: Install piping level.
3. Plaza Deck Subdrainage: Install piping level.
4. Landscaping Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent unless otherwise indicated.
5. Lay perforated pipe with perforations down.
6. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

C. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

D. Extend piping and connect to storm drainage system or daylight as indicated.

3.8 PIPE JOINT CONSTRUCTION

A. Join perforated PVC sewer pipe and fittings according to ASTM D 3212 with loose bell-and-spigot, push-on joints.

B. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.9 CLEANOUT INSTALLATION

A. Comply with requirements for cleanouts specified in Section 33 40 00 "Storm Utility Drainage Piping."

B. Cleanouts for Subdrainage:

1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
2. In vehicular-traffic areas, unless indicated otherwise, use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches deep. Set top of cleanout flush with grade.
3. In nonvehicular-traffic areas, use NPS 4 PVC pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches deep. Set top of cleanout 1 inch above grade.
4. Comply with requirements for concrete specified in Section 32 16 00 " Concrete Curbs, Gutters and Sidewalks."

C. Cleanouts for Underslab Subdrainage:

1. Install cleanouts and riser extensions from piping to top of slab. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.
2. Use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout flush with top of slab.

3.10 CONNECTIONS

A. Comply with requirements for piping specified in Section 33 40 00 "Storm Utility Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Unless otherwise indicated, connect low elevations of subdrainage system to building's solid-wall-piping storm drainage system.

3.11 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.

2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

B. Drain piping will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.12 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 33 4600

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PROJECT MANUAL

INC 01_SPC_V2

January 16, 2020

MT. SAN JACINTO COMMUNITY COLLEGE
MVC Stadium Rough Grading Inc #1

Menifee Valley Campus
Menifee, CA

BNds Project Number 19001-02

Original DSA submittal date: 12/11/19

Prepared For:

DSA 04-118898 – INC 1

731 Ninth Avenue, Suite A
San Diego, CA 92101

619.795.2405
www.bndesignstudio.com

SIGNATURES

PROJECT

MVC STADIUM
BNds Project No. 19000-01

OWNER

Mt. San Jacinto Community College
Menifee, California

ARCHITECT

BakerNowick Design Studio
731 Ninth Ave, Suite A
San Diego, CA 92101
(619) 795-2450

CONSULTANTS

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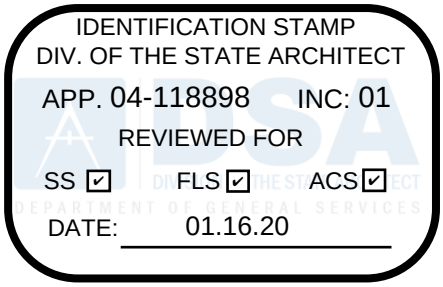
LAKE ELSINORE, CA 92530-3665

LANDSCAPE:
GROUNDLEVEL
2605 STATE STREET
SAN DIEGO, CA 92103
(619) 325-1990



DSA APPROVAL

SECTION 000110

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SECTION 010000 - GENERAL REQUIREMENTS

PART 1 - GENERAL (Not Used)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 010000

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3.
4.
5.
6. Contractor's use of site and premises.
7. Coordination with occupants.
8. Work restrictions.
9. Specification and Drawing conventions.
10. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2.

1.3 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

A. Project Identification: Menifee Valley Campus Stadium Rough Grading Package, BNds # 19001-02

1. Project Location: 28237 La Piedra Rd. Menifee CA 92584

B. Owner: Mt San Jacinto Community College District, 1499 State St., San Jacinto, CA 92583

1. Owner's Representative: Todd Franco, Associate Dean, Facilities Planning, District Construction and Support Services, Mt San Jacinto Community College District, 951-639-5097

C. Architect: BakerNowicki Design Studio, 731 Ninth Avenue, Suite A, San Diego, CA 92101

1. Architect's Representative: Karyn Shore, AIA, 731 Ninth Avenue, Suite A, San Diego, CA 92101, 619-795-2450

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Civil Engineer: WSP
Senior Civil Project Manager Ahmad A. Khan
(951) 471-1625 Ahmad.A.Khan@WSP.com

2. Landscape Architect: GroundLevel
Senior Principal: Brad Lenahan, ASLA
619) 325-1990, BLenahan@groundlevelsd.com

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Demolition, Rough Grading and Underground Utilities as indicated on plans as first increment for final construction of New Stadium, Softball Fields, Vollaeyball Courts and other sire improvements. and other Work indicated in the Contract Documents.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6

1.7 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

C. Limits on Use of Site: Limit use of Project site toareas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep drivewaysand entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

E. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy Project site and adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

B. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

C. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On

occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.

4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.9 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to between 7a.m. to 5 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.

C. On-Site Work Day Restrictions: Do not perform work resulting in utility shutdowns on-site during work black-out days indicated in Document 003113 "Preliminary Schedules."

D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

E. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

F. <Double click to insert sustainable design text for nonsmoking buildings.>

G. Smoking and Controlled Substance Restrictions: Use of tobacco products , alcoholic beverages, and other controlled substances on Project site is not permitted.

H. Employee Identification: Owner will provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

I. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1.
2. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

B. Contractors proposing to use an "equal" product, when listed as acceptable in the products sections of this specifications by the term "or equal," are proposing a substitution and must conform to all requirements of substitutions as listed in this section.

1.4 AGENCY REQUIREMENTS

All substitutions affecting ACS, FLS and SS shall be considered a change order or addenda and shall be approved by DSA prior to fabrication and installation. (Section 4-338, Part 1).

1.5 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Contractor agrees to compensate Architect, at Architects current billing rates, for substitution requests that require modification to the Contract Documents. Compensation shall be made by an adjustment to the Contract amount.

a. Where required by Division of the State Architect (D.S.A.) approvals, the Contractor shall pay all plan check fees. Or fees required to obtain approval.
b. The Contractor shall pay the Architect and his Consultants for all services rendered for the drawings, calculations, review time, and/or D.S.A. plan check time for each substitute item(s) for approval.

4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within a reasonable period after the Architect receives final documentation.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.6 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.7 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor. Submit requests for substitution immediately on discovery of need for change, but not later than 30 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
i. A maximum of one substitution request shall be submitted for any one item\
j. Substitutions with material effect on the project will be submitted for approval, prior to fabrication or installation, by D.S.A. as a Change Order per Section 012600.

B. Substitutions for Convenience: **Requests are restricted to before bid opening.**

C. The Instruction to bidders specify time restrictions for submitting request for Substitution during the bidding periods according to the requirements specified in this section. In the event that the bidder does not agree in the request form to provide the specified item and the District denies the request substation, the bidder's bid shall be considered non-responsive and the District may award the contract to the next lowest bidder or in its sole discretion, release all bidders.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included in Project Manual.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on form included in Project Manual.

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on form included in Project Manual. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 WORK CHANGE DIRECTIVE

A. Work Change Directive: Architect may issue a Work Change Directive on form included in Project Manual. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Document 004373 "Proposed Schedule of Values Form" for requirements for furnishing proposed schedule of values with bid.
2. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
3. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
4. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
5. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
6. <Double click to insert sustainable design text for related sections.>

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Cost-loaded Critical Path Method Schedule may serve to satisfy requirements for the schedule of values.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect[**through Construction Manager**] at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Owner's name.
    c. Owner's Project number.
    d. Name of Architect.
    e. Architect's Project number.
    f. Contractor's name and address.
    g. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:

    a. Related Specification Section or division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
11. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling [**five**] <**Insert number**> percent of the Contract Sum and subcontract amount.
12. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architectand paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Architect by the 10th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

1. Submit draft copy of Application for Payment [**seven**] <**Insert number**> days prior to due date for review by Architect.

D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

1. Other Application for Payment forms proposed by the Contractor may be acceptable to Architect and Owner. Submit forms for approval with initial submittal of schedule of values.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

G. Transmittal: Submit three signed and notarized original copies of each Application for Payment to [**Architect**] [**Construction Manager**] by a method ensuring receipt[**within 24 hours**]. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Products list (preliminary if not final).
6. Sustainable design action plans, including preliminary project materials cost data.
7. Schedule of unit prices.
8. Submittal schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
11. Copies of building permits.
12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
13. Initial progress report.
14. Report of preconstruction conference.
15. Certificates of insurance and insurance policies.
16. Performance and payment bonds.
17. Data needed to acquire Owner's insurance.

J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

    a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706.
6. AIA Document G706A.
7. AIA Document G707.
8. Evidence that claims have been settled.
9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.

12. Waivers and releases.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

General coordination procedures.

1. Coordination drawings.
2. RFIs.
3. Digital project management procedures.
4. Project meetings.

Related Requirements:

Section 011200 "Multiple Contract Summary" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.

5. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
6. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.3 DEFINITIONS

BIM: Building Information Modeling.

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

Name, address, telephone number, and email address of entity performing subcontract or supplying products.

1. Number and title of related Specification Section(s) covered by subcontract.
2. Drawing number and detail references, as appropriate, covered by subcontract.

1.5 GENERAL COORDINATION PROCEDURES

Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

1. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
2. Make adequate provisions to accommodate items scheduled for later installation.

Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

Preparation of Contractor's construction schedule.

3. Preparation of the schedule of values.
4. Installation and removal of temporary facilities and controls.
5. Delivery and processing of submittals.
6. Progress meetings.
7. Preinstallation conferences.
8. Project closeout activities.
9. Startup and adjustment of systems.

B. Construction Documents Gaps, Conflicts, and Cost

When conflicts in construction documents are identified, the contractor shall, at the time of bidding, assume the most costly solution as presented in the construction documents unless otherwise clarified by a Request for Information. A credit will be provided to the owner if the less costly design/option is selected. Contractor to provide notification to the design team when such circumstances are identified.

1. All Items shown in the construction drawings or specifications should be assumed by the contractor to have all necessary connections, even when not indicated on the construction drawings. Drinking fountains, roof drains, pumps, outlets, etc, should be assumed to be furnished with all necessary plumbing, electrical, data, mechanical, or structural connections for the equipment or item to function. Contractor to assume the scope of all such items in their initial bids.
2. Where Contractor, as a component of BIM coordination, re-routes assemblies or building systems due to conflict coordination procedures, changes for these revisions will not be considered a change in cost, scope or schedule as they are identified in advance of installation.

1.6 COORDINATION DRAWINGS

Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.

a. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

Coordination Drawing Organization: Organize coordination drawings as follows:

Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.

2. Plenum Space: Indicate subframing for support of ceiling[**,** and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

File Preparation Format: Same digital data software program, version, and operating system as original Drawings.

7. File Submittal Format: Submit or post coordination drawing files using PDF

format.

8. BIM File Incorporation: Develop and incorporatecoordination drawing files into BIM established for Project.
9. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

   Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

   a. Digital Data Software Program: Drawings are available in BLUEBEAM Share and BOX.
   b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

B. Navisworks Files

Contractor to furnish design team with navisworks and other coordination files immediately when requested.

1. Contractor to Provide files to all foremen on site.
2. Contractor to provide training to all foremen on site in the use of the navisworks file in the field on tablets, mobile devises, or laptop computers. Updated files to be made immediately available to the construction team in the field when changes made.

1.7 REQUEST FOR INFORMATION (RFI)

General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.

1. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

Project name.

2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.

13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

B. Architect'sAction: Architectwill review each RFI, determine action required, and respond. Allow [**seven**] working days for Architect's response for each RFI. RFIs received by Architectafter 1:00 p.m. will be considered as received the following working day.

The following Contractor-generated RFIs will be returned without action:

Requests for approval of submittals.

a. Requests for approval of substitutions.
b. Requests for approval of Contractor's means and methods.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or inaccurately prepared RFIs.

Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architectof additional information.

2. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architectin writing within [**10**] days of receipt of the RFI response.

RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

Project name.

3. Name and address of Contractor.
4. Name and address of Architect
5. RFI number including RFIs that were returned without action or withdrawn.
6. RFI description.
7. Date the RFI was submitted.
8. Date Architect'sresponse was received.

On receipt of Architect'saction, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architectwithin [**seven**] days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's BIM model will be provided by Architect for Contractor's use during construction.

Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.

1. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
2. Digital Drawing Software Program: Contract Drawings are available in BNds' BOX and Bluebeam Share.
3. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.

Web-Based Project Software: Provide, administer, and useweb-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.

Web-based Project software site includes, at a minimum, the following features:

Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.

a. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
b. Document workflow planning, allowing customization of workflow between project entities.
c. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
d. Track status of each Project communication in real time, and log time and date when responses are provided.
e. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
f. Processing and tracking of payment applications.
g. Processing and tracking of contract modifications.
h. Creating and distributing meeting minutes.
i. Document management for Drawings, Specifications, and coordination drawings, including revision control.
j. Management of construction progress photographs.
k. Mobile device compatibility, including smartphones and tablets.

Provide up to seven web-based Project software user licenses for use of OwnerArchitect, and Architect's consultants. Provide eight hours of software training at Architect's office for web-based Project software users.

4. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
5. Provide one of the following web-based Project software packages under their current published licensing agreements:

   Autodesk; Buzzsaw
   a. Corecon Technologies, Inc.
   b. Meridian Systems; Prolog.
   c. Newforma, Inc.
   d. Procore Technologies, Inc.
   e. Viewpoint, Inc.; Viewpoint for Project Collaboration.

PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

6. Name file with submittal number or other unique identifier, including revision identifier.
7. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

General: Schedule and conductmeetings and conferences at Project site unless otherwise indicated.

A. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

Attendees: Authorized representatives of Owner[**, ,**Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

1. Agenda: Discuss items of significance that could affect progress, including the following:

   Responsibilities and personnel assignments.
   a. Tentative construction schedule.
   b. Phasing.
   c. Critical work sequencing and long lead items.
   d. Designation of key personnel and their duties.
   e. Lines of communications.
   f. Use of web-based Project software.
   g. Procedures for processing field decisions and Change Orders.
   h. Procedures for RFIs.
   i. Procedures for testing and inspecting.

j. Procedures for processing Applications for Payment.
k. Distribution of the Contract Documents.
l. Submittal procedures.
m. Sustainable design requirements.
n. Preparation of Record Documents.
o. Use of the premises[ ].
p. Work restrictions.
q. Working hours.
r. Owner's occupancy requirements.
s. Responsibility for temporary facilities and controls.
t. Procedures for moisture and mold control.
u. Procedures for disruptions and shutdowns.
v. Construction waste management and recycling.
w. Parking availability.
x. Office, work, and storage areas.
y. Equipment deliveries and priorities.
z. First aid.
aa. Security.
bb. Progress cleaning.

Minutes: Contractor will record and distribute meeting minutes.

Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architectof scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

Contract Documents.
a. Options.
b. Related RFIs.
c. Related Change Orders.
d. Purchases.
e. Deliveries.
f. Submittals.
g. Sustainable design requirements.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility requirements.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written instructions.
n. Warranty requirements.
o. Compatibility of materials.

p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.

Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

3. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

Progress Meetings: Conductprogress meetings at weeklyintervals.

Coordinate dates of meetings with preparation of payment requests.

5. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
6. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

Review schedule for next period.

Review present and future needs of each entity present, including the following:

Interface requirements.
1) Sequence of operations.
2) Resolution of BIM component conflicts.
3) Status of submittals.
4) Status of sustainable design documentation.
5) Deliveries.
6) Off-site fabrication.

7) Access.
8) Site use.
9) Temporary facilities and controls.
10) Progress cleaning.
11) Quality and work standards.
12) Status of correction of deficient items.
13) Field observations.
14) Status of RFIs.
15) Status of Proposal Requests.
16) Pending changes.
17) Status of Change Orders.
18) Pending claims and disputes.
19) Documentation of information for payment requests.

Minutes: Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.

Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's Construction Schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Unusual event reports.

B. Related Requirements:

1. Section 011200 "Multiple Contract Summary" for preparing a combined Contractor's Construction Schedule.
2. Section 014000 "Quality Requirements" for schedule of tests and inspections.
3. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to Owner.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file.
2. PDF file.
3. Two paper copies, of sufficient size to display entire period or schedule, as required.

B. Startup construction schedule.

1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
3. Total Float Report: List of activities sorted in ascending order of total float.

4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.

F. Construction Schedule Updating Reports: Submit with Applications for Payment.

G. Daily Construction Reports: Submit at weekly intervals.

H. Material Location Reports: Submit at weekly intervals.

I. Site Condition Reports: Submit at time of discovery of differing conditions.

J. Unusual Event Reports: Submit at time of unusual event.

K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including work stages area separations interim milestones partial Owner occupancy.
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review submittal requirements and procedures.
7. Review time required for review of submittals and resubmittals.
8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.

2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use scheduling component of Project management software package specified in Section 013100 "Project Management and Coordination," for current Windows operating system.

B. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting, using CPM scheduling.

1. In-House Option: Owner may waive requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

C. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

D. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Temporary Facilities: Indicate start and completion dates for the following as applicable:

a. Securing of approvals and permits required for performance of the Work.
b. Temporary facilities.
c. Construction of mock-ups, prototypes and samples.
d. Owner interfaces and furnishing of items.
e. Interfaces with Separate Contracts.
f. Regulatory agency approvals.
g. Punch list.

3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

a.

4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
5. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
6. Commissioning Time: Include no fewer than 15 days for commissioning.
7. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect'sadministrative procedures necessary for certification of Substantial Completion.
8. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.

E. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use-of-premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Sample testing.
    g. Deliveries.
    h. Installation.
    i. Tests and inspections.
    j. Adjusting.
    k. Curing.
    l. Building flush-out.
    m. Startup and placement into final use and operation.

n. Commissioning.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural completion.
b. Temporary enclosure and space conditioning.
c. Permanent space enclosure.
d. Completion of mechanical installation.
e. Completion of electrical installation.
f. Substantial Completion.

9.

F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.

G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

H. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Final Completion percentage for each activity.

I. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

J. Distribution: Distribute copies of approved schedule to ArchitectOwner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 STARTUP CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.

1. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.10 CPM SCHEDULE REQUIREMENTS

A. Prepare network diagrams using AON (activity-on-node) format.

B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than 60 days after date established for the Notice to Proceed.

a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.
b. Mobilization and demobilization.
c. Purchase of materials.
d. Delivery.
e. Fabrication.
f. Utility interruptions.
g. Installation.
h. Work by Owner that may affect or be affected by Contractor's activities.
i. Testing and inspection.
j. Commissioning.
k. Punch list and Final Completion.
l. Activities occurring following Final Completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, sustainable design documentation, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.

a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
b. Total cost assigned to activities shall equal the total Contract Sum.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
b. Submit value summary printouts one week before each regularly scheduled progress meeting.

1.11 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Concealed Work photographs.
3. Periodic construction photographs.
4. Final Completion construction photographs.
5. Preconstruction video recordings.
6. Periodic construction video recordings.
7. Construction webcam.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
2. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.
3. Section 024116 "Structure Demolition" for photographic documentation before building demolition operations commence.
4. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
5. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos on CD-ROM or thumb-drive. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image description in file metadata tag:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect
d. Name of Contractor.
e. Date photograph was taken.
f. Description of location, vantage point, and direction.
g. Unique sequential identifier keyed to accompanying key plan.

C. Printed Photographs: Submit twosets of prints of each photographic view within seven days of taking photographs.

1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte prints on single-weight, paper; enclosed back to back in clear plastic sleeves punched for three-ring binder. Include copy of key plan indicating each photograph's location and direction. Provide one binder for each set of prints.
2. Identification: On back of each print, label with the following information:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect].
d. Name of Contractor.
e. Date photograph was taken if not date stamped by camera.
f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
g. Unique sequential identifier keyed to accompanying key plan.

D. Time-Lapse Video: Submit time-lapse sequence video recordings within 7 days of recording.

1. Submit time-lapse sequence video recordings monthly.
2. Identification: For each recording, provide the following on web-based Project management software site:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect
d. Name of Contractor.
e. Date(s) and time(s) video recording was recorded.
f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

B. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with a record of providing satisfactory services similar to those required for Project.

1.5 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size ofmegapixels, and at an image resolution of not less than 3200 by 2400 pixels]. Use flash in low light levels or backlit conditions.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode with vibration-reduction technology. Provide supplemental lighting in low light levels or backlit conditions.

C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Metadata: Record accurate date and time and GPS location data from camera.

E. File Names: Name media files with date and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect

1. Flag construction limits before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take 20 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:

1. Underground utilities.
2. Underslab services.
3. Piping.
4. Electrical conduit.
5. Waterproofing and weather-resistant barriers.

E. Periodic Construction Photographs: Take 20 photographs weeklySelect vantage points to show status of construction and progress since last photographs were taken.

F. Time-Lapse Sequence Construction Photographs: Take 20 photographs as indicated, to show status of construction and progress since last photographs were taken.

1. Frequency: Take photographs weekly, on the same day each week.
2. Vantage Points: Following suggestions by Architect and Contractor, photographer shall select vantage points. During each of the following construction phases, take not less than [**two**] of the required shots from same vantage point each time, to create a time-lapse sequence as follows:

a. Commencement of the Work, through completion of subgrade construction.
b.

1.7 CONSTRUCTION VIDEO RECORDINGS

A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.

B. Narration: Describe scenes on video recording by dubbing audio narration off-site after video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.

1. Confirm date and time at beginning and end of recording.
2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.

C. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from video recording opposite the corresponding narration segment.

D. Preconstruction Video Recording: Before starting excavation demolition, record video recording of Project site and surrounding properties from different vantage points, as directed by Architect.

1. Flag construction limits before recording construction video recordings.
2. Show existing conditions adjacent to Project site before starting the Work.
3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of excavation.
4. Show protection efforts by Contractor.

E. Periodic Construction Video Recordings: Record video recording weekly. Select vantage points to show status of construction and progress since last video recordings were recorded. Minimum recording time shall be 30 minutes(s).

F. Time-Lapse Sequence Construction Video Recordings: Record video recording to show status of construction and progress.

1. Frequency: During each of the following construction phases, set up video recorder to automatically record one frame of video recording every fiveminutes, from same vantage point each time, to create a time-lapse sequence of 30 minutesin length as follows:

    a. Commencement of the Work, through completion of subgrade construction.
    b. Above-grade structural framing.
    c. Exterior building enclosure.

    d. Timer: Provide timer to automatically start and stop video recorder, so recording occurs only during daylight hours.
2. Vantage Points: Following suggestions by Architect and Contractor, photographer shall select vantage points.

1.8 CONSTRUCTION WEBCAM

A. Webcam: Provide two fixed-location camera(s) with weatherproof housing, mounted to provide unobstructed view of construction site from location approved by Architect, with the following characteristics:

1. Remotely controllable view with mouse-click user navigation for horizontal pan, vertical tile, and optical zoom of 500 percent minimum.
2. Capable of producing minimum 8 megapixel images.
3. Provide pole mount, power supply, solar power station, active high-speed data connection to service provider's network, and static public IP address for each camera.

B. Live Streaming Images: Provide web-accessible image of current site image, updated at 15 - minute intervals

C. Web-Based Interface: Provide online interface to allow viewing of each high-definition digital still image captured and stored during construction, from the Internet.

1. Access Control: Provide password-protected access for Project team administered by Contractor, providing current image access and archival image access by date and time, with images downloadable to viewer's device.
2. Software: Provide responsive software interface for use on computer, tablet, and mobile screens with accompanying iPhone/iPad app and Android apps.
3. Storage: Maintain images on the website for reference during entire construction period, and for not less than 30 days after Final Completion. Provide sufficient memory on remote server to store all Project images.
4. Online Interface: Provide website interface with Project and client information and logos, calendar-based navigation interface for selecting images, and pan and zoom capability within high-definition images.
5. Forward and Reverse: Provide capability to browse through images, moving forward and backward in time by individual image and by day.
6. Slideshow: Provide capability to automatically display current images from sites when there are three or more cameras used.
7. Time-Lapse: Provide capability for online display of project time-lapse.
8. Dashboard: Provide capability to view thumbnails of all cameras on one screen.
9. Weather: Provide corresponding weather data for each image captured.
10. Provide public viewer open access to most recent Project camera image.

D. Maintain cameras and web-based access in good working order, according to web-based construction photographic documentation service provider's written instructions until Final Completion. Provide for service of cameras and related networking devices and software.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
6. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
7. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
8. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
9. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect'sresponsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect'sresponsive action. Submittals may be rejected for not complying with

requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architectand additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect'sfinal release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.

9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architecton previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Paper Submittals:

1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect].
3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect**,**] will return two copies.
4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architectwill not return copies.
5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using AIA Document G810 transmittal form.

E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

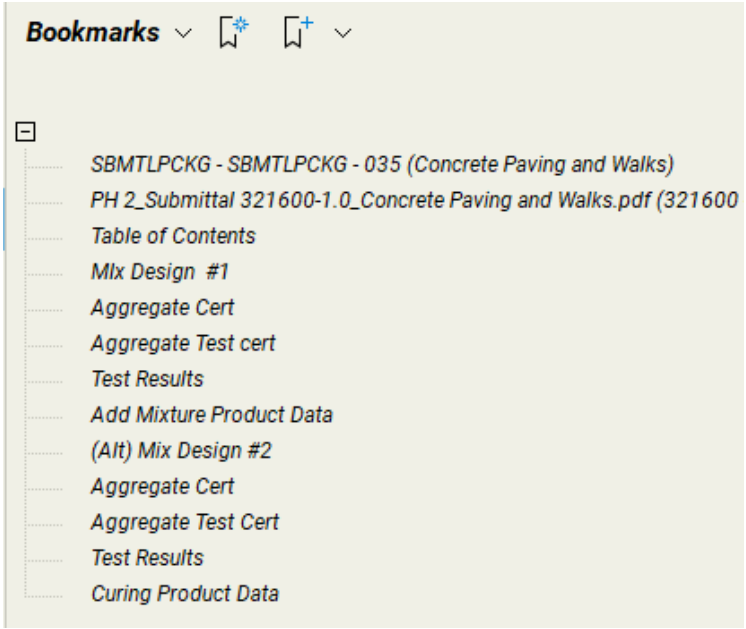
1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.

    a. Architectwill return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

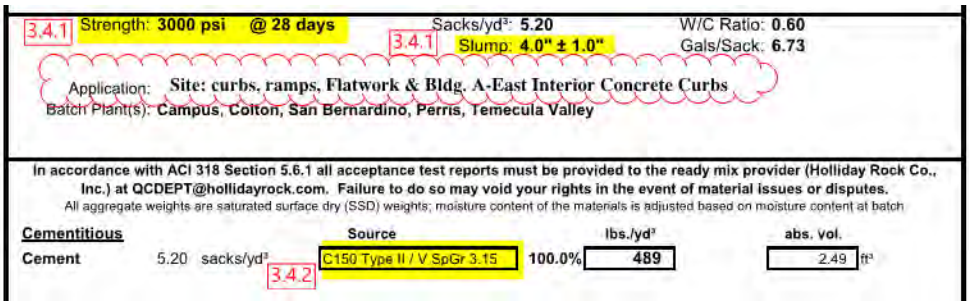
2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
3. Paper: Prepare submittals in paper form and deliver to Architect.

B. Electronic Formatting Requirements are listed below and are intended to speed the process of review and encourage the builders to demonstrate full comprehension of the project requirements. Files received that are not provided with basic bookmarks and highlights will be returned to the contractor unreviewed.

1. Bookmarks: Electronic Submittals will be bookmarked. All documents included shall be provided with bookmarks, in sequence, that identify the name, sheet number, and/or sheet title of the document
    a. Example Below:



2. **Highlight and Notation**: Information submittals are to be highlighted. Highlights shall indicate all requirements listed in the specification. Adjacent to the highlights should be included text the identifies the appropriate article or section of the specification that identifies the requirement.
    a. Example Below:


3.4.1 Strength: 3000 psi @ 28 days Sacks/yd³: 5.20 W/C Ratio: 0.60
3.4.1 Slump: 4.0" ± 1.0" Gals/Sack: 6.73
Application: Site: curbs, ramps, Flatwork & Bldg. A-East Interior Concrete Curbs
Batch Plant(s): Campus, Colton, San Bernardino, Perris, Temecula Valley
In accordance with ACI 318 Section 5.6.1 all acceptance test reports must be provided to the ready mix provider (Holliday Rock Co., Inc.) at QCDEPT@hollidayrock.com. Failure to do so may void your rights in the event of material issues or disputes.
All aggregate weights are saturated surface dry (SSD) weights; moisture content of the materials is adjusted based on moisture content at batch
Cementitious | Source | lbs./yd³ | abs. vol.
Cement 5.20 sacks/yd³ 3.4.2 C150 Type II / V SpGr 3.15 100.0% 489 2.49 ft³

3. Text recognition: All non-vectorized documents (scans, etc) should be processed through an Optical Character Recognition (OCR) process or application to make text searchable. This functionality is readily available within the Bluebeam Batch OCR process, and its use is encouraged if the application is available to the contractor.

C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect

E. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect'saction stamp.

F. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

G. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect'saction stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least.

    a. Two opaque (bond) copies of each submittal. Architectwill return one copy(ies).
    b. Three opaque copies of each submittal. Architectwill retain two copies; remainder will be returned.

3. Electronic Requirements: In addition to the Electronic Formatting Requirements listed in Submittal Procedures, contractors will also provide the following:

    a. All detail references provided in shop drawings will be hyperlinked to the appropriate detail page/reference. This functionality is readily available within the Bluebeam Batch Hyperlinking process, and its use is encouraged if the application is available to the contractor.

    b. All Pages (thumbnails) shall be named with the page Number and then Page Title. Each page should also be bookmarked with its Page Name. This functionality is readily available within the Bluebeam Batch process, and its use is encouraged if the application is available to the contractor.

    c. Optimizing large PDF Documents: Each PDF document should be flattened and optimized to reduce file size. All layers should be deleted (retaining content) to assist in increasing refresh rates.

4. BIM Incorporation: Develop and incorporate Shop Drawing files into BIM established for Project.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

    a. Project name and submittal number.
    b. Generic description of Sample.
    c. Product name and name of manufacturer.
    d. Sample source.
    e. Number and title of applicable Specification Section.

f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
5. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.
6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architectwill return submittal with options selected.

8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit tree sets of Samples. Architectwill retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

    1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

    1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

C. BIM Incorporation: Incorporate delegated-design drawing and data files into BIM established for Project.

    1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as original Drawings.

1.9 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement

certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architectwill not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'SREVIEW

A. Action Submittals: Architectwill review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Architect[will indicate, via markup on each submittal, the appropriate action.

2. Paper Submittals: Architectwill stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

3. Submittals by Web-Based Project Management Software: Architectwill indicate, on Project management software website, the appropriate action.

a. Actions taken by indication on Project management software website have the following meanings:

B. Informational Submittals: Architectwill review each submittal and will not return it, or will return it if it does not comply with requirements. Architectwill forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architectwill return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owneror authorities having jurisdiction are not limited by provisions of this Section.

C. Related Requirements:

1. Section 012100 "Allowances" for testing and inspection allowances.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.
2. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements, consisting of multiple products, assemblies, and subassemblies, with cutaways enabling inspection of concealed portions of the Work.

    a. Include each system, assembly, component, and part of the exterior wall and roof to be constructed for the Project. Colors of components shall be those selected by the Architect for use in the Project.

3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes; doors; windows; millwork; casework; specialties; furnishings and equipment; and lighting.
4. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
5. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect[**or Construction Manager**].

1.4 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

A. Mockup Shop Drawings: For integrated exterior mockups.

1. Include plans, sections, elevations, and details, indicating materials and size of mockup construction.
2. Indicate manufacturer and model number of individual components.
3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.7 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager shall not have other Project responsibilities.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by Commissioning Authority.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.9 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.

11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement of whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.10 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged in the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:

1. Provide test specimens representative of proposed products and construction.
2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
5. Build laboratory mockups at testing facility, using personnel, products, and methods of construction indicated for the completed Work.
6. When testing is complete, remove test specimens and test assemblies, and mockupsdo not reuse products on Project.
7. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect
3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect'sapproval of mockups before starting corresponding Work, fabrication, or construction.

    a. Allow sen days for initial review and each re-review of each mockup.

7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

L. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

1.11 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Payment for these services will be made from testing and inspection allowances specified in Section 012100 "Allowances," as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, Commissioning Authority, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Owner, Architect,[**Commissioning Authority,**] [**Construction Manager,**] testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.12 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections attached to this Section, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect, Commissioning Authority, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's, reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Abbreviations and acronyms not included in this list shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States." The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.

25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; http://ec.europa.eu/growth/single-market/ce-marking/.
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csagroup.com.
65. CSA - CSA International; www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).

70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridaroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. ICBO - International Conference of Building Officials; (See ICC).
101. ICC - International Code Council; www.iccsafe.org.
102. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
103. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
104. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
105. IEC - International Electrotechnical Commission; www.iec.ch.
106. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
107. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
108. IESNA - Illuminating Engineering Society of North America; (See IES).
109. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
110. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
111. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
112. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
113. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.

114. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
115. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
116. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
117. ISO - International Organization for Standardization; www.iso.org.
118. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
119. ITU - International Telecommunication Union; www.itu.int/home.
120. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
121. LMA - Laminating Materials Association; (See CPA).
122. LPI - Lightning Protection Institute; www.lightning.org.
123. MBMA - Metal Building Manufacturers Association; www.mbma.com.
124. MCA - Metal Construction Association; www.metalconstruction.org.
125. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
126. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
127. MHIA - Material Handling Industry of America; www.mhia.org.
128. MIA - Marble Institute of America; www.marble-institute.com.
129. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
130. MPI - Master Painters Institute; www.paintinfo.com.
131. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
132. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
133. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
134. NADCA - National Air Duct Cleaners Association; www.nadca.com.
135. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
136. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
137. NBI - New Buildings Institute; www.newbuildings.org.
138. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
139. NCMA - National Concrete Masonry Association; www.ncma.org.
140. NEBB - National Environmental Balancing Bureau; www.nebb.org.
141. NECA - National Electrical Contractors Association; www.necanet.org.
142. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
143. NEMA - National Electrical Manufacturers Association; www.nema.org.
144. NETA - InterNational Electrical Testing Association; www.netaworld.org.
145. NFHS - National Federation of State High School Associations; www.nfhs.org.
146. NFPA - National Fire Protection Association; www.nfpa.org.
147. NFPA - NFPA International; (See NFPA).
148. NFRC - National Fenestration Rating Council; www.nfrc.org.
149. NHLA - National Hardwood Lumber Association; www.nhla.com.
150. NLGA - National Lumber Grades Authority; www.nlga.org.
151. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
152. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
153. NRCA - National Roofing Contractors Association; www.nrca.net.
154. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
155. NSF - NSF International; www.nsf.org.
156. NSPE - National Society of Professional Engineers; www.nspe.org.
157. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
158. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
159. NWFA - National Wood Flooring Association; www.nwfa.org.

160. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
161. PDI - Plumbing & Drainage Institute; www.pdionline.org.
162. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
163. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
164. RFCI - Resilient Floor Covering Institute; www.rfci.com.
165. RIS - Redwood Inspection Service; www.redwoodinspection.com.
166. SAE - SAE International; www.sae.org.
167. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
168. SDI - Steel Deck Institute; www.sdi.org.
169. SDI - Steel Door Institute; www.steeldoor.org.
170. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
171. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
172. SIA - Security Industry Association; www.siaonline.org.
173. SJI - Steel Joist Institute; www.steeljoist.org.
174. SMA - Screen Manufacturers Association; www.smainfo.org.
175. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
176. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
177. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
178. SPIB - Southern Pine Inspection Bureau; www.spib.org.
179. SPRI - Single Ply Roofing Industry; www.spri.org.
180. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
181. SSINA - Specialty Steel Industry of North America; www.ssina.com.
182. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
183. STI - Steel Tank Institute; www.steeltank.com.
184. SWI - Steel Window Institute; www.steelwindows.com.
185. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
186. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
187. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
188. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
189. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
190. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
191. TMS - The Masonry Society; www.masonrysociety.org.
192. TPI - Truss Plate Institute; www.tpinst.org.
193. TPI - Turfgrass Producers International; www.turfgrasssod.org.
194. TRI - Tile Roofing Institute; www.tileroofing.org.
195. UL - Underwriters Laboratories Inc.; www.ul.com.
196. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
197. USAV - USA Volleyball; www.usavolleyball.org.
198. USGBC - U.S. Green Building Council; www.usgbc.org.
199. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
200. WA - Wallcoverings Association; www.wallcoverings.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
204. WDMA - Window & Door Manufacturers Association; www.wdma.com.

205. WI - Woodwork Institute; www.wicnet.org.
206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
207. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.

2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.

6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservice.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 014500 - ENVIRONMENTAL TESTING OF IMPORTED FILL MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes the requirements for sampling, testing, and certification of imported fill material to District sites.

B. Related Requirements:
1. Section 312000 “Earth Moving.”

1.3 DEFINITIONS

A. Borrow Site(s): The source location(s) of the imported fill material.

B. District: **[District Name].**

C. DTSC: California Department of Toxic Substances Control Information Advisory, Clean Imported Fill Material, dated October 2001.

D. Environmental Professional: A licensed California Professional Engineer (PE) or Professional Geologist (PG) hired by the Contractor.

E. Imported Fill Material: Any earth or soil brought to the District site for which the source location is not located within the property boundary of that same District site. This term does not include gravel, rock, earth, or soil generated from within the property boundary of the District site.

F. Obvious Contamination: Indicators of possible contamination, include, but are not limited to discoloration, odors, debris, or other man-made materials.

G. Testing Agency: The testing agency hired by the Contractor to perform all tests described herein.

1.4 ACTION SUBMITTALS

A. Sampling and Analysis Plan (SAP) prepared and signed by the Contractor’s Environmental Professional. At a minimum the SAP shall include:

1. Scaled maps showing the location of the Borrow Site(s) and the locations of the stockpiles or in-place soil.
2. The volumes of the stockpiles or in-place soil proposed for import.
3. The depth of excavation for the removal of in-place soil.
4. A sampling rationale and approach, including the proposed sampling protocol, number of samples, and the analytical testing suite.
5. Contact information for the Borrow Site(s) and a proposed sampling schedule.
6. If available, the SAP should include detailed information on the current and previous use of the Borrow Site(s) (i.e., for at least the last 50 years) and information from any environmental site assessments or clean ups performed at the Borrow Site, including laboratory analytical testing reports. This information should be utilized to support the proposed sampling rationale and approach. It is the responsibility of the Contractor to request this information from the Borrow Site(s) or obtain the information from readily available public resources. If sufficient information regarding the previous land use is not available to support a specific sampling rationale or approach, samples shall be analyzed as described herein. Guidance for the sampling frequency and recommended target analytes for previous and current Borrow Site(s) land uses are provided in Table 1 and 2 at the end of this Section.

B. Import Fill Material Certification Report (IFMCR) prepared and signed by the Contractor's Environmental Professional. At a minimum, the draft IFMCR shall include:

1. Scaled maps showing the location of the Borrow Site(s), the locations of the stockpiles or in-place soil, the soil sample locations, and the area at the District site where the import fill material will be placed.
2. Description of soil sampling activities, including sampling methodology and procedures.
3. Summary of laboratory analytical results, including data summarized in a tabular format.
4. Discussion and evaluation of laboratory analytical results as it relates to potential risks to human health and the environment, which must include an evaluation of potential risks to workers, schoolchildren, and District employees utilizing the current DTSC model.
5. Recommendations for additional steps, if any.
6. Copies of laboratory analytical testing reports with chain of custody and quality assurance and quality control documentation.
7. A copy of the Import Fill Material Certification Form (at the end of this Section) signed by the Contractor's Environmental Professional and the Contractor. Request a copy from the District.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Environmental Professional and testing agency.

B. Written documentation prior to import activities verifying that the proposed import fill material from the Borrow Site(s) meets the geotechnical requirements specified in the Contract Documents.

C. Written documentation from the Contractor prior to import activities verifying that the hauling contract specifies the use of only clean trucks and that the actual trucks utilized for import activities will be clean of obvious contamination and deleterious materials.

D. Written documentation from the Contractor that the haul trucks traveled directly from the Borrow Site(s) to the District site without stopping at other locations and that short loads were not augmented with soil or materials not tested as part of the SAP. It is the Contractor's responsibility to provide this documentation within 5 days of the completion of import activities. All transportation activities shall be conducted in accordance with applicable local, State, and Federal rules and regulations.

E. Copies of haul tickets and/or bills of lading documenting all import activities. The haul tickets and/or bills of lading shall contain the following information:

1. Date and time of departure from the Borrow Site(s).
2. Date and time of arrival at the District site.
3. Address of Borrow Site and District site.
4. Load volume and/or weight.
5. Signature of the receiving site representative as designated by the Contractor.

F. Statement signed by Contractor and Environmental Professional verifying compliance with requirements of the SAP.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: An analytical testing laboratory accredited by the California Department of Health Services (DHS) to perform analysis of imported fill materials.

B. Environmental Professional Qualifications: A licensed California Professional Engineer (PE) or Professional Geologist (PG) knowledgeable of, and experienced in, environmental site assessment, waste classification, disposal requirements, and environmental regulations pertaining to school projects, and who has had recent environmental experience performing soil sampling and waste characterization (i.e., within one year).

PART 2 - PRODUCTS (Not used.)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. In addition to the requirements of Section 01 40 02 "Quality Requirements / Contractor Laboratory," maintain a separate three-ring binder containing all information required for this Section. Update the binder weekly. Bring the binder to all Progress Meetings and Monthly Schedule Review Meetings until earth moving is complete.

3.2 COORDINATION

A. Limit the length of time between sampling of soil and delivery of imported soil to site to no more than 21 calendar days.

B. Import no earth or fill materials without the prior written consent of the District.

3.3 SAMPLING AND TESTING

A. All import fill material shall be tested at the point of origin, unless prior written approval is obtained from the District. The import fill material testing and certification process shall include the following:

1. Select a Borrow Site(s) for the imported fill material.
2. Submit a SAP to the District for review and comment.
3. If necessary, submit a revised SAP after incorporating revisions requested by the District, and receive approval from the District.
4. Collect and analyze samples in accordance with the District approved SAP.
5. Submit an IFMCR and a signed copy of the Import Fill Material Certification Form to the District for review and comment.
6. If necessary, submit a revised IFMCR after incorporating revisions requested by the District, and receive approval from the District.
7. Prior to import activities, submit written documentation verifying that the import fill material tested meets the geotechnical requirements specified in the Contract Documents.
8. Prior to import activities, submit written documentation that only clean trucks without obvious contamination or deleterious materials will be utilized to haul import fill material from the Borrow Site(s) to the District site.
9. After import activities, submit written documentation that the haul trucks traveled directly from the Borrow Site(s) to the District site without stopping at other locations and that short loads were not augmented with soil or materials not tested as part of the SAP and copies of haul tickets and/or bills of lading documenting all import activities.
10. After import activities, submit haul tickets and/or bills of lading as specified above.
11. After import activities, submit a statement signed by Contractor and Environmental Professional verifying compliance with requirements of the SAP, as specified above.

B. Import fill material is deemed approved for import only when it has been documented to the satisfaction of the District that the fill material meets the requirements of this Section. District reserves the right to refuse any fill material proposed for use at a District site.

C. Samples shall be analyzed in accordance with the applicable portion of Table 2 based on information regarding the previous land use. If sufficient information regarding the previous land use is not available to support a specific sampling rationale or approach, all samples shall be analyzed as described below. The detection limits and quality assurance/quality control methods shall meet the requirements of the standard reporting limits and best laboratory practices for the United States Environmental Protection

Agency (USEPA) test method requested below:

1. California Code of Regulations Title 22 (CAM 17) Metals by USEPA test method 6010B/7471A.
2. Total petroleum hydrocarbons as gasoline, diesel, and motor oil by United States Environmental Protection Agency (USEPA) test method 8015(B)M.
3. Volatile Organic Compounds by USEPA test method 8260B/5035.
4. Semi-Volatile Organic Compounds by USEPA test method 8270C.
5. Organochlorine Pesticides by USEPA test method 8081A.
6. Organophosphorus Pesticides by USEPA test method 8141A.
7. Chlorinated Herbicides by USEPA test method 8151A.
8. Polychlorinated Biphenyls by USEPA test method 8082.

D. Import fill material may be deemed unacceptable for use on a District site by the District if any of the following analytical testing results are obtained:

1. Total Petroleum hydrocarbons are present at concentrations exceeding 100 milligrams per kilogram (mg/kg) for gasoline and 1,000 mg/kg for diesel/motor oil.
2. Volatile organic compounds are present at concentrations meeting or exceeding the laboratory reporting limit.
3. Semi-volatile organic compounds are present at concentrations meeting or exceeding the laboratory reporting limit.
4. Organochlorine or organophosphorus pesticides are present at concentrations meeting or exceeding the laboratory reporting limit.
5. Chlorinated herbicides are present at concentrations meeting or exceeding the laboratory reporting limit.
6. Arsenic is present in any sample at a concentration at or above 12 mg/kg.
7. Lead is present in any sample at a concentration at or above 80 mg/kg.
8. The cumulative health risk for all detected Title 22 metals except lead and arsenic indicates a significant health risk to workers, schoolchildren, and District employees.
9. The soil would be classified as waste as defined by California Code of Regulations Title 22 or Code of Federal Regulations Title 40.

E. Import fill material with concentrations of contaminants above the screening levels identified in this document may be deemed suitable by the District for use on a District site if supported by a site-specific human health risk assessment, which may require final approval from the DTSC.

F. Approvals of analytical testing results by the District are valid for a period of 21 days from the date of testing unless a written variance is obtained from the District.

G. A variance to this Specification may be obtained by submitting a written request to the District 5 days in advance of the need for approval. The request must be accompanied by the laboratory analytical testing report and a justification to support the request. The District will review the request and provide an initial determination within 5 days. Request may require an additional final approval from the DTSC.

END OF SECTION 014500

SECTION 014529 - TESTING LAB SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control related to tests and inspections performed by District's Testing Agency.

B. Testing and inspection services specified in this Section will be performed by a Testing Agency selected and employed by the District.

C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by other Sections are not limited by provisions of this Section.

D. Related Requirements:

1. Section 014000 "Quality Requirements"
2. Section 017300 "Execution."

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by District.

C. Testing Agency: For this Section, an entity engaged by the District to perform specific

tests, inspections, or both.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, District will comply with the most stringent requirement.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Schedule of Tests and Inspections: District will prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Number of tests and inspections required.
4. Time schedule or time span for tests and inspections.
5. Requirements for obtaining samples.

1.6 QUALITY ASSURANCE

A. Testing and inspections required by governing authorities will be performed by an independent testing laboratory selected and employed by the District and approved by the Division of the State Architect (DSA). Qualification of a testing agency or laboratory will be under the jurisdiction of the DSA Office of Regulations (ORS) Structural Safety Section (SSS) when applicable. Procedural and acceptance criteria are set forth in CBC Sections 110 and 1701A, and California Code of Regulations (CBC) Title 24 Part 1, Administrative Code, and the DSA Interpretation of Regulations.

B. Testing and inspection services which are performed will be in accordance with requirements of CBC Title 24 Part 1, Administrative Code, and as specified herein.

C. When specified, testing and inspections not required by governing authorities (NON-DSA) will also be performed by an independent Testing Agency selected and employed by the District.

D. Testing and inspection services will verify that work meets the requirements of the Contract Documents.

E. In general, tests and inspections for structural materials shall include all items enumerated on the Statement of Structural Tests and Special Inspections (DSA Form

103) for this project as prepared and distributed by the Architect.

F. Testing Agency will submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, District Construction Manager, and Project Inspector, with copy to Contractor. Testing Agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1. Testing Agency will notify Architect, District Construction Manager, Project Inspector and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Testing Agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect, District Construction Manager, and Project Inspector, with copy to Contractor and to authorities having jurisdiction.
3. Testing Agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
4. Testing Agency will retest and reinspect corrected work.
5. Testing Agency will not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
6. Testing Agency will not perform any duties of the Contractor.

G. Test reports will include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested will also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of CBC Title 24 Part 1 Administrative Code, Part 2 California Building Code, and with the DSA approved specifications. They will also state definitely whether or not the material or materials tested comply with requirements.

H. Reporting Test Failures:

1. Immediately upon Testing Agency determination of a test failure, the Agency will notify Contractor and other interested parties.

1.7 PAYMENTS

A. Costs of initial testing and inspection, except as specifically modified herein, or specified otherwise in technical sections, will be paid by the District. Initial tests and inspections are defined as the first tests and inspections as herein specified.

B. In the event a test or inspection indicates failure of a material or procedure to meet requirements of Contract Documents, costs for retesting and additional work related to failure will be paid by the District and backcharged to the Contractor.

C. Additional tests and inspections, not herein specified but requested by District or Architect, will be paid by District unless results of such tests and inspections are found to be not in compliance with Contract Documents, in which case the District will pay all costs for initial testing as well as retesting, reinspection and additional work related

to non-compliance. District will then backcharge the Contractor for these costs.

D. Costs for additional tests or inspections required because Contractor changed materials or changed source or supply will be paid by District and backcharged to the Contractor.

E. Costs for tests or inspections that are required to correct deficiencies will be paid by the District and backcharged to the Contractor.

F. Extra Testing Agency expenses resulting from a failure to notify the Testing Agency will be paid by the District and backcharged to the Contractor.

G. Charges due to insufficient advance notice of cancellations or time extension will be paid for by the District and backcharged to the Contractor.

H. Cost of testing that is required solely for the convenience of Contractor in his scheduling and performance of work will be paid by the District and backcharged to the Contractor.

I. Overtime costs for testing and inspections performed outside the regular work day hours, including weekends and holidays, due to fault of Contractor will be paid for by the District and backcharged to the Contractor. Such costs include overtime costs for the District's personnel.

J. Should it be considered necessary or advisable by the District at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the completed work, the Contractor shall on request promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, Contactor shall be responsible for all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be reimbursed to the Contractor.

1.8 QUALITY CONTROL

A. Contractor Responsibilities:

1. Notify District Construction Manager and Testing Agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
2. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Sum will be adjusted by Change Order.

B. Contractor Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify Testing Agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by Testing Agency.
6. Security and protection for samples and for testing and inspecting equipment at Project site.
7. Selection of the material required to be tested will be by the Testing Agency or the District and not by the Contractor.

C. Contractor shall notify the Testing Agency a minimum of 3 working days in advance of the manufacture of material to be supplied by him under the Contract Documents, which must by terms of the Contract be tested, in order that the Agency may arrange for the testing of such material at the source of supply.

1. Material shipped by the Contractor from the source of supply before having satisfactorily passed such testing and inspection or before the receipt of notice from the District that such testing and inspection will not be required, shall not be incorporated in the Project.

D. Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 PROJECT INSPECTOR

A. An Inspector employed by the District in accordance with the requirements of CBC Title 24 Part 1, Administrative Code, will be assigned to the work. His duties are specifically defined in CBC Title 24 Part 1, Sec. 4-342.

B. The Contractor shall notify the Inspector a minimum of two working days in advance of execution of all work that requires inspection.

C. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. Inspector shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to be fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to comply with the Contract requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 DSA TESTS AND INSPECTIONS

A. Test and inspections for the following will be performed in conformance with the California Building Code, Title 24, Part 2, of the California Code of Regulations, and the DSA Interpretations of Regulations (IR) Manual.

B. Structural tests and inspections will be performed in accordance with CBC Chapter 17A.

C. Soils (CBC Chapter 18A).

1. General: CBC Table 1705A.6.

    a. Verification of site preparation

2. Compacted Fills: CBC Table 1705A.6.

    a. Qualification of fill materials.
    b. Inspect placement.

3. Driven Deep Foundations (Piles): CBC Table 1705A.7.

    a. Verify materials, sizes, lengths.
    b. Load tests.
    c. Inspect driving operations.
    d. Verify locations, plumbness, penetrations.

4. Cast-In-Place Deep Foundations (Piers): CBC Table 1705A.8.

    a. Inspect drilling operations.
    b. Verify locations.
    c. Confirm diameters, plumbness, embedment.
    d. Confirm bearing capacity.

5. Retaining Walls:

    a. Backfill: CBC Table 1705A.6.1

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore

patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014529

PART 1 - SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary site fencing.
2. Section 311000 "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

A. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

B. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings**.**

C. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

1.5 INFORMATIONAL SUBMITTALS

1.6 QUALITY ASSURANCE

A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.

B. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.7 FIELD CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Moving or parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Backfill Soil: Stockpiled soil mixed with planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
1. Planting Soil: Planting soil as specified in Section 329219 – “Hydroseeding”.
2. Color: Natural.

3. Chain-Link Protection-Zone Fencing: Polymer-coated steel Polymer-coated galvanized-steel fencing fabricated from minimum 2-inch (50-mm) opening, 0.148-inch- (3.76-mm-) diameter wire chain-link fabric; with pipe posts, minimum 2-3/8-inch- (60-mm-) OD line posts, and 2-7/8-inch- (73-mm-) OD corner and pull posts] and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.

a. Height: 96 inches (2400 mm)

4. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch (50-mm) maximum opening in pattern and weighing a minimum of 0.4 lb/ft. (0.6 kg/m); remaining flexible from minus 60 to plus 200 deg F (minus 16 to plus 93 deg C); inert to most chemicals and acids; minimum tensile yield strength of 2000 psi (13.8 MPa) and ultimate tensile strength of 2680 psi (18.5 MPa); secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches (2400 mm) apart.

a. Height: **96”**.
b. Color: High-visibility orange, nonfading.

5. Gates: Single-or Double- swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones; leaf width <48".

B. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering and as follows:

1. Size and Text: As.directed by Owner
2. Lettering: as directed by Owner black characters on white or yellow background.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches (1372 mm) above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.

1. Apply 2-inch (50-mm) uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches (150 mm) of tree trunks.

3.3 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

1. Chain-Link Fencing: Install to comply with ASTM F567 and with manufacturer's written instructions.

2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.
3. Access Gates: Install[as Contractor needs adjust to operate smoothly, easily, and quietly; free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every 50 feet (15 m) on protection-zone fencing, but no fewer than [**four**] < signs with each facing a different direction.

C. Maintain protection zones free of weeds and trash.

D. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 312000 "Earth Moving" unless otherwise indicated.

B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.

C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches (75 mm) back from new construction and as required for root pruning.

D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by arborist.

1. Prune to remove onlybroken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
3. Pruning Standards: Prune trees according to ANSI A300 (Part 1Retain "Type of Pruning" and "Specialty Pruning" subparagraphs below if applicable; retain one or more of options, which are identified in ANSI A300 (Part 1). Identify on Drawings individual trees or areas requiring multiple types of pruning. Augment or replace subparagraphs with reference to arborist's report if an arborist is retained by Owner. Insert detailed instructions for removing specific branches or branches of a specific minimum or maximum diameter if required. See Evaluations for a discussion of pruning.

    a. Type of Pruning: reducing where indicated.
    b. Specialty Pruning: restoration where indicated.

B. Unless otherwise directed by arborist and acceptable to Architect, do not cut tree leaders.

C. Cut branches with sharp pruning instruments; do not break or chop.

D. Do not paint or apply sealants to wounds.

E. Provide subsequent maintenance pruning during Contract period as recommended by arborist.

F. Chip removed branches and dispose of off-site >.

3.6 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: Where existing grade is 2 inches (50 mm) or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.7 FIELD QUALITY CONTROL

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

4. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures or smaller in caliper size.

5. Plant and maintain new trees as specified in Section 329300 "Plants."

B. Soil Aeration: Where directed by Architect, aerate surface soil compacted during construction. Aerate 10 feet (3 m) beyond drip line and no closer than 36 inches (900 mm) to tree trunk. Drill 2-inch- (50-mm-) diameter holes a minimum of 12 inches (300 mm) deep at 24 inches (600 mm) o.c. Backfill holes with an equal mix of augered soil and sand.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 015639

SECTION 015723 - TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Temporary stormwater pollution controls.

1.3 STORMWATER POLLUTION PREVENTION PLAN

A. The Stormwater Pollution Prevention Plan (SWPPP) is part of the Contract Documents and is bound into this Project Manual.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site

1. Meet with Owner, Architect, and earthwork subcontractor.
2. Review requirements of the SWPPP, including permitting process, worker training, and inspection and maintenance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Stormwater Pollution Prevention Plan (SWPP): Within 15 days of date established for commencement of the Work, submit completed SWPPP.

B. EPA authorization under the EPA's "2017 Construction General Permit (CGP)."

C. Stormwater Pollution Prevention (SWPP) Training Log: For each individual performing Work under the SWPPP.

D. Inspection reports.

1.6 QUALITY ASSURANCE

A. Stormwater Pollution Prevention Plan (SWPPP) Coordinator: Experienced individual or firm with a record of successful water pollution control management coordination of projects with similar requirements.

1. SWPPP Coordinator shall complete and finalize the SWPPP form.
2. SWPPP Coordinator shall be responsible for inspections and maintaining of all requirements of the SWPPP.

B. Installers: Trained as indicated in the SWPPP.

PART 2 - PRODUCTS

2.1 TEMPORARY STORMWATER POLLUTION CONTROLS

A. Provide temporary stormwater pollution controls as required by the SWPPP.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with all best management practices, general requirements, performance requirements, reporting requirements, and all other requirements included in the SWPPP.

B. Locate stormwater pollution controls in accordance with the SWPPP.

C. Conduct construction as required to comply with the SWPPP and that minimize possible contamination or pollution or other undesirable effects.

1. Inspect, repair, and maintain SWPPP controls during construction.

a. Inspect all SWPPP controls not less than every seven days, and after each occurrence of a storm event, as outlined in the SWPPP.

D. Remove SWPPP controls at completion of construction and restore and stabilize areas disturbed during construction.

END OF SECTION 015723

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner's portion of the Work.
6. Coordination of Owner-installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for coordination of , Owner's separate contracts, and limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
4. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
5. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to submitting cutting and patching plan, review extent of cutting and patching anticipated and examine procedures for ensuringof scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

B. Layout Conference: Conduct conference at Project site.

1. Prior to establishing layout of new and existing perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:

a. Contractor's superintendent.
b. Professional surveyor responsible for performing Project surveying and layout.
c. Professional surveyor responsible for performing site survey serving as basis for Project design.

2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.
3. Review requirements for including layouts on Shop Drawings and other submittals.
4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certified Surveys: Submit two copies signed by professional engineer.

Surveyor, certifying that location and elevation of improvements comply with requirements.

C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.6 CLOSEOUT SUBMITTALS

A. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.7 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: Refer to Section 014000 "Quality Requirements."

C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Plumbing piping systems.
    f. Mechanical systems piping and ducts.

g. Control systems.
h. Communication systems.
i. Fire-detection and -alarm systems.
j. Conveying systems.
k. Electrical wiring systems.
l. Operating systems of special construction.

3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architectpromptly.

B. Engage a land surveyor experienced in laying out the Work, using the following accepted surveying practices:

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architectwhen deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect[**and Construction Manager**].

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of ArchitectReport lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architectbefore proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of wo permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

3.5 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb, and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.

1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 COORDINATION OF OWNER'S PORTION OF THE WORK

A. Site Access: Provide access to Project site for Owner's construction personnel

1. Provide temporary facilities required for Owner-furnished, Contractor-installed.
2. Refer to Section 011000 "Summary" for other requirements for Owner-furnished, Contractor-installed products

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel] at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
1. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CWM-7 for construction waste. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Qualification Data: For waste management coordinator.

H. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

I. Refrigerant Recovery: Comply with requirements in Section 024119 "Selective Demolition" for refrigerant recovery submittals.

1.7 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements. Superintendent may serve as Waste Management Coordinator.

B. Refrigerant Recovery Technician Qualifications: Universal certified by EPA-approved certification program.

C. Refrigerant Recovery Technician Qualifications: Comply with requirements in Section 024119 "Selective Demolition."

D. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

E. Waste Management Conference(s): Conduct conference(s) at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of each contractor and waste management coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition site-clearing waste generated by the Work. Use Form CWM-1 for construction waste and Form CWM-2 for demolition waste. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use Form CWM-3 for construction waste and Form CWM-4 for demolition waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work in compliance with Section 024119 "Selective Demolition."
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there were no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Use Form CWM-5 for construction waste and Form CWM-6 for demolition waste. Include the following:

1. Total quantity of waste.
2. Estimated cost of disposal (cost per unit). Include transportation and tipping fees and cost of collection containers and handling for each type of waste.
3. Total cost of disposal (with no waste management).
4. Revenue from salvaged materials.
5. Revenue from recycled materials.
6. Savings in transportation and tipping fees by donating materials.
7. Savings in transportation and tipping fees that are avoided.
8. Handling and transportation costs. Include cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS

2.1 RECYCLING RECEIVERS AND PROCESSORS

A. Subject to compliance with requirements, available recycling receivers and processors include, but are not limited to, the following:

2.2 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials , including the following:

1. Demolition Waste:

a. Asphalt paving.
b. Concrete.
c. Concrete reinforcing steel.
d. Brick.
e. Concrete masonry units.
f. Wood studs.
g. Wood joists.
h. Plywood and oriented strand board.
i. Wood paneling.
j. Wood trim.
k. Structural and miscellaneous steel.
l. Rough hardware.
m. Roofing.
n. Insulation.
o. Doors and frames.
p. Door hardware.
q. Windows.
r. Glazing.
s. Metal studs.
t. Gypsum board.
u. Acoustical tile and panels.
v. Carpet.
w. Carpet pad.
x. Demountable partitions.
y. Equipment.
z. Cabinets.
aa. Plumbing fixtures.
bb. Piping.
cc. Supports and hangers.
dd. Valves.
ee. Sprinklers.
ff. Mechanical equipment.
gg. Refrigerants.
hh. Electrical conduit.
ii. Copper wiring.
jj. Lighting fixtures.
kk. Lamps.
ll. Ballasts.
mm. Electrical devices.
nn. Switchgear and panelboards.
oo. Transformers.
pp. <**Insert materials required**>.

2. Construction Waste:

a. Masonry and CMU.
b. Lumber.
c. Wood sheet materials.
d. Wood trim.
e. Metals.
f. Roofing.

g. Insulation.
h. Carpet and pad.
i. Gypsum board.
j. Piping.
k. Electrical conduit.
l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Wood pallets.
8) Plastic pails.

m. Construction Office Waste: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following construction office waste materials:

1) Paper.
2) Aluminum cans.
3) Glass containers.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

E. Waste Management in Historic Zones or Areas: Transportation equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches (300 mm) or more.

3.2 SALVAGING DEMOLITION WASTE

A. Comply with requirements in Section 024119 "Selective Demolition" for salvaging demolition waste.

B. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

C. Salvaged Items for Sale and Donation: Not permitted on Project site.

D. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site.
5. Protect items from damage during transport and storage.

E. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

F. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

G. Plumbing Fixtures: Separate by type and size.

H. Lighting Fixtures: Separate lamps by type and protect from breakage.

I. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING DEMOLITION WASTE

A. Asphalt Paving: Grind asphalt to maximum 1-1/2-inch (38-mm) size.

1. Crush asphaltic concrete paving and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill.

B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.
2. Crush concrete and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 3/4-inch (19-mm) size.

    a. Crush masonry and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill.
    b. Crush masonry and screen to comply with requirements in Section 329300 "Plants" for use as mineral mulch.

2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

J. Metal Suspension System: Separate metal members, including trim and other metals from acoustical panels and tile, and sort with other metals.

K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

pad in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

L. Carpet Tile: Remove debris, trash, and adhesive.

1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

M. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

N. Conduit: Reduce conduit to straight lengths and store by material and size.

O. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

    a. Comply with requirements in Section 329300 "Plants" for use of clean sawdust as organic mulch.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

    a. Comply with requirements in Section 329300 "Plants" for use of clean ground gypsum board as inorganic soil amendment.

D. Paint: Seal containers and store by type.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

3.7 ATTACHMENTS

A. Form CWM-1 for construction waste identification.

B. Form CWM-2 for demolition waste identification.

C. Form CWM-3 for construction waste reduction work plan.

D. Form CWM-4 for demolition waste reduction work plan.

E. Form CWM-5 for cost/revenue analysis of construction waste reduction work plan.

F. Form CWM-6 for cost/revenue analysis of demolition waste reduction work plan.

G. Form CWM-7 for construction waste reduction progress report.

H. Form CWM-8 for demolition waste reduction progress report.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
2. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
3. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
4. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
5. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 DEFINITIONS

A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest-control inspection.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.7 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's Owner's signature for receipt of submittals.

5. Submit testing, adjusting, and balancing records.
6. Submit sustainable design submittals not previously submitted.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architectwill either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit Final Completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architectwill either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection

or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first, listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

    a. MS Excel Electronic File: Architect**,**] will return annotated file.
    b. PDF Electronic File: Architectwill return annotated file.
    c. Web-Based Project Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).
    d. Three Paper Copies: Architectwill return two copies.

1.10 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit on digital media acceptable to Architect.

E. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
i. Vacuum and mop concrete.
j. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
k. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
l. Remove labels that are not permanent.
m. Wipe surfaces of mechanical and electrical equipmentand similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
p. Clean ducts, blowers, and coils

    1) Clean HVAC system in compliance with Section 230130.52 "Existing HVAC Air-Distribution System Cleaning." Provide written report on completion of cleaning.

q. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
r. Clean strainers.
s. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste-disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

B. Related Requirements:
1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit on digital media acceptable to Architect. Enable reviewer comments on draft submittals.
2. Submit three paper copies. Architectwill return two copies.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.

1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.

9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format,

identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 011200 "Multiple Contract Summary" for coordinating Project Record Documents covering the Work of multiple contracts.
2. Section 017300 "Execution" for final property survey.
3. Section 017700 "Closeout Procedures" for general closeout procedures.
4. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
3) Submit Record Digital Data Files and one set(s) of plots.
4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit three paper-copy set(s) of marked-up record prints.

2) Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
3) Print each drawing, whether or not changes and additional information were recorded.

c. Final Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit Record Digital Data Files and three set(s) of Record Digital Data File plots.
3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

E. Reports: Submit written report weekly indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.

c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with ArchitectWhen authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
2. Format: DWG, Version <**Insert designation**>, [**Microsoft Windows**] [**Apple Macintosh**] operating system.
3. Format: Annotated PDF electronic file with comment function enabled.
4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Architectfor resolution.
6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.

a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect
    e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file.

1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017839

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Demolition and removal of buildingsand site improvements.
2. Removingbelow-grade construction.
3. Disconnecting, capping or sealing, and abandoning in-place site utilities.
4. Salvaging items for reuse by Owner.

1.2 MATERIALS OWNERSHIP

A. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit informational report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and , for noise control. Indicate proposed locations and construction of barriers.
1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain including means of egress from those buildings.

B. Schedule of building demolition with starting and ending dates for each activity.

C. Inventory of items to be removed and salvaged.

D. Pre-demolition photographs.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.4 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

D. Pre-demolition Conference: Conduct conference at **Menifee Valley Campus**

1.5 PROJECT CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
   a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. Owner assumes no responsibility for buildings and structures to be demolished.
1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
2. Before building demolition, Owner will remove the following items:
   a. <**Miscellaneous site items**>.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. On-site storage or sale of removed items or materials is not permitted.

F. Arrange demolition schedule so as not to interfere with Owner's on-site operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Section 312000 "Earth Moving."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. [

3.2 PREPARATION

A. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
1. Owner will arrange to shut off indicated utilities when requested by Contractor.
2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
3. Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
4. Do not start demolition work until utility disconnecting and sealing have been completed.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

3.3 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."
   1. Protect adjacent buildings and facilities from damage due to demolition activities.
   2. Protect existing site improvements, appurtenances, and landscaping to remain.
   3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
   4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
   6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
   7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 DEMOLITION

A. General: Demolish indicated site improvements completely. Use methods required to complete the Work within limitations of governing regulations.
   1. Do not use cutting torches in work area. . Maintain portable fire-suppression devices

B. Site Access and Temporary Controls: Conduct site demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
   2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.

C. Explosives: Use of explosives is not permitted.

D. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

E. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

F. Salvage: Items to be removed will not be salvaged.

G. Demolish below-grade construction within footprint of new construction and extending 5 feet (1.5 m) outside footprint indicated for new construction.

H. Existing Utilities: Demolish existing utilities and below-grade utility structures within 5 feet (1.5 m) outside footprint indicated for new construction. Cut utilities flush with grade.

I. Below-Grade Areas: Completely fill below-grade areas and voids resulting from demolition operations with satisfactory soi materials according to backfill requirements in Section 312000 "Earth Moving."

J. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

K. Promptly repair damage to adjacent buildings caused by demolition operations.

3.5 CLEANING

A. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction. See Section 017419 "Construction Waste Management and Disposal" for recycling and disposal of demolition waste.

B. Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 024116

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolition and removal of selected site elements.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 INFORMATIONAL SUBMITTALS

A. Predemolition Photographs or Video: Submit before Work begins.

1.4 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.5 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
   1. Before selective demolition, Owner will remove the following items:
      a. Existing Portables

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
   1. Hazardous materials will be removed by Owner before start of the Work.
   2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
   3. Hazardous material remediation is specified elsewhere in the Contract Documents.
   4. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain for adjacent buildings: Maintain services/systems indicated to remain and protect them against damage.
   1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
   2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of Site.
   3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and equipment, and components indicated to be removed.
      a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.

b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
c. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
2. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain[**fire watch and**] portable fire-suppression devices during flame-cutting operations.
3. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect and Owner, items may be removed to a suitable, protected storage location during selective demolition] and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be[**,**] reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 311000
SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities or abandoning site utilities in place.
7. Temporary erosion- and sedimentation-control measures.

B. Related Sections:

1. Section 312500 – SWPPP
2. Section 312000 – Earth Moving

1.3 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other clean soil indicated to be stockpiled or otherwise remain MSJC's property, cleared debris shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions on project bid doucments.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from MSJC and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by MSJC or authorities having jurisdiction.

B. Carefully remove items indicated to be salvaged and turn it over to the owner for storage.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion and sedimentation control and plant protection measures are in place.

E. The following practices are prohibited within plant protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

H. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 - Earth Moving.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Wrap a 1-inch blue vinyl tie tape flag around each tree trunk at 54 inches above the ground.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to MSJC.

3.2 TREE AND PLANT PROTECTION

A. Protect trees remaining on-site according to requirements in Section 329400 - Tree Protection and Trimming.

1. Protect shrubs and other vegetation indicated to remain or be relocated.

2. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.3 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

2. Fill in all excavated holes and trenches with suitable compacted, non-expansive, satisfactory soil material per the satisfaction of the Project Geotechnical Engineer.

3.4 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and non-soil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.6 SITE IMPROVEMENTS

A. Remove existing above and below grade improvements as indicated and necessary to facilitate new construction. Demolish and remove all buried footings or foundations that are in conflict with new construction.

B. Sawcut and remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off MSJC's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 31 2000

EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses and plants.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete walks pavements.
6. Subbase course and base course for asphalt paving.
7. Subsurface drainage backfill for walls and trenches.
8. Excavating and backfilling trenches for utilities and pits for buried utility structures.

A. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

1. Geotechnical Report Publication Information:
   Title: GEOTECHNICAL INVESTIGATION
   Mt. San Jacinto College
   5,000 Seat Stadium and Buildings at Menifee Valley Campus
   2823 7 La Piedra Road
   San Jacinto, Riverside County, California
   Prepared for
   Mt. San Jacinto Community College District
   1499 North State Street
   San Jacinto, California 92583Project No. 8767 A02

   Prepared by
   MTGL 14467 Meridian Parkway, Building 2A, Riverside, CA 92518
   Tel: 951 .653.4999, Fax: 951.653.4666

B. Related Sections:

1. Section 31 10 00 Site Clearing

2. Section 31 25 00 SWPC

1.3 UNIT PRICES

A. Work of this Section is affected by unit prices for earth moving specified in Section 01 22 00 "Unit Prices."

B. Quantity allowances for earth moving are included in Section 01 21 00 "Allowances."

C. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following. Unit prices for rock excavation include replacement with approved materials.

1. 24 inches outside of concrete forms other than at footings.
2. 12 inches outside of concrete forms at footings.
3. 6 inches outside of minimum required dimensions of concrete cast against grade.
4. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
5. 6 inches beneath bottom of concrete slabs-on-grade.
6. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

1.4 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course, or the subgrade if there is no subbase course, and hot-mix asphalt paving or concrete paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course (Capillary Break): Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Construction Manager. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices changes in the Work.

2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by MSJC. Unauthorized excavation, as well as remedial work directed by Construction Manager, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades or to replace overexcavated soil.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch-maximum-width, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom

2. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for asphalt or concrete pavement.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase or base course if there is no subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.5 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct pre-excavation conference at Project site.

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:

a. Personnel and equipment needed to make progress and avoid delays.

b. Coordination of Work with utility locator service.

c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.

d. Extent of trenching by hand or with air spade.

e. Field quality control.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long for each color.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 1557.

C. Pre-excavation Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.8 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: The MSJC will retain a DSA accepted testing agency according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.9 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from MSJC and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by MSJC or authorities having jurisdiction.
3. Maintain emergency vehicle access traffic ways at all times. If the Work impacts the emergency vehicle access traffic way, coordinate with the local Fire Marshal.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining MSJC's property will be obtained by the MSJC before award of Contract.

1. Do not proceed with work on adjoining property until directed by the Construction Manager.

C. Utility Locator Service: Retain a professional utility locator service and have all existing underground utilities located and surface-identified before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 01 50 00 "Temporary Facilities and Controls", Section 31 10 00 "Site Clearing" and Section 31 25 00 “Storm Water Pollution Prevention” are in place.

E. Do not commence earth-moving operations until plant-protection measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

I. Existing Utilities: Do not interrupt utilities serving facilities occupied by MSJC or others unless permitted in writing by MSJC and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify MSJC not less than five days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without MSJC's written permission.

J. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, free of rock or gravel larger than 4 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Expansion Index: Not more than 50 as measured by ASTM D 4829.
2. Upper 18 inches of subgrade fill under landscaped areas: Soil containing not more than 10% stones or lumps larger than 1-1/2 inches.

C. Unsatisfactory Soils: Soil Classification Groups OL, CH, MH, OH, and PT according to ASTM D 2487; Soil Classification Groups GC, SC, CL and ML where those soils are classified as medium or highly expansive by ASTM D 4829.

1. Unsatisfactory soils also include satisfactory soils not maintained above 2 percent of optimum moisture content at time of compaction.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; All Class 2 aggregate base shall conform to Caltrans Standard Specifications and be compacted to at least 95 percent relative compaction.

G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

H. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

I. Drainage Course (Capillary Break): Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.

J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.

K. Sand: ASTM C 33/C 33M; fine aggregate.

L. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:
   a. Grab Tensile Strength: 157 lbf; ASTM D 4632.
   b. Sewn Seam Strength: 142 lbf; ASTM D 4632.
   c. Tear Strength: 56 lbf; ASTM D 4533.
   d. Puncture Strength: 65 lbf; ASTM D 4833.
2. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.

3. Permittivity: 1.8 per second, minimum; ASTM D 4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:
   a. Grab Tensile Strength: 247 lbf; ASTM D 4632.
   b. Sewn Seam Strength: 222 lbf; ASTM D 4632.
   c. Tear Strength: 90 lbf; ASTM D 4533.
   d. Puncture Strength: 90 lbf; ASTM D 4833.
2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
3. Permittivity: 0.02 per second, minimum; ASTM D 4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.3 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Prior to grading, All surface vegetation, grass turf, existing landscaping, trash, debris, asphalt concrete, Portland cement concrete and underground utilities should be cleared and removed from the proposed construction sites. Underground facilities such as utilities, pipes or underground storage tanks may exist at the site. Removal of underground tanks is subject to state law as regulated by the County, City and/or Fire Department. If storage tanks containing hazardous or unknown substances are encountered, the proper authorities must be notified prior to any attempts at removing such objects. Any water wells, if encountered during construction, should be exposed and capped in accordance with the requirements of the regulating agencies. Depressions resulting from the removal of foundations of existing buildings, underground tanks and pipes, buried obstructions and/or tree roots should be backfilled with properly compacted material.Voids created by removal of buried material shall be backfilled with properly compacted soil in general accordance with the recommendations as follows:

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Geotechnical Engineer. The Contract Sum will be adjusted for rock excavation according to

unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the dimensions provided elsewhere in the Section.
3. Topsoil and vegetation layers, root zones, and similar surface materials shall be striped and stockpiled for either reuse in landscape surface areas or removed from the site. Site existing fill shall be considered suitable for re-use as compacted fills provided the recommendations contained herein are followed. If cobbles/boulders larger than 6-inches in largest diameter and expansive soils (EI>21) are encountered, these materials shall not be placed with the upper 3 feet of subgrade soils.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Building Footprints: Within the building footprint, existing soils within building or foundation areas be over excavated to a minimum depth of 2 feet below the bottom of the proposed footings or 4 feet below the existing grade, whichever is greater. The required horizontal limits of the over excavated area shall be defined as the area extending from the edge of the building perimeter/footing for a distance of 5 feet, where obtainable. Removals/over-excavation may be required depending on the actual conditions encountered pending verification by Geotechnical Engineer representative during grading to confirm encountered soils are suitable.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.
4. Abandoned underground utility lines shall be traced out and completely removed from the site. Each end of the abandoned utility line shall be securely capped at the entrance and exit to the site to prevent any water from entering the site. Soils loosened due to the removal of trees and other landscaping shall be removed and replaced as controlled compacted fill.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Cut and protect roots according to requirements.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, Hardscape areas which include all paved areas will require a minimum depth of 2 feet of removal and recompaction. Processing for hardscape areas should extend a minimum distance of 2 feet outside the hardscape limits, where obtainable.

B. After completion of the recommended removal of existing fill soils and prior to fill placement, the exposed surface shall be scarified to a minimum depth of 8-inches, moisture conditioned as necessary to near optimum moisture content and recompacted using heavy compaction equipment to an unyielding condition. All structural fill within the building footprints shall be compacted throughout to 90 percent per ASTM D 1557.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. For the excavation of landscape irrigation trenches, see also Section for Planting Irrigation."

C. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit unless otherwise indicated.

D. Trench Bottoms:

1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

2. Unless indicated otherwise, excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

3. Unless indicated otherwise, excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Tree Protection and Trimming.

3.8 SUBGRADE INSPECTION

A. Notify Project Inspector when excavations have reached required subgrade. The Project Inspector will arrange for the MSJC's Testing Agency to review the subgrade.

B. If Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Testing Agency, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Testing Agency, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Construction Manager.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Construction Manager.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

2. Obtain MSJC's acceptance of stockpile locations prior to creation. If stockpile must be moved, obtain MSJC's acceptance.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, sub-drainage, damp-proofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for Record Documents.

3. Testing and inspecting underground utilities.

4. Removing concrete formwork.

5. Removing trash and debris.

6. Removing temporary shoring, bracing, and sheeting.

7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. Fill materials consisting of on-site soils or approved imported granular soils shall be spread in shallow lifts and compacted at near optimum moisture content to a minimum of 90 percent relative compaction, based on ASTM D1557. Depending on weather conditions preceding construction, the soils may be at very high moisture contents and could require drying back or processing to achieve stability prior to and during fill placement. This shall be investigated by the grading contractor prior to the commencement of site grading.

3.12 UTILITY TRENCH BACKFILL

A. Utility trenches shall be backfilled with compacted fill in accordance with the Standard Specifications for Public Works Construction, ("Greenbook"), 2018 Edition. Fill material above the pipe zone shall be placed in lifts not exceeding 8 inches in uncompacted thickness and shall be compacted to at least 90 percent relative compaction (ASTM D 1557) by mechanical means only. Site soils may generally be suitable as trench backfill provided these soils are screened of rocks over 1½ inches in diameter and organic matter. The upper 6 inches of backfill in all pavement areas shall be compacted to at least 95 percent relative compaction.

B. Where granular backfill is used in utility trenches adjacent moisture sensitive subgrades and foundation soils, we recommend that a cut-off "plug" of impermeable material be placed in these trenches at the perimeter of buildings, and at pavement edges adjacent to irrigated landscaped areas. A "plug" can consist of a 5-foot long section of clayey soils with more than 35-percent passing the No. 200 sieve, or a Controlled Low Strength Material (CLSM) consisting of one sack of Portland-cement plus one sack of bentonite per cubic-yard of sand. CLSM shall generally conform to "Greenbook", latest Edition. This is intended to reduce the likelihood of water permeating trenches from landscaped areas, then seeping along permeable trench backfill into the building and pavement subgrades, resulting in wetting of moisture sensitive subgrade earth materials under buildings and pavements.

C. Excavation of utility trenches shall be performed in accordance with the project plans, specifications and the California Construction Safety Orders. The contractor shall be responsible for providing a "competent person" as defined in Article 6 of the California Construction Safety Orders. Contractors shall be advised that sandy soils (such as fills generated from the onsite alluvium) could make excavations particularly unsafe if all safety precautions are not properly implemented. In addition, excavations at or near the toe of slopes and/or parallel to slopes may be highly unstable due to the increased driving force and load on the trench wall. Spoil piles from the excavation(s) and construction equipment shall be kept away from the sides of the trenches. Leighton Consulting, Inc. does not consult in the area of safety engineering.

D. Place backfill on subgrades free of mud, frost, snow, or ice.

E. The volume change of excavated onsite soils upon recompaction is expected to vary with materials, density, insitu moisture content, and location and compaction effort. The in-place and compacted densities of soil materials vary and accurate overall determination of shall and bulking cannot be made. Therefore, we recommend site grading include, if possible, a balance area or ability to adjust grades slightly to accommodate some variation. Based on our geotechnical laboratory results, we expect a recompaction shall (when recompacted at 90 to 95 percent of ASTM D 1557) of 5- to 10-percent by volume, for the onsite fill. Subsidence due solely to scarification, moisture conditioning and recompaction of the exposed bottom of over-excavation, is expected to be on the order of 0.10 foot. This should be added to the above shall value for the recompacted fill zone, to calculate overall recompaction subsidence.

F. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

1. Unless otherwise indicated, provide pea gravel bedding for sanitary sewer and storm sewer piping.

2. Clean sand may be used for bedding under piping other than sewer piping.

G. Trenches under Footings: Unless otherwise indicated, backfill trenches excavated under footings and within the zone of influence of bottom of footings with concrete to elevation of bottom of footings.

H. Trenches under Roadways and Driveways: Unless otherwise indicated, provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below finished surface of roadways or driveways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course (or base course if no subbase course is indicted.) Backfill voids with satisfactory soil while removing shoring and bracing.

I. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of pea gravel or satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

J. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

K. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

L. Coordinate backfilling with utilities testing.

3.13 SOIL FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations.

D. Place soil fill on subgrades free of mud, frost, snow, or ice.

E. All imported soil material shall be approved by Geotechnical Engineer prior to hauling on site. Import soils and/or borrow sites, if needed, should be evaluated by us prior to import. Import

soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (EI<21) and have a low corrosion impact to the proposed improvements.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to above 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.

2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.

3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent, except for areas under structures, building slabs, pavements and walkways.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. All grading shall be performed per the applicable provisions of local ordinances and the 2016 California Building Code. All work within the public roadway area shall be done per the applicable codes, ordinances and requirements of the City of Lake Elsinore and will be performed under the inspection of that agency.

1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. If subdrainage textile is indicated on drawings, install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course material under hot-mix asphalt pavement.
3. Shape base course to required crown elevations and cross-slope grades.
4. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
5. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
6. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
7. Pavement Shallers: Place shallers along edges of subbase course and base course to prevent lateral movement. Construct shallers, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.18 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. If sub-drainage textile is indicated on drawings, install sub-drainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.

4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: MSJC will engage a qualified independent geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Project Inspector.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.

2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length but no fewer than two tests.

3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 100 feet or less of trench length but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Geotechnical Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off MSJC's property.

END OF SECTION 31 2000

SECTION 31 3201

FINISH GRADING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide materials, labor and equipment necessary for the completion of finish grading as indicated on the Drawings and specified herein.

B. The existing site of the work has been rough graded under a previous and separate contract; however, additional minor grading as may be required is covered under Section 02200, Earthwork

C. Previous rough grading included grading to and providing the finished subgrade surface for asphalt surfaces and building pads to a tolerance of one-tenth of a foot and fields to a tolerance of half a contour of the elevations indicated on Drawings.

D. Related Sections:

1. Earthwork, Section 312000

2. Storm Drain Utility Piping, Section 334000

PART 2 - PRODUCTS

2.01 MATERIALS

A. Refer to Section 33400 and 334600 - for material for fill.

PART 3 - EXECUTION

3.01 PREPARATION FOR FINISH GRADING

A. The entire area within the limits of grading as indicated on the Drawings shall be constructed to the lines, grades, elevations, slopes, and cross sections indicated on the Drawings. When the grading has been completed, the areas shall be rolled smooth with a steel tandem roller or equal.

Should low spots develop during the rolling operation, such spots shall be filled and rerolled smooth. Slopes, banks, and drainage depressions shall present a neat, uniform appearance on completion of the work.

B. Fine grade to bring areas to required lines and grades. The subgrade elevation within the building area for slabs on grade (without a base course) shall be within 0.50-inch along a 10-foot straight edge.

C. Slope finish grades to drain surface water away from buildings, walks, paving, and other structures. Generally, grade with uniform slope between points where elevations are given, or between such points and existing grades. Excavate and grade swales to provide drainage away from and around buildings.

D. Areas to Receive Paving or Surfacing: Review plans and details for each area. See plans for paving and base course thickness. Review Drawings for sitework details.

E. Areas to Receive Interior Building Slab-on-Grade: Review plans and details for thickness of slabs and granular fill under slabs.

F. Areas to Receive Topsoil and/or Planting: Where not otherwise indicated, areas outside of buildings shall be given uniform slopes between points for which finish grades are shown, or between such points and existing established grade, except that vertical curves or roundings shall be provided at abrupt changes in slope.

G. Rocks or cobbles larger than 1 inch in diameter shall not be placed in the upper 12-inches of planting area fill, and rocks or cobbles larger than 3/4-inch shall not appear on the finish graded surface.

H. Surplus or Imported Material:

1. Surplus material not needed for filling shall be removed from the site in a legal manner.

2. Provide additional earth material required shall be imported from an approved source at no additional cost to Owner.

3. All earth products to the site shall meet or exceed USEPA and State of California regulations for clean fill. Proof of compliance is the responsibility of the Contractor.

I. Preparation for Fills:
Prior to placing fills, the existing surface shall be scarified and recompacted to at least 90 percent maximum dry density per the ASTM D-1557 procedure.

3.02 FIELD QUALITY CONTROL

A. Compaction of soils performed on this project shall be at least 90 percent of the maximum dry density per the ASTM D-1557 procedure. New turf and planted areas shall be compacted to 85 percent. Aggregate bases shall be compacted to 90 percent.

END OF SECTION

SECTION 312333
TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.1 SUMMARY

This Section includes requirements for excavating, preparation of pipe-laying surface, pipe bedding, backfilling and compaction for the piping systems furnished and installed under Section 334000, "STORM UTILITY DRAINAGE PIPING".

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, Latest Demolition Operations-Safety Requirements.
2. Standard Specifications for Public Works Construction (Latest Edition), including the Latest County of Riverside Standard Special Provisions.
3. State of California Department of Transportation (Caltrans) Standard Specifications, Latest Edition.
4. State of California Department of Transportation (Caltrans) "Manual of Traffic Control for Construction and Maintenance Works Zones" (Latest Edition).

B. Standard Drawings

1. City of Menifee Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
2. State of California Department of Transportation (Caltrans) Standard Plans, Latest Edition.
3. Standard Plans for Public Works Construction, as last amended, prepared by Southern California Chapter of the American Public Works Association.

C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D1556	Density of Soil in Place by the Sand Cone-Method
ASTM D1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457 mm) Drop
ASTM D2487	Classification of Soils for Engineering Purposes
ASTM D2922	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D3017	Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

1.3 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

A. Prior to all work of this section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.

B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines, which may create a safety hazard.

1.4 DESCRIPTION

The work includes excavation, preparation of pipe laying surface, pipe bedding, backfilling and compaction as specified herein, for the piping systems furnished and installed under Section 331000, "WATER UTILITIES"; Section 334000, "STORM DRAINAGE UTILITIES"; and Section 333000, "SANITARY SEWERAGE UTILITIES". The work also includes protection as specified herein, installation of buried warning and identification tape, sawcutting and removal of existing asphalt pavement within areas to be trenched through existing asphalt and pavement repair for areas trenched through existing asphalt as specified herein.

1.5 DEFINITIONS

A. Backfill: Material used in refilling a trench or other excavation.

B. Compaction: Any method of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D1557 for general soil types, abbreviated in this specification as "(amount indicated) percent ASTM D1557 maximum density."

C. Embankment: A "fill having a top that is higher than adjoining ground."

D. Fill: Specified material placed at a specified degree of compaction to obtain an indicated grade or elevation.

E. Granular Pipe Bedding: A dense, well-graded aggregate mixture of sand placed on a subgrade to provide a suitable foundation for pipe.

F. Hard Material: Weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

G. Lift: A layer or course of soil placed on top of prepared subgrade or a previously prepared or placed soil in a fill or backfill.

H. Rock: Solid Homogenous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of

backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume.

I. Unyielding Material: Rock or soil with cobbles in the trench bottom requiring a covering of finer grain material or special bedding to avoid bridging in the pipe or conduit.

J. Unsatisfactory Material: Soil or other material identified as having insufficient strength or stability to carry intended loads on trench backfills without excessive consolidation or loss of stability. Also backfill material which contains refuse, large rocks, debris, and other material which could damage the pipe or cause the backfill not to compact. Materials classified as PT, OH, or OL by ASTM D2487 are unsatisfactory.

K. Unstable Material: Material in the trench bottom which lacks firmness to maintain alignment and prevent joints from separating in the pipe, conduit, or appurtenance structure during backfilling. This may be material otherwise identified as satisfactory which has been disturbed or saturated.

1.6 SUBMITTALS

A. Field Test Reports: Submit within 14 days of test date.

B. Shoring Plan: The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements to Owner for review prior to commencing the work.

1.7 PROTECTION

A. The Contractor shall notify DIG ALERT at 811 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

B. Prior to commencing the work, the Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.

C. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings.

D. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches

or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by MSJC offices of the division. The San Bernardino office is located at:

State of California
Department of Industrial Relations
Division of Occupational Safety and Health
464 West 4th Street, Suite 332
San Bernardino, CA 92401
Telephone: (909) 383-4321
Fax: (909) 383-6789

1. This project may include trenching in excess of 5 feet in depth which will require a permit from the California Division of Occupational Safety and Health (CAL-OSHA).
2. The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

   The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to Owner for review prior to commencing the work.

E. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Best Management Practices and the guidance provisions set forth in the Storm Water Pollution Prevention Plan as prepared by the Construction Contractor shall be complied with for all phases of the work.

F. Utilities: Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, use hand or light equipment excavation. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until backfill is completed. Report damage to utility or subsurface construction immediately to the Resident Engineer.

G. Structures and Surfaces: Protect newly backfilled areas and adjacent structures, slopes or grades from traffic, erosion settlement, or any other damage. Repair and reestablish damaged or eroded grades and slopes and restore surface construction prior to acceptance. Provide erosion control to prevent water-borne soil from leaving the site, by means of straw bale dikes or sand bags.

The contractor shall be responsible to clean-up any soil deposited in the public right-of-way or on adjacent property.

1.8 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

A. Section 312000, "EARTH MOVING".

B. Section 334000, "STORM UTILITY DRAINAGE PIPING".

C. Division 1.

1.9 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

Provide soil materials as described below free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

A. Backfill: Bring trenches to grade indicated on the drawings using material excavated on the site of this project. This material shall be approved by the Geotechnical Engineer prior to use as backfill. The maximum size of material used for backfill shall not exceed two inches.

B. Bedding: Sand: Clean, course-grained sand classified as SW or SP by ASTM D2487 shall be used as bedding material.

C. Utility trenches under slabs: Utility trenches under slabs in expansive soils shall be back filled with sand (SE 30 or greater) and compacted to a minimum of 90% of maximum dry density of the sand. Care shall be taken not to crush the utility or pipes during the compaction of the trench back fill.

2.2 BURIED WARNING AND IDENTIFICATION TAPE

Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, three-inch-minimum width, color coded as stated below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing is to be permanent, unaffected by moisture or soil.

Warning tape Color Codes

Blue: Water Lines, including Fire, Domestic and Irrigation
Green: Sewer Lines

White: Storm Drain Lines

A. Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements indicated above. Minimum thickness of the tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise with a maximum 350 percent elongation.

B. Detectable Warning Tape for Non-Metallic Piping: Polyethylene plastic tape conforming to the width, color, and printing requirements indicated above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. The tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when the tape is buried up to three feet deep. Encase the metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

PART 3 - EXECUTION

3.1 GENERAL EXCAVATION

Keep excavations free from water while construction is in progress. Make trench sides as nearly vertical as practicable except where sloping of sides is allowed or required. Sides of trenches shall not be sloped from the bottom of the trench up to the elevation of the top of the utility. Excavate ledge rock, boulders, and other unyielding material to an overdepth at least one foot below the bottom of the utility unless otherwise indicated or specified on the drawings. Use sand placed in six-inch-maximum layers to refill overdepths to the proper grade. Grade bottom of trenches accurately to provide uniform bearing and support for each section of utility on undisturbed soil, or bedding material as indicated or specified at every point along its entire length except for portions where it is necessary to excavate for bell holes and for making proper joints. Dig bell holes and depressions for joints after trench has been graded.

Dimensions of bell holes shall be as required for properly making the particular type of joint to ensure that the bell does not bear on the bottom of the excavations. Trench dimensions shall be as indicated or specified.

3.2 GENERAL BEDDING

Shall be of the materials and depths as indicated for the utility and utility structures. Place bedding in six-inch-maximum loose lifts to one foot above utility unless otherwise specified. Ensure that initially placed material is tamped firmly under pipe haunches. Bring up evenly on each side and along the full length of the structure. Ensure that no damage is done to structures or their protective coatings. Provide uniform and continuous support for each section of structure except at bell holes or depressions necessary for making proper joints.

3.3 BURIED WARNING AND IDENTIFICATION TAPE

Install tape in accordance with manufacturer's recommendations except as modified herein. Bury tape 6" below finished grade; under pavements bury tape 6" below top of subgrade.

3.4 GENERAL BACKFILLING

Place backfill on top of bedding material in 8"-maximum loose lifts unless otherwise specified. Compact each loose lift as specified in paragraph "General Compaction" before placing the next lift. Do not backfill where the material in the trench is muddy, except as authorized. Where

settlements greater than the tolerance allowed herein for grading occur in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation. Coordinate backfilling with testing of utilities. Complete all testing for utilities before backfilling.

3.5 GENERAL COMPACTION

Use hand-operated, plate-type, vibratory, or other suitable hand tampers in areas not accessible to larger rollers or compactors. Avoid damaging pipes and protective pipe coatings. Compact material in accordance with the following unless otherwise specified. If necessary, alter, change, or modify selected equipment or compaction methods to meet specified compaction requirements.

A. Compaction of Bedding and Backfill: Compact bedding and backfill material surrounding pipes to 90% of ASTM D1557 maximum density, except where specified to be 95% of ASTM D1557 maximum density in Section 312000, "Earth Moving".

3.6 SPECIAL EARTHWORK INSTALLATION REQUIREMENTS

A. Precast Meter Boxes, Catchbasins and Cast-in-Place Structures: Provide at least 12 inches clear from outer surfaces to the embankment or shoring. Remove rock as specified herein. Remove unstable soils that are incapable of supporting the structure to an overdepth of one foot and refill with gravel or sand to the proper elevation. Refill overdepths with gravel or sand to the required grade and compact as specified. Set precast concrete structures on a minimum of 6 inches of gravel or sand material.

B. Grading: Finish to grades indicated within 0.05 feet. Grade areas to drain water away from structures. Grade existing grades that are to remain but have been disturbed by the Contractor's operations.

C. Protection of Surfaces: Protect newly graded areas from traffic, erosion, and settlements that may occur due to construction activity. Repair or reestablish damaged grades, elevations, or slopes.

D. Pavement Repair: Repair pavement, curbs, and gutters damaged during construction with new improvements. Do not repair pavement until trench or pit has been backfilled and compacted as herein specified. Provide a temporary road surface of gravel or crushed stone over the backfilled portion until permanent pavement is repaired. Remove and dispose of temporary road surface material when permanent pavement is placed. Repair A.C. pavement in accordance with City of Menifee Standard Drawings. Refer to Section 321216, “ASPHALT PAVING” for asphalt concrete pavement specifications.

3.7 SOIL TESTING

The geotechnical engineer shall make random field density tests of the compacted soil to provide a basis for expressing an opinion as to whether the fill material is compacted as specified. The basis for his opinion that the fill material has been compacted to at least the minimum relative compaction specified shall be that no tests in compacted or recompacted fill areas indicate a relative compaction of less than that specified. Density tests hall be made in the compacted materials below any disturbed surface. When these tests indicate that the density of

any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

END OF SECTION

SECTION 31 25 00

STORM-WATER POLLUTION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

B. CASQA Construction Handbook / Website Portal – Available as a subscription service at: https://www.casqa.org/store/products/tabid/154/p-167-construction-handbookportal-initial-subscription.aspx.

1.2 SUMMARY

A. This section includes all methods and materials to comply with the Project's Storm Water Pollution Prevention Plan (SWPPP), which is required for construction sites with a disturbed area of one or more acres, including construction sites of less than one (1) acre when they are part of a larger common development plan that is equal to or greater than one (1) acre:

1. The MSJC is responsible for obtaining coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit). The MSJC will submit the following Project Registration Documents (PRDs) to the State Water Board electronically, using the State Water Board Storm Water Multiple Application and Report Tracking System (SMARTS) as described in Attachment B of the Construction General Permit, hereafter regarded as the CGP. This includes payment of the fee statement generated by SMARTS after PRD submittal.
2. The MSJC will supply the following documents.
    a. Conceptual SWPPP hereafter referred to as the MSJC's SWPPP (D-SWPPP), prepared by a Qualified SWPPP Developer (QSD) to minimize the discharge of pollutants in stormwater due to construction activities.
    b. Notice of Intent (NOI).
    c. Risk Assessment.
    d. Conceptual Site Map.
    e. WDID Number.

B. Related Sections:

1. Section 012100 – Allowances.
2. Section 012200 – Unit Prices.

1.3 SUBMITTALS

A. Refer to entire section for all the submittal requirements.

B. Qualification Data: Submit qualifications of CONTRACTOR's QSD and QSP.

C. C-SWPPP

1. Preliminary.
2. Final.
3. Amendments.

D. Hazardous waste documentation.

E. Notice of Termination (NOT).

F. Construction Site Monitoring Program (CSMP).

G. Rain Event Action Plan (REAP).

H. Storm water Annual Report.

I. ATS:

1. ATS Plan.
2. Notice of Discharge Report.

1.4 ABBREVIATIONS

A. ATS: Advanced Treatment System.

B. BMP: Best Management Practice.

C. CASQA: California Storm water Quality Association.

D. CCR: California Code of Regulations.

E. CGP: Construction General Permit.

F. CSMP: Construction Site Monitoring Program.

G. C-SWPPP: CONTRACTOR's SWPPP.

H. C-WPCP: CONTRACTOR's WPCP.

I. DTSC: Department of Toxic Substance Control.

J. D-SWPPP: MSJC's SWPPP.

K. D-WPCP: MSJC's WPCP.

L. EPA: Environmental Protection Agency.

M. ESA: Environmentally Sensitive Area.

N. LRP: Legally Responsible Person.

O. NAL: Numeric Action Level.

P. NEL: Numeric Effluent Limitation.

Q. NOI: Notice of Intent.

R. NOT: Notice of Termination.

S. NPDES: National Pollutant Discharge Elimination System.

T. PRD: Project Registration Document.

U. QSD: Qualified SWPPP Developer.

V. QSP: Qualified SWPPP Practitioner.

W. REAP: Rain Event Action Plan.

X. RWQCB: Regional Water Quality Control Board.

Y. SAP: Sampling and Analysis Plan.

Z. SMARTS: Storm water Multiple Application and Report Tracking System.

AA. SWPPP: Storm Water Pollution Prevention Plan.

BB. SWRCB: State Water Resources Control Board.

CC. WDID: Waste Discharge Identification Number.

DD. WPCD: Water Pollution Control Drawing.

EE. WPCP: Water Pollution Control Program.

1.5 QUALITY ASSURANCE

A. Throughout the duration of construction, the Contractor shall have a QSD with the following training qualifications assigned to the Project in accordance with Section VII of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity. State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit):

1. Attended and passed a State Water Board-sponsored or approved QSD training course (mandatory after September 1, 2011).

2. Registered or certified as at least one of the following:

a. California Registered Civil Engineer.

b. California Registered Professional or Engineering Geologist.

c. California Licensed Landscape Architect.

d. Professional American Institute of Hydrology Hydrologist.

e. Certified Professional in Storm Water Quality (CPSWQ)™ registered through Enviro Cert International, Inc.

f. Certified Professional in Erosion and Sediment Control (CPESC)™ registered through Enviro Cert International, Inc.

g. Professional in Erosion and Sediment Control registered through the National Institute for Certification in Engineering Technologies (NICET).

B. Throughout the duration of construction, the Contractor shall have a QSP with the following training qualifications assigned to the Project in accordance with Section VII of the CGP:

1. Attended and passed a State Water Board-sponsored or approved QSP training course

2. Certified as at least one of the following:

a. Certified Erosion, Sediment and Storm Water Inspector (CESSWI)™ registered through Enviro Cert International, Inc.

b. Certified Inspector of Sediment and Erosion Control (CISEC)™ registered through CISEC, Inc.

c. QSD.

1.6 LAWS, REGULATIONS, AND POLICIES

A. The following laws, permits, regulations and Board policies apply to the erosion and sediment transport control requirements described in this Section:

1. Construction General Permit (CGP): National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity. State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ, NPDES No. CAS000002, adopted September 2, 2009 and associated amendments.

2. California Code of Regulations (CCR), Title 23 (Divisions 2 and 4) and Title 24 (Parts 5 and 11).

3. California Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the Santa Ana Basin.

4. California Statewide General Permit for Waste Discharge Requirements for Discharges from Utility Vaults and Underground Structures to Surface Waters, Order No. 2006-008-DWQ, NPDES No. CAG990002.

5. California RWQCB Santa Ana Region, General Waste Discharge Requirements for Discharges of Hydrostatic Test Water and Potable Water to Surface Waters and Storm Drains or Other Conveyance Systems, Order No. R9-2002-0020, NPDES No. CAG679001.

6. California RWQCB Santa Ana Region, General Waste Discharge Requirements for Discharges from Groundwater Extraction Waste to Surface Waters within the Santa Ana

Region, Order No. R9-2008-0002, NPDES No. CAG919002 (Waste Discharge Application/NPDES Permit, Form 200, replacing Order No. R9-2001-96).

7. California RWQCB Santa Ana Region, General Waste Discharge Requirements for Discharges from Temporary Groundwater Extraction and Similar Waste Discharges to Santa Ana Bay, Tributaries Thereto under Tidal Influence, and Storm Drains or Other Conveyance Systems Tributary Thereto, Order No. R9-2007-0034, NPDES No. CAG919001.
8. Collaborative for High Performance Schools (CHPS).

1.7 UNIT PRICES

A. Provide unit prices for the following items. Other items may be necessary since this is not an all-inclusive list:

1. Construction site management.
2. Landscaping.
3. Laboratory testing of storm water samples.
4. Mulch (permanent landscape protection).
5. Rain Event Action Plans (REAPs).
6. Site inspections and observations.
7. Soil amendments (compost and fertilizer).
8. Soil stabilizer (temporary and permanent).
9. **C-SWPPP**
10. Storm water annual reporting.
11. Storm water exceedance reporting (NAL/NEL/other).
12. Storm water sampling and analysis.
13. Street sweeping.
14. Temporary Active Treatment System (ATS).
15. Temporary check dams.
16. Temporary concrete washouts.
17. Temporary construction entrances.
18. Temporary construction roadways.
19. Temporary covers.
20. Temporary drainage inlet protection.
21. Temporary erosion control blankets.
22. Temporary fences for environmentally sensitive areas (ESAs).
23. Temporary fiber rolls / straw waddles.
24. Temporary gravel bag berms.
25. Temporary hydraulic mulch.

26. Temporary hydroseed.
27. Temporary silt fences.
28. Temporary straw bale barriers.
29. Turf reinforcement mats.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials used in the installation and operation of an ATS shall be in compliance with Attachment F of the CGP.

B. RAIN GAUGES:

1. Contractor shall furnish and install a non-recording rain gauge on the project site and ensure proper positioning to avoid shielding from neighboring buildings, vegetation, etc.
2. Contractor shall use one of the following rain gauges or an equivalent design:

Rain Gauges

Model	Manufacturer
Model 2601-00	High Sierra Electronics
Model 5-400	Belfort Instrument
Standard Model SRG	Hydrologic Services Pty. Ltd.

PART 3 - EXECUTION

3.1 CONSTRUCTION POLLUTION PREVENTION DOCUMENT

A. The Contractor shall provide a designated individual, meeting the specified qualifications, to amend the D-SWPPP with phase-specific details. A copy of the D-SWPPP is provided by the MSJC:

1. The Contractor shall provide a designated individual, meeting the specified qualifications, to implement the C-SWPPP with regards to contract work items and all elements required by the CGP. The CGP is available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.
2. In addition to compliance with the CGP, the Contractor shall comply with all other applicable state, municipal or regional laws, ordinances, rules or regulations governing discharge of storm water, including applicable municipal storm water management programs.

3.2 STORMWATER POLLUTION CONTROL

A. Assign a QSD for the project to be in charge of amending and certifying the D-SWPPP. In particular, the QSD shall perform the responsibilities indicated in Section XIV of the CGP and shall meet the training requirements specified in Section VII.B.1 of the CGP.

B. Prepare a C-SWPPP providing effective soil erosion protection and sediment transport controls [include fertilizing, seeding, and mulching] for all [disturbed areas that are not to be paved or otherwise treated], [areas as indicated], inactive areas, finished slopes, open space, and completed lots in accordance with the Contract Documents and the CGP.

C. Assign a Qualified SWPPP Practitioner (QSP) for the project, to be in charge of implementation of all provisions of the amended D-SWPPP, hereafter referred to as the Contractor's SWPPP (C-SWPPP), including non-stormwater and stormwater visual observations, sampling and analysis, and erosion and sediment control best management practice (BMP) implementation. In particular, the QSP shall perform the responsibilities indicated in Section G of Attachments C, D, and E of the CGP and shall meet the training requirements specified in Section VII.B.3 of the CGP.

D. Designate at least two Data Submitters for the Project, in case one becomes unavailable (one should be the QSP). They shall each:

1. Complete a User Account Registration through SMARTS
2. Provide their User IDs to the LRP or approved signatory (AS), so as to be linked to the account.

E. Upload the following documentation during the course of the Project as required by the CGP and the C-SWPPP until the approval of the Project's Notice of Termination (not meant to be an all-inclusive list):

1. Sampling and analysis data.
2. Storm water annual reports.
3. NOT

F. The final C-SWPPP with all of its attachments and appendices, including anything uploaded onto SMARTS during the course of construction shall be included in the record documents.]

G. Comply with all applicable state, municipal or regional laws, ordinances, rules or regulations governing discharge of stormwater, including applicable municipal stormwater management programs.

H. Construction activities shall not cause a discharge that alters the physical, thermal, chemical, biological or radioactive properties of any waters of the State; or discharge a contaminant that is likely to cause a nuisance or be harmful to public health, wildlife, or other legitimate uses.

I. To the extent practicable, all construction sites shall provide onsite methods to prevent sediment from entering the existing stormwater systems. Discharge of cloudy or sediment-laden water from any construction site to surface waters or any part of the sewer system is prohibited.

J. All construction sites shall have stabilized construction site ingress and egress to limit tracking of sediment offsite.

K. When sediment escapes the construction site, offsite accumulations of sediment shall be removed by the end of the day. Precautions shall be taken to ensure that sediment does not enter receiving waters.

L. Existing vegetation shall be preserved where possible to minimize erosion.

M. Follow instructions in Sections 3.12, 3.13 and 3.14 of this document (Temporary BMP Installation, Operation and Maintenance, Post-Construction BMPs, and Maintenance Prior to Final Acceptance).

3.3 CONTRACTOR'S STORMWATER POLLUTION PREVENTION PLAN (C-SWPPP)

A. Do not start work until:

1. An approved copy of the C-SWPPP is onsite.
2. A Waste discharge identification (WDID) number is issued.

B. Discharges of runoff from a project shall comply with the CGP.

1. Construction site management activities include bid items of work for:
   a. Preparation of the C-SWPPP.
   b. Preparation of REAPs.
   c. Implementation and maintenance of construction best management practices (BMPs).
   d. Construction site monitoring, sampling and analysis.
   e. Preparation of storm water annual report.
2. Stormwater pollution control work shall comply with the C-SWPPP.

C. Contractor's QSD shall prepare a C-SWPPP using the MSJC's SWPPP template in accordance with all CGP requirements.

1. The MSJC shall review and approve of the C-SWPPP prior to the Contractor uploading the amended document onto SMARTS.
2. The C-SWPPP shall be signed by the Contractor's QSD.

D. Contractor is responsible for protecting stormwater systems and receiving waters from the discharge of potential pollutants from the project site due to construction activities by using stormwater pollution control practices, including but not limited to the following construction support facilities:

1. Staging areas.
2. Storage yards for equipment and materials.
3. Mobile operations.
4. Batch plants for Portland Cement Concrete and Hot Mix Asphalt.
5. Crushing plants for rock and aggregate.
6. Other facilities installed for construction-related reasons such as haul roads
7. Borrow and disposal sites:
   a. Stormwater pollution due to erosion shall be prevented at an operated borrow or disposal site, during and after completion of construction activities.
   b. Upon completion of work, the site shall be left in a condition where stormwater will not collect or stand therein.

E. At least 5 days before operating any construction support facility that is not covered in the C-SWPPP, the Contractor shall submit an amendment to the C-SWPPP, signed by the Contractor's QSD, showing the location and quantity of water pollution control practices associated with the construction support facility.

F. Contractor is responsible for designating one or more QSPs to be responsible for the following duties.

1. Maintaining an up-to-date copy of the C-SWPPP onsite at all times, from commencement of construction to final site stabilization and approval of the Notice of Termination (NOT).
2. Making a copy of the up-to-date C-SWPPP available for inspection by outside authorized regulatory authorities upon request.
3. Maintaining records detailing the dates on which major construction activities began and were completed.
4. Keeping track of any data or attachments uploaded onto SMARTS.
5. Keeping track of any Data Submitters who are linked to or removed from this Project through SMARTS.
6. Documenting any new contractor/subcontractor who will implement a measure of the C-SWPPP.
7. Ensuring that new contractors and subcontractors are made aware of their responsibilities in the C-SWPPP.
8. Keeping track of required training/certifications for key personnel.
9. Ensuring training is conducted for site personnel such as:
    a. Project managers.
    b. Supervisory personnel.
    c. Employees involved in stormwater pollution control work, including subcontractor personnel.
10. Ensuring that employees receive their initial stormwater pollution control training before working at the job site.
11. Ensuring that employees involved in stormwater pollution control work, including subcontractor personnel, are trained in the following subjects:
    a. Stormwater pollution control rules and regulations
    b. Implementation and maintenance for:
        1) Temporary Soil Stabilization.
        2) Temporary Sediment Control.
        3) Tracking Control.
        4) Wind Erosion Control.
        5) Material pollution prevention and control.
        6) Waste management.
        7) Non–storm water management.
12. Ensuring that weekly training meetings covering:
    a. Deficiencies and corrective actions for stormwater pollution control practices.

b. Stormwater pollution control practices required for work activities during the week.

c. Spill prevention and control.

d. Material delivery, storage, usage, and disposal.

e. Waste management.

f. Non–storm water management procedures.

13. Ensuring that personnel who collect water quality samples are trained in the following subjects:

    a. Sampling and analysis plan (SAP) review.

    b. Health and safety review.

    c. Sampling simulations.

14. Documenting all training sessions conducted. This involves increasing awareness of the need to comply with the C-SWPPP, which includes, but is not limited to: minimizing sediment in stormwater discharges offsite; keeping a clean site; and minimizing the potential for construction materials and wastes from entering stormwater discharges.

15. Conducting an assessment of materials and equipment onsite with the potential to contaminate stormwater runoff.

16. Updating the inventory of potential pollutants as new potential contaminants arrive onsite.

17. Documenting all monitoring/sampling and analysis.

18. Acting as the site spill coordinator to document spills, direct clean-up activities, minimize impact to stormwater, and ensure that the proper reporting, if necessary, is completed.

19. Documenting all incidences of non-compliance with the CGP. Incidences of non-compliance shall trigger a review of the C-SWPPP to determine when another amendment is necessary.

20. Overseeing and enforcing hazardous waste management practices as directed in the C-SWPPP, including spill prevention and control measures, and in accordance with applicable local, state, and federal regulations such as proper hazardous waste handling and emergency procedures under 40 CFR § 262.34(d)(5)(iii) and under 22 CA Code of Regulations Division 4.5:

    a. Preparation and submittal of appropriate documentation for transportation and disposal.

    b. Following appropriate procedures when unanticipated hazardous substances as defined in Health & Safety Code § 25316 and § 25317 are discovered onsite.

    c. Marking labels when needed with the following information in compliance with 22 CCR § 66262.31 and § 66262.32:
        1) Date the hazardous waste is generated.
        2) The words "Hazardous Waste."
        3) Composition and physical state of the hazardous waste (for example, asphalt grindings with thermoplastic or paint).
        4) The word "Toxic."
        5) Name, address, and telephone number of the MSJC representative.
        6) Contract number.
        7) Contractor or subcontractor name.

8) Disposal of hazardous waste within California at a disposal site operating under a permit issued by Department of Toxic Substance Control (DTSC).

21. Ensuring that field engineering activities are planned and conducted in accordance with the C-SWPPP.

22. Preparation and implementation of REAPs

23. Ensuring that inspection requirements identified in the C-SWPPP are performed:

a. Inspections and reports for visual monitoring:
1) before a likely precipitation event;
2) after precipitation that produces site runoff;
3) at 24-hour intervals during extended precipitation; and
4) on a pre-determined schedule of at least once a week.

b. Daily inspections and oversight of:
1) Storage areas for hazardous materials and waste, including all temporary containment facilities and satellite collection locations;
2) Hazardous waste disposal and transporting activities; and
3) Hazardous material delivery and storage activities.

c. Overseeing inspections with regard to the following specific construction activities:
1) Vehicle and equipment cleaning facilities:
a) Daily when vehicle and equipment cleaning occurs daily
b) Weekly when vehicle and equipment cleaning does not occur daily
2) Vehicle and equipment maintenance and fueling areas:
a) Daily when vehicle and equipment maintenance and fueling occurs daily.
b) Weekly when vehicle and equipment maintenance and fueling does not occur daily
3) Vehicles and equipment storage areas:

a) At the job site, check for leaks on a daily basis.
b) Operators shall inspect vehicles and equipment each day of use.

2) Demolition sites within 50 feet of storm drain systems and receiving waters daily.
3) Pile driving areas for leaks and spills:

a) Daily when pile driving occurs daily.
b) Weekly when pile driving does not occur daily.

4) Temporary concrete washouts:

a) Daily when concrete work occurs daily.
b) Weekly when concrete work does not occur daily.

5) Paved roads at construction access points for street sweeping:

a) Daily when earthwork and other sediment or debris generating activities occur daily.
b) Weekly when earthwork and other sediment or debris generating activities do not occur daily.

c) Whenever the National Weather Service is predicting precipitation.

6) Temporary active treatment system:

a) Daily when dewatering work occurs daily.
b) Weekly when dewatering work does not occur daily.

d. Quarterly non-stormwater inspections: noting the conditions of those areas onsite that have the potential to result in pollution of stormwater.

24. Consulting with the MSJC and/or QSD regarding inspection results (BMP deficiencies or potential failures) to determine when corrective action (an amendment to the C-SWPPP) is necessary.

25. Implementing and overseeing necessary corrective actions to the erosion/sediment control devices and other BMPs under the oversight of the MSJC and/or QSD.

26. Documenting all inspections and any corrective actions.

27. Directing ongoing regular BMP maintenance activities (e.g. silt fence repair, hay bale replacement, sediment removal in retention basin, timely waste disposal, etc). Routine maintenance or the implementation of additional BMPs as recommended in the C-SWPPP does not constitute a corrective action.

28. Ensuring that materials and manpower are made available for the successful maintenance of all erosion and sediment control and other BMPs specified in the C-SWPPP.

29. Mobilizing crews to:

a. Repair, replace, and/or implement additional BMPs due to deficiencies, failures or other shortcomings identified during inspections, to be completed within 72 hours of identification

b. Repair existing BMPs and/or implement additional BMPs immediately in the event of an NAL exceedance

c. Repair or replace stormwater pollution control practices at Contractor's expense when they are disturbed or displaced by Contractor or Subcontractor vehicles, equipment, or activities.

d. Remove and dispose of stormwater pollution control practices when the MSJC determines they are no longer required.

e. Restore areas disturbed by the installation and removal of stormwater pollution control practices. Backfill holes and depressions when removing stormwater pollution control practices.

30. Documenting all maintenance.

31. Marking up the Water Pollution Control Drawings (WPCDs) with actual site conditions, including any sampling locations, and posting them in the construction trailer. (The C-SWPPP should contain specific WPCDs for each phase of construction of an appropriate size for use in the construction trailer.):

a. When a marked up WPCD is too full to be easily read, the QSP shall date and fold it, put it in the C-SWPPP for documentation, and start a new one.

b. Another way of documenting the changing site conditions is to laminate the map, take a picture of it after any changes are made, then date the photo and put it in the C-SWPPP for documentation.

32. Maintaining records detailing the dates on which post-construction BMPs were completed.

33. Preparing an NOT submittal upon final stabilization of the site. A copy of the NOT shall be printed and included in Appendix A upon submission through SMARTS.

G. Whenever there is the potential of a pollutant discharge, the QSP may order laboratory analysis of stormwater or non-stormwater samples. Laboratory analysis of the samples shall be paid at a unit price as stipulated in the Base Bid.

H. The MSJC will not pay for the preparation, collection, laboratory analysis, and reporting of stormwater samples for non-visible pollutants when: water pollution control practices are not implemented before precipitation, or a failure of a water pollution control practice is not corrected before precipitation.

I. Contractor is responsible for implementing appropriate construction site management and erosion and sediment control BMPs as described in this section. The “Construction Site Management” portion of this section describes the minimum BMP requirements from the CGP.

J. The MSJC will not pay for implementation of stormwater pollution control practices in areas outside the project limits such as borrow sites and construction support facilities.

K. Contractor is responsible for implementation of appropriate post-construction BMPs as required to minimize and/or mitigate for post-construction stormwater runoff impacts in accordance with approved civil design plans.

L. Each failure to comply with the project C-SWPPP and each failure to implement stormwater pollution control practices are considered separate performance failures.

3.4 C-SWPPP PREPARATION

A. Contractor will start the following process for amending the D-SWPPP within 60 days of receiving the Notice to Proceed:

1. Contractor will submit a copy of the C-SWPPP. Allow 30 days for the MSJC to review. The MSJC will provide comments and specify the date when the review stopped if revisions are required.

2. Contractor will change and resubmit a revised C-SWPPP within 15 days of receiving the MSJC's comments. The MSJC's review will resume when a complete revised C-SWPPP has been resubmitted.

3. When the MSJC accepts the revised C-SWPPP, Contractor will submit an electronic copy and a printed copy of the accepted document.

4. When the RWCQB is required to review the accepted document, the Contractor will submit one (1) copy of the accepted SWPPP to the RWCQB for its review and comment.

5. When the RWCQB requests changes to the document, Contractor will amend the revised C-SWPPP within 10 days.

B. Preparation and implementation of a C-SWPPP as described in the MSJC’s SWPPP template document, including the following items:

1. Amend the D-SWPPP with phase specific BMPs.

2. Prepare, install and maintain the stormwater pollution control practices as defined by an erosion and sediment control plan.
3. Amend the C-SWPPP as necessary if deficiencies or discrepancies are identified during construction.
4. Amend and implement a construction site monitoring program (CSMP).
5. Monitor, inspect and report on water pollution control practices at the job site.
6. Amend and implement the SAP.
7. Sample, test and report on water quality if necessary.
8. Prepare and implement REAPs (not required for Risk Level 1 projects).

C. Whenever there is the concern that the C-SWPPP may be inadequate to comply with applicable water quality objectives or water quality standards as contained in the CGP, the California Toxics Rule, the National Toxics Rule, or the Regional Water Quality Control Plan (Basin Plan), the QSP may request changes to the stormwater pollution control practices or the MSJC may require changes to stormwater pollution control practices. Changes may include additional or new stormwater pollution control practices. Additional stormwater pollution control work shall be paid at a unit price as stipulated in the Base Bid.

D. Contractor shall have a QSD amend the C-SWPPP whenever:

1. Changes in work activities might affect the discharge of pollutants.
2. Stormwater pollution control practices are added by change order.
3. Stormwater pollution control practices are added at Contractor’s discretion.
4. Changes in the amount of disturbed soil are substantial.
5. Objectives for reducing or eliminating pollutants in stormwater discharges have not been achieved.
6. The project receives a written notice of a Permit violation from the RWCQB or any other regulatory agency.

E. The C-SWPPP shall:

1. Describe the work involved in the installation, maintenance, repair, and removal of temporary and permanent water pollution control practices.
2. Show:
    a. Locations of disturbed soil areas.
    b. Water bodies and conveyances.
    c. Locations and types of water pollution control practices that will be used for:
    d. Stormwater and non–stormwater in areas outside the job site, but related to project work activities such as (1) staging areas, (2) storage yards, and (3) access roads.
    e. Activities or mobile operations related to all NPDES permits.
    f. Construction support facilities.
    g. Locations and types of temporary water pollution control practices that will be used in the work for each construction phase.

h. Locations and types of water pollution control practices that will be installed permanently under the Contract.

i. Pollutant sampling locations.

j. Locations planned for storage and use of potential non-visible pollutants.

k. Receiving water sampling locations.

3. Include a copy of all required permits such as dewatering permits, Fish & Game permits, US Army Corps of Engineers permits or RWCQB 401 certifications.

4. Include the project's risk level based on the site's sediment and receiving water risk during periods of soil exposure as determined by the QSD.

5. Include the following items as follows:

   a. Schedule.

   b. Construction Site Monitoring Program (CSMP).

6. Include a Construction Schedule containing at a minimum:

   a. Work activities to be performed that could cause the discharge of pollutants into storm water.

   b. Implementation of stormwater pollution control practices associated with each construction phase.

   c. Implementation of soil stabilization and sediment control practices for disturbed soil areas.

7. Include a Spill Response and Implementation Plan containing at a minimum:

   a. If the Contractor spills or leaks chemicals or hazardous substances at the job site, the Contractor is responsible for all associated cleanup costs and related liability.

   b. Procedural requirements for clean-up of spills and leaks with regard to the potential pollutants, chemicals, and hazardous substances expected to be onsite.

      1) For Minor Spills - Clean up a minor spill using the following procedures:
         a) Contain the spread of the spill.
         b) Recover the spilled material using absorption.
         c) Clean the contaminated area.
         d) Dispose of the contaminated material and absorbents promptly and properly.

      2) For Semi-significant Spills - Clean up a semi-significant spill immediately using the following procedures:
         a) Contain the spread of the spill.
         b) On paved or impervious surfaces, encircle and recover the spilled material with absorbent materials. Do not allow the spill to spread widely.
         c) When the spill occurs on soil, contain the spill by constructing an earthen dike and dig up the contaminated soil for disposal.
         d) When the spill occurs during precipitation, cover the spill with 10 mil plastic sheeting or other material to prevent contamination of runoff.
         e) Dispose of the contaminated material promptly and properly.

      3) For Significant or Hazardous Spills - Immediately notify qualified personnel of a significant or hazardous spill. Take the following steps:
         a) Do not attempt to clean up the spill until qualified personnel have arrived.

b) Notify the MSJC and follow up with a report.
c) Obtain the services of a spill contractor or hazardous material team immediately.
d) Notify local emergency response teams by dialing 911 and county officials using the emergency phone numbers kept at the job site.
e) Notify the Governor's Office of Emergency Services Warning Center at (805) 852-7550.
f) Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under 40 CFR 110, 119, and 302.
g) Notify other agencies as appropriate, including: Fire Department; Public Works Department; Coast Guard; Highway Patrol; City Police or County Sheriff's Department; DTSC; California Division of Oil and Gas; Cal/OSHA; and/or the RWQCB.

c. Reporting requirements – Report all spills to the QSP. The QSP will notify the MSJC and the appropriate agencies when necessary.

d. Prevention requirements - Prevent a spill from entering stormwater runoff before and during cleanup.

e. Inventory requirements - Keep the correct supplies (equipment and materials) for cleanup of spills available onsite

f. Disposal requirements – Contaminated materials shall be disposed of properly according to applicable local, state, and federal regulations.

g. Training requirements - Spill response personnel shall be assigned and appropriately trained.

h. Timetable - Spills and leaks shall be cleaned up immediately.

8. Include a CSMP discussed in the following section.

9. Include REAPs for Risk Level 2 and Risk Level 3 Projects.

3.5 C-SWPPP CONSTRUCTION SITE MONITORING PROGRAM (CSMP)

A. The Project shall revise the CSMP from the D-SWPPP to reflect current construction activities as needed.

B. The following steps shall occur in order for the CSMP to be properly implemented.

1. Obtain, install, and maintain a rain gauge at the job site. Observe and record daily precipitation.

2. Install facilities and devices used for stormwater pollution control within 15 days or before predicted precipitation, as detailed in the C-SWPPP.

3. Complete REAP activities including crew mobilization no later than 24 hours before precipitation occurs.

4. Monitor the National Weather Service forecast on a daily basis. For the National Weather Service forecast, go to: http://www.srh.noaa.gov/ forecast

C. The CSMP shall include the following items for each risk level as follows:

1. Visual monitoring procedures.

2. Sampling and analysis for non-visible pollutants.

D. The CSMP shall include all visual monitoring (inspection) requirements:

1. The QSP shall oversee inspections for stormwater pollution control practices identified in the C-SWPPP:
   a. Before a forecasted storm.
   b. After precipitation that causes site runoff.
   c. At 24-hour intervals during extended precipitation.
   d. On a predetermined schedule of at least of once a week.
2. The QSP shall ensure that a site inspection report is completed within 24 hours of completing a site inspection. The report shall include:
   a. Inspection date and date the inspection report was written.
   b. Weather information, including presence or absence of precipitation, estimate of beginning of qualifying storm event, duration of event, time elapsed since last storm, and approximate amount of rainfall in inches.
   c. Site information, including stage of construction, activities completed, and approximate area of the site exposed.
   d. A description of any BMPs evaluated and any deficiencies noted.
   e. If the construction site is safely accessible during inclement weather, list the observations of all BMPs: erosion controls, sediment controls, chemical and waste controls, and non-stormwater controls. Otherwise, list the results of visual inspections at all relevant outfalls, discharge points, downstream locations and any projected maintenance activities.
   f. Report the presence of noticeable odors or of any visible sheen on the surface of any discharges.
   g. Any corrective actions required, including any necessary changes to the C-SWPPP and the associated implementation dates.
   h. Photographs taken during the inspection, if any.
   i. Inspector's name, title, and signature.
3. The QSP shall ensure that documentation is completed for:
   a. Qualified rain events. The QSP shall oversee the performance of visual monitoring for qualified rain events. Visual inspections shall be performed during normal working hours. For each qualified rain event:
      1) Record the date, time, and rain gauge reading
      2) Report on observations:
         a) Within 2 days before the storm for: spills, leaks, or uncontrolled pollutants in drainage areas; proper implementation of water pollution control practices; and leaks and adequate freeboard in storage areas.
         b) Every 24 hours during the storm for: effective operation of water pollution control practices; and water pollution control practices needing maintenance and repair.
         c) Within 2 days after the storm event for: stormwater discharge locations; and evaluation of design, implementation, effectiveness, and locations of water pollution control practices including locations where additional water pollution control practices may be needed.
   b. Non–stormwater discharges. Perform visual monitoring of non–stormwater discharges at least once during each of the following periods:

1) January through March.
2) April through June.
3) July through September.
4) October through December.

c. Documentation for non–stormwater discharge monitoring shall include:
   1) Name of personnel performing the inspection, inspection date, and date the inspection report is completed.
   2) Storm and weather conditions.
   3) Location of any:
      a) Floating and suspended material, oil sheen on the surface of stormwater, discoloration, turbidity, odor, and source of observed pollutants for flowing and contained storm water systems.
      b) Non–stormwater discharges and their sources.

d. Corrective actions taken

e. Maintain monitoring (inspection) reports at the job site as part of the C-SWPPP.

E. Whenever a deficiency is identified during a visual inspection:

1. Correct the deficiency immediately, unless the MSJC or QSD agrees to a later date for making the correction

2. Correct the deficiency before precipitation occurs

3. The MSJC may correct the deficiency and deduct the cost of correcting the deficiency from payment when the Contractor fails to correct the deficiency by the agreed date or before the onset of precipitation.

4. Continue SWPPP implementation during any suspension of work activities.

F. The CSMP shall include an SAP.

1. The SAP shall include specifications for:
   a. collecting samples.
   b. preparing, testing and analyzing samples,
   c. reporting on test results.

2. For a qualified rain event that produces runoff, sampling and analysis work shall comply with the project's SAP.

3. Submit a copy of water quality analytical results within 60 days of laboratory analysis to the MSJC. Electronic copies shall be in one of the following formats: xls, .txt, or .cvs, for uploading onto SMARTS. Also submit an evaluation of whether the downstream samples show levels of the tested parameter that are higher than the control sample. Include the following information:
   a. Sample identification number.
   b. Contract number.
   c. Constituent.
   d. Reported value.
   e. Analytical method.
   f. Method detection limit.

g. Reported limit.

3.6 C-SWPPP RAIN EVENT ACTION PLANS (REAPs)

A. A QSP or QSD shall prepare a REAP designed to protect all exposed portions of the job site within 48 hours prior to any likely precipitation event. A likely precipitation event is defined as when the National Weather Service predicts a 50 percent or greater probability of precipitation within 72 hours in the vicinity of the job site.

B. The REAP shall include:

1. Site location.
2. Risk level.
3. Contact information including 24-hour emergency phone numbers for:
   a. QSP.
   b. Erosion and sediment control providers or subcontractors.
   c. Stormwater sampling providers or subcontractors.
4. Storm Information.
5. Description of:
   a. Construction, including active and inactive areas.
   b. Plant Establishment, including maintenance on vegetation installed for final stabilization in inactive areas.
   c. Areas where work activities have been suspended.
   d. Active work areas and activities.
   e. Subcontractors and trades on the job site.
6. Pre-storm activities including:
   a. Responsibilities of the QSP.
   b. Responsibilities of the crew and crew size.
   c. Stabilization for active and inactive disturbed soil areas
   d. Stockpile management.
   e. Corrective actions taken for deficiencies identified during pre-storm visual inspection.
7. Activities to be performed during storm events including:
   a. Responsibilities of the QSP.
   b. Responsibilities of the crew and crew size.
   c. BMPs for maintenance and repair.
8. Flood contingency measures.

C. The QSP shall submit a REAP to the MSJC at least 48 hours before a predicted rain event.

D. The Contractor shall have the REAP onsite at least 24 hours before a predicted rain event.

E. The QSP shall ensure that crews are being mobilized to implement REAPs no later than 24 hours before precipitation occurs.

F. A printed copy of each REAP shall be kept at the job site as part of the C-SWPPP.

G. The MSJC will not adjust payment for an increase or decrease in the quantity of REAPs prepared.

3.7 C-SWPPP STORMWATER ANNUAL REPORT

A. The QSP shall prepare the annual report for the reporting period from July 1st to June 30th.

B. The following information shall be included in the report:

1. Project information such as description and work locations
2. Stormwater monitoring information including:
    a. Summary and evaluation of sampling and analysis results and laboratory reports.
    b. Analytical methods, reporting units, and detections limits for analytical parameters.
    c. Summary of corrective actions.
    d. Identification of corrective actions or compliance activities not implemented.
    e. Summary of violations.
    f. Names of individuals performing storm water inspections and sampling.
    g. Logistical information for inspections and sampling including location, date, time, and precipitation.
    h. Visual observation and sample collection records.
3. Documentation of all training for:
    a. Individuals responsible for NPDES permit compliance.
    b. Individuals responsible for BMP installation, inspection, maintenance, and repair.
    c. Individuals responsible for preparing, revising, and amending the C-SWPPP.

C. Upload the Annual Report onto SMARTS no later than July 15th if construction occurs from July 1st through June 30th or within 15 days after Contract acceptance if construction ends before June 30th. Notify the LRP or AS that the report has been uploaded. Allow 10 days for the MSJC's review. The MSJC will provide comments and specify the date when the review stopped if revisions are required.

D. Submit a revised report within five (5) days of receiving the MSJC's comments.

E. The MSJC does not adjust payment for an increase or decrease in the quantity of Annual Reports submitted.

F. For each failure to submit a completed Annual Report by the September 1st submittal deadline, the Contractor will be required to compensate the MSJC for any additional fees paid to the SWRCB due to the delay.

3.8 CONSTRUCTION SITE MANAGEMENT

A. Contractor shall implement effective erosion and sediment control practices as well as effective handling, storage, usage, and disposal practices thereby controlling potential pollutants on the job site before they come in contact with storm drain systems and receiving waters in accordance with Attachment C, D, or E of the CGP as required by the Project Risk Level.

B. Guidance for the implementation of BMPs required to control pollution from erosive activities at the job site is located in Section 3 of the CASQA Construction Handbook (Erosion and Sediment Control BMPs).

C. Guidance for the implementation of BMPs required to control material pollution and manage waste and non–stormwater discharges at the job site is located in Section 4 of the CASQA Construction Handbook (Non-Stormwater Management and Material Management BMPs).

D. The following Construction Site Management is required for construction materials and potential pollutants:

1. The QSP shall keep an inventory of the materials and equipment onsite that are *not* designed to be outdoors and exposed to environmental conditions (potential pollutant sources). This potential pollutant list shall be kept with the C-SWPPP and shall identify all non-visible pollutants that are known, or expected, to occur on the construction site.

2. The QSP shall conduct an assessment from the inventory of potential pollutant sources and identify any areas of the site where additional BMPs are necessary to reduce or prevent pollutants in stormwater discharges and authorized non-stormwater discharges. Stormwater discharges and authorized non-stormwater discharges regulated by the CGP shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges. At a minimum, the QSP shall consider the following:

   a. The quantity, physical characteristics (e.g., liquid, powder, solid), and locations of each potential pollutant source handled, produced, stored, recycled, or disposed of at the site.

   b. The degree to which pollutants associated with those materials may be exposed to and mobilized by contact with stormwater.

   c. The direct and indirect pathways that pollutants may be exposed to stormwater or authorized non-stormwater discharges, including an assessment of past spills or leaks, non-stormwater discharges, and discharges from adjoining areas.

   d. Sampling results, visual observations, and inspection records.

   e. The effectiveness of existing BMPs in reducing or preventing pollutants in stormwater discharges and authorized non-storm water discharges.

   f. Nothing in the CGP or the D-SWPPP relieves the Contractor from any responsibilities, liabilities, or penalties to which the Contractor is or may be subject to under Section 311 of the Clean Water Act.

3. The QSP shall ensure that the appropriate MSDS forms are available onsite at least five (5) days before hazardous substances are used or stored onsite.

E. The following Good Site Management Housekeeping is required for construction materials:

1. Minimize exposure of potential pollutant sources to precipitation.

2. Cover and berm (contain) stockpiled construction materials that are not actively being used, materials that are adversely affected by wind and rain such as fertilizer, mulches, topsoil, spoils, aggregate, fly-ash, stucco, hydrated lime, etc.
3. Stack erodible landscape material on pallets and cover or store such materials when not being used or applied.
4. Store chemicals in watertight containers (with appropriate secondary containment to prevent any spillage or leakage) or in a storage shed (completely enclosed).
5. Implement BMPs to prevent the offsite tracking of loose construction and landscape materials.
6. Discontinue the application of any erodible landscape material within 2 days before a forecasted rain event or during periods of precipitation.
7. Apply erodible landscape material at quantities and application rates according to manufacture recommendations or based on written specifications by knowledgeable and experienced field personnel.

F. The following Good Site Management Housekeeping is required for waste management:

1. Prevent disposal of any rinse or wash waters or materials on impervious or pervious site surfaces or into the storm drain system.
2. Ensure the containment of portable toilets to prevent discharges of pollutants to the storm drain system or receiving water.
3. Clean portable toilets on a regular basis inspecting them for leaks and spills. When a problem is identified, corrective action shall be taken in a timely manner (within 72 hours or prior to any likely precipitation event, whichever is more immediate).
4. Cover waste disposal containers at the end of every business day and during rain events.
5. Prevent discharges from waste disposal containers to the storm drain system or receiving water.
6. Contain and securely protect stockpiled waste material from wind and rain at all times unless actively being used.
7. Implement procedures that effectively address hazardous and non-hazardous spills.
8. Develop a spill response and implementation plan as part of the C-SWPPP prior to commencement of construction activities.
9. Ensure the containment of concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

G. The following Good Site Management Housekeeping is required for vehicle storage and maintenance:

1. Prevent any of the following substances from discharging to the storm drains or surface waters (not meant to be an all-inclusive list):
    a. Transfer case oil.
    b. Antifreeze.
    c. Brake fluid.

d. Power steering fluid.

e. Transmission fluid.

f. Hydraulic fluid.

g. Grease.

h. Fuel.

i. Oil.

2. Place all equipment or vehicles, which are to be fueled, maintained and stored in a designated area fitted with appropriate BMPs.

3. Clean leaks immediately and disposing of leaked materials properly.

H. The following Good Site Management Housekeeping is required to control air deposition of site materials and from site operations (dust control):

1. Effective wind erosion control BMPs shall be implemented year round to prevent or alleviate dust, which may contain, but are not limited to, such particulates as sediment, nutrients, trash, metals, bacteria, oil and grease, and organics.

2. Excavation, transportation, and handling of material containing hazardous waste or contamination shall result in no visible dust migration.

I. The following Good Site Management Housekeeping is required for non-stormwater management:

1. Effective BMPs shall be implemented to control all non-stormwater discharges during construction.

2. Vehicles shall be washed in such a manner as to prevent non-stormwater discharges to surface waters or MS4 drainage systems.

3. Streets shall be cleaned in such a manner as to prevent unauthorized non-stormwater discharges from reaching surface water or MS4 drainage systems.

4. Dewatering shall be conducted in such a manner as to prevent sediment-laden or contaminated discharge from leaving the site:

a. The discharge of water from utility vaults and underground structures and surface waters is covered under the California Statewide permit, Order No. 2006-008-DWQ. Dischargers shall comply with BMPs that ensure the water discharged is not contaminated and will not create an adverse water quality impact when discharged.

b. Dewatering BMPs shall be incorporated into the C-SWPPP. The dewatering of construction excavations is subject to Santa Ana Regional Water Quality Control Board regulations depending on where the accumulated construction water is discharged:

c. Authorized non-stormwater discharges regulated by the CGP shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges:

d. Immediately stop working and notify the MSJC if any of the following is discovered onsite:

1) Contractor reasonably believes that the substance discovered is asbestos as defined in Labor Code § 6501.7 or a hazardous substance as defined in Health & Safety Code § 25316 and § 25317.
2) A unidentifiable substance not described in the Contract or the C-SWPPP is discovered.
3) An identifiable substance that has not been made harmless is discovered.

e. Handle, store, and dispose of hazardous waste under 22 CA Code of Regulations Division 4.5.

f. Dispose of hazardous waste within 90 days of the start of generation. Use a hazardous waste manifest and a transporter registered with the California DTSC to transport hazardous waste to an appropriately permitted Class I Disposal Site.

J. The following Good Site Management Housekeeping is required for erosion control:

1. Contractor shall provide effective soil cover for inactive areas and all finished slopes, open space, utility backfill, and completed lots:

2. Contractor shall limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the Contractor shall consider the use of plastic materials resistant to solar degradation.

K. The following Good Site Management Housekeeping is required for sediment control:

1. Contractor shall establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site for all projects regardless of the risk level.

2. On sites where sediment basins are to be used, the Contractor shall, at minimum, design sediment basins according to the method provided in CASQA's Construction BMP Guidance Handbook.

L. The following Good Site Management Housekeeping is required for run-on and runoff control:

1. All projects shall effectively manage all run-on, all runoff within the site, and all runoff that discharges off the site.

2. Run-on from offsite shall be directed away from all disturbed areas or shall collectively be in compliance with the effluent limitations in the CGP.

3.9 C-SWPPP TEMPORARY ADVANCED TREATMENT SYSTEMS (ATS)

A. When an ATS is indicated as a Unit Price, the C-SWPPP shall describe and include the use of the ATS as a water pollution control practice for sediment control.

B. Design, installation, operation, and monitoring of an ATS and the treated effluent shall only be done by appropriately trained and experienced individuals as prescribed in CGP Attachment F.

C. An ATS Plan shall be prepared and shall include:

1. Title sheet.

2. Table of contents.

3. Certification and approval sheet described in section 100 of the preparation manual.

4. Amendment log and format described in section 200 of the preparation manual.

5. Description and schedule of the dewatering and discharge activities.
6. Discharge alternatives, including:
    a. Reuse of treated water for construction activities such as dust control, irrigation, fill compaction, or concrete batch plant.
    b. Percolation.
    c. Storm sewers.
    d. Surface waters.
7. Treatment system description and components.
8. Anticipated flow rates.
9. Operation and system maintenance procedures and example maintenance logs for ATS:
    a. Operation and maintenance manual for equipment.
    b. Monitoring, sampling and reporting plan, including quality assurance/quality control (QA/QC).
    c. Health and safety plan.
    d. Spill prevention plan.
10. Field-recorded data, visual inspection, and calibration procedures and example logs.
11. Measuring equipment descriptions.
12. Shop drawings for dewatering and discharge activities showing:
    a. Section and plan views of storm water effluent treatment systems.
    b. Location of sampling points for water quality measurements.
    c. Flow path and placement of pipes, hoses, pumps, holding tanks, and other equipment used to convey water.
    d. General position of treatment dewatering and discharge components relative to excavations or other activities requiring dewatering.
    e. Point of storm water discharge.

D. Daily inspection reports shall be documented. The daily inspection report shall include:
1. Discharge volumes.
2. Water quality monitoring records.
3. Discharge point information that includes:
    a. Date and time.
    b. Weather conditions including wind direction and velocity.
    c. Presence or absence of water fowl or aquatic wildlife.
    d. Color and clarity of the effluent discharge.
    e. Erosion or ponding downstream of the discharge site.
    f. Photographs labeled with the time, date, and location.
4. When observations and measurements confirm that water quality limits are exceeded:
    a. Submit a notice of discharge report within three (3) business days after exceeding the limits.

b. Document the reasons for exceeding the water quality limits and any corrective work performed to prevent a recurrence in the notice of discharge.

E. Daily inspection report shall be retained onsite. The report shall be certified as true and accurate and be signed by the person who gathered the information.

F. Include a copy of the publicly owned treatment works municipal batch discharge permit when required.

G. Include a coagulant prevention work plan when the Contractor uses chemical coagulants, in-line flocculants, or both, in the treatment system. The coagulant prevention work plan shall include:

1. Description of BMPs to prevent accidental spillage, overfeeding into the treatment system, or other mishandling of coagulant agents.
2. Monitoring plan for all coagulant or flocculant agents to be used.
3. Description of the agents, chemical and trade name description
4. Determination of acute and chronic toxicity for aquatic organisms conforming to EPA methods for the agents.
5. Monitoring proposal to detect residual agent at concentrations at or below established acute toxicity levels for freshwater and marine conditions for that agent.

H. Start the following process for the ATS Plan within 30 days of Contract approval:

1. Submit a copy of the ATS Plan. Allow 30 days for the MSJC's review. The MSJC will provide comments and specify the date when the review stopped when revisions are required.
2. Revise and resubmit a revised ATS Plan within 15 days of receiving the MSJC's comments. The MSJC's review will resume when a complete ATS Plan has been resubmitted.
3. When the MSJC accepts the ATS Plan, submit an electronic copy and a printed copy of the accepted ATS Plan.
4. Allow 14 days for the MSJC to submit the accepted ATS Plan to the State Water Resources Control Board (SWRCB). A paper copy of the ATS Plan shall be available onsite during ATS operation.
5. When the MSJC requests changes to the ATS Plan based on the RWCQB's comments, amend the ATS Plan within five (5) days.

I. Records of delivery and removal of ATS components shall be retained onsite

J. ATS implementation shall include the following:

1. Place ATS components at the job site:
   a. Before dewatering work.
   b. In the immediate area of the dewatering work where authorized.
   c. Away from construction traffic or public access areas.
2. Divert stormwater away from excavations that would require dewatering.

3. Residual chemical for the coagulant shall be less than 10 percent of the Maximum Allowable Threshold Concentration (MATC) for the most sensitive species.
4. Water quality limits shall comply with the receiving water limitations monitoring and discharge effluent limitations discussed in the next section. When observations and measurements confirm the water quality limits are exceeded:
    a. Stop the discharge immediately.
    b. Notify the MSJC.
    c. Start corrective measures to change, repair, or replace the equipment used to discharge the treated water.
5. After the MSJC inspects and accepts your corrective measures, resume dewatering and discharge activities.
6. Start the startup-phase sampling requirements before resuming regular-phase sampling requirements. Then start the regular-phase sampling requirements.
7. Relocate the ATS as needed for dewatering work.

K. ATS Monitoring:

1. Comply with the manufacturer's instructions for all calibrations of the flow meter. Perform calibrations in the presence of the QSP.
2. While the ATS is being operated, monitor:
    a. Influent turbidity.
    b. Effluent turbidity.
    c. Influent pH.
    d. Effluent pH.
    e. Residual chemical.
    f. Effluent flow rate.
    g. Effluent flow volume.
3. Monitoring equipment for the ATS shall record data at least once every 15 minutes. Cumulative flow data shall be recorded daily. The recording system shall have the capacity to record a minimum of seven (7) days of continuous data.
4. Monitoring equipment shall be interfaced with the control system of the ATS to provide shutoff or recirculation in the event that effluent readings exceed limits for turbidity and ph. The control system shall default to recirculation or shutoff during a power failure or other catastrophic event.
5. The control system shall control the dose of the coagulant or flocculant to prevent overdosing.
6. Take water quality measurements to verify requirements of receiving water limitations and discharge effluent limitations for:
    a. Discharges of water that exceed 4 hours in duration occurring within a 24-hour period as follows:
        1) When the discharge could affect the receiving body of water in a stormwater drainage system, take measurements at the background and receiving water sampling locations not more than 1 hour before discharging the treated water.

2) Start the start-up phase sampling 10 to 30 minutes after measurable runoff occurs during a storm. Startup-phase sampling includes stormwater runoff, background, and receiving water measurements taken during the first three (3) days of discharge. Take samples at regular intervals during the storm. Take at least 4 samples for each discharge lasting 4 hours or more. The time between sampling shall not exceed 4 hours.
3) Perform regular-phase sampling at least twice daily. Regular-phase sampling includes effluent, background, and receiving water measurements that occur after the 3rd day of activities. Take samples at regular intervals.
4) When the receiving body of water noticeably changes color or clarity, take additional effluent, background, and downstream measurements.
5) When an initial measurement shows that the water quality limits are exceeded, take an additional measurement not less than 15 minutes and not more than 1 hour after the initial measurement.
6) When the 2nd test confirms the limits were exceeded, revert to the startup-phase sampling requirements before resuming regular-phase sampling.
7) For cofferdam maintenance dewatering, regular-phase monitoring may be discontinued after 10 days if the effluent and receiving water measurements are consistently below the water quality limits.

b. Discharges of water less than 4 hours in duration occurring within a 24-hour period as follows:
1) When the discharge could affect the receiving body of water in a stormwater drainage system, take measurements at the background and receiving water sampling locations no more than 1 hour before discharging the treated water.
2) Take effluent, background, and receiving water measurements from 10 to 30 minutes after initiating the discharge. Continue to take measurements every hour.
3) When an initial measurement shows that the water quality limits are exceeded, take an additional measurement not more than 15 minutes after the initial measurement.
4) When the receiving waterbody noticeably changes color or clarity, take additional effluent, background, and downstream measurements.

c. Discharges of water as follows:
1) Measure stormwater effluent turbidity and pH at the end of the outfall or in-line sampling port.
2) Measure receiving water turbidity, pH, and dissolved oxygen at a point within 15 feet downstream of the discharge point.
3) Measure natural background turbidity, dissolved oxygen, and pH at a location that is from 9 to 15 feet upstream of the discharge point. When other construction activity is being performed, measure at least 150 feet upstream of the discharge point.
4) When the discharge is made into a surface body of water or into a stormwater drainage system that produces an observable effect on the receiving body of water, monitor the receiving waterbody.

d. Receiving water and natural background measurements as follows:
1) When the receiving water is deeper than 3 feet, take depth-averaged measurement by taking samples from 3 points within the water column and averaging the following 3 measurements:
a) 12 inches below the surface.
b) Mid-depth.

c) 12 inches above the bottom.

2) When the receiving water is less than 3 feet in depth, take the measurement 12 inches below the surface.

7. Comply with the manufacturer's instructions for the use and calibration of meters and devices for taking water quality measurements. Perform calibrations in the presence of the QSP.

8. Maintain the ATS to provide proper function and prevent leaks. When a component of the dewatering equipment is not functioning properly, discontinue the dewatering activities and repair or replace the component.

9. Sediments removed from uncontaminated areas during maintenance of the treatment system shall be dried, distributed uniformly, and stabilized at a location within the project limits where authorized.

3.10 [C-SWPPP NOTICE OF TERMINATION (NOT)

A. Within 90 days of the final completion date of the Project, the QSP shall electronically file a Notice of Termination (NOT) through SMARTS and upload a final site map and photos.

B. When a complete NOT package has not been uploaded through SMARTS within the allotted amount of time, the Contractor will be required to compensate the MSJC for any additional fees paid to the SWRCB due to the delay.

C. When the Contractor has failed to achieve final stabilization in accordance with Section II.D of the CGP within 90 days of the final completion date of the Project, the Contractor will be required to compensate the MSJC for any additional fees paid to the SWRCB due to the delay.]

3.11 TEMPORARY BMP INSTALLATION, OPERATION, AND MAINTENANCE

A. All temporary water pollution control BMPs shall be indicated at a unit price in the Contract Plans and Specifications.

B. The [C-SWPPP] [C-WPCP] shall describe and include the specific use of each type of water pollution control BMP as required for adherence to water quality objectives.

C. When a temporary construction entrance or roadway is being used, do not allow soil, sediment, or other debris that is tracked onto the pavement to enter storm drains, open drainage facilities, and watercourses.

D. When material is tracked onto the pavement, remove it within 24 hours unless the MSJC authorizes a longer period.

E. Retain records of street sweeping activities including sweeping times, sweeping locations, and the quantity of disposed sweeping waste as part of the C-SWPPP.

F. Before installing erosion control measures remove and dispose of trash, debris and weeds in areas to receive erosion control materials.

G. Protect any hardscape, lined drainage channels, and existing vegetation from hydraulically applied material overspray.

H. Proper selection of materials is critical for specific slopes and slope distances. No one product is applicable for all situations. Erosion control products should be selected on a case by case basis.

I. Do not drive vehicles upon erosion control products following placement.

J. Install temporary fencing for the protection of ESAs and the preservation of existing vegetation:

1. [If wood posts are used, fasteners shall be staples or nails.
2. If steel posts are used, fasteners shall be tie wires or locking plastic fasteners.]
3. Spacing of the fasteners shall be no more than 8 inches apart.
4. Before clearing and grubbing activities.
5. From outside of the protected area.
6. With posts spaced 8 feet apart and embedded at least 16 inches in the soil.
7. Signs shall be attached with the top of the sign panel flush with the top of the high visibility fabric and placed 100 feet apart along the length and at each end of the fence.
8. Install fence to enclose the drip line of foliage canopy of protected plants and protect visible roots from encroachment.

K. Provide a certificate of compliance (certified weed free from the vendor) for temporary straw bales when used as visibility or noise barriers in ESAs.

L. Place gravel-filled bags behind Type K temporary railings if used in an area with run-on.

3.12 POST-CONSTRUCTION BMPs

A. The Contractor shall install post-construction BMPs as required by the Contract Plans and Specifications and described in the C-SWPPP to minimize or mitigate for post-construction activities that may be potential sources of stormwater pollution.

B. The Contractor shall provide maintenance for any post-construction BMPs that have been adversely affected by construction activities:

1. Maintenance activities will vary depending upon the BMPs in place and the construction activities.
2. The MSJC will not pay for maintenance of post-construction BMPs unless arrangements are made prior to project initiation.
3. Manufacturer’s specifications, civil drawings, and maintenance and operation manuals/plans for each post-construction BMP shall be included in the Record Documents submittal to the MSJC.

C. The Contractor is responsible for ensuring that all post-construction BMPs are in proper working order with no maintenance required prior to the next rain event.

3.13 MAINTENANCE PRIOR TO FINAL ACCEPTANCE

A. The Contractor shall maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include the filling, leveling, and repairing of any washed

or eroded areas, as may be necessary and sufficient watering to maintain the plant materials in a healthy condition.

B. The MSJC may require replanting of any areas in which the establishment of the vegetative ground cover does not appear to be developing satisfactorily

END OF SECTION 312500

SECTION 329219
HYDROSEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Related Documents:
   1. Drawings and general provisions of the Subcontract apply to this Section.
   2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

B. Section Includes:
   1. Preparation of slopes, fertilizing, hydroseeding (erosion control seeding) and protection of seed beds.

C. Related Sections:
   1. Division 01 Section "General Requirements."
   2. Division 01 Section "Special Procedures."
   3. Division 32 Section "xxxxxx"

1.2 REFERENCES

A. General:
   1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
   2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
   3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.

B. State of California - California Department of Transportation (CALTRANS):
   1. Standard Specifications.

1.3 SUBMITTALS

A. Submit under provisions of Division 01 Section "General Requirements."

B. Field and laboratory test reports of fiber performance, and certificates of inspection.

C. Hydroseeding time schedule.

D. Warranty.

1.4 QUALITY ASSURANCE

A. Certificates of Inspection: Submit Certificates of Inspection with each shipment invoice or order of stock as required by law for transportation.

1.5 WARRANTY

A. Special Warranty: Installer agrees to replace, as directed by University, seeding in areas that are not in healthy, thriving condition one year from the date of acceptance.

PART 2 - PRODUCTS

2.1 HYDROSEEDING MIXTURE

A. Stabilization materials for hydroseeding shall conform to the provisions of CALTRANS Standard Specification, "Erosion Control and Highway Planting," Section 20.

B. The materials shall consist of a mixture of fiber, seed, fertilizer and water mixed and applied in the following proportions per acre:

Fiber	1,300 pounds (520 Kg)
Seed	70 pounds (31.5 Kg)
Fertilizer	800 pounds (360 Kg)
Water	As needed for application

2.2 SEED

A. Seed proportions:

Species	Rate	% Purity	% Germ
De-awned “Zorro” Fescue	8 pounds (3.6 Kg)	90	85
Escholzia californicum	4 pounds (1.8 Kg)	95	70
Lupus nanus	6 pounds (2.7 Kg)	95	70
Wild Blue Rye, Berkeley Hills	16 pounds (7.2 Kg)	95	85
Nessella pulchra, Purple Needle Grass	6 pounds (2.7 Kg)	95	70

2.3 FERTILIZER

A. Commercial fertilizer with the following guaranteed chemical analysis:
1. Nitrogen 11 percent
2. Phosphoric Acid 8 percent
3. Water Soluble Potash 4 percent

2.4 FIBER

A. Fiber: Green colored fibrous, wood cellulose mulch containing no growth or germination inhibitors, manufactured so that it will form a uniformly suspended homogeneous slurry when added to the fertilizer, seed and water in a tank and agitated.
   1. The fibers in the slurry will form a blotter-like ground cover impregnated with seed when hydraulically sprayed.
   2. The fibers will allow the absorption of moisture and allow rainfall to percolate to the underlying soil.

B. Cellulose: Laboratory certified for laboratory and field testing of the product and that fiber content meets requirements indicated.

C. Each package of cellulose fiber shall be marked by the manufacturer with the air dry weight.

2.5 WATER

A. Clean and potable.

PART 3 - EXECUTION

3.1 EXAMINATION

3.2 HYDROSEEDING

A. Preparation:
   1. Dress and grade the slope to provide a uniform surface. Do not compact.
   2. Water the slope thoroughly for one week prior to seeding as needed. Exercise care to avoid erosion.

B. Application:
   1. Apply the erosion control seed mixture at the rate of 70 pounds per acre (31.5 Kg per 4047 m^2) to cut and fill areas not intended to receive paving or structures.
   2. Apply the hydromulch mixture by hydraulic equipment mounted on a traveling unit. The equipment shall have with a built-in agitation system and sufficient capacity to deliver the hydromulch uniformly in a continuous non-fluctuating discharge in the specified quantities.

C. Notify the University 48 hours in advance of seeding.

3.3 PROTECTION

A. Provide and maintain temporary fencing and barriers as required to protect newly seeded areas from damage including erosion and pedestrian, vehicular traffic, or wild-life.

3.4 MAINTENANCE

A. Maintenance period shall begin after completion of hydroseeding operations with a general inspection and favorable review by the University. The maintenance period shall continue for at least 90 calendar days or until the entire project has been completed and accepted by the University, whichever is longer. Notify the University five day before the general inspection is to occur. Provide sufficient watering of hydroseeded area during the entire maintenance period as required to sustain a vigorous growth of new plants.

B. Make at least one weekly site inspection during the maintenance period.

C. Landscaping inspection will be conducted upon completion of any corrective work and at the end of the maintenance period. If corrective work and maintenance have not been performed, the maintenance period will continue at the Subcontractor's expense until such work has been completed. Notify the University five days before the landscaping inspection is to occur.

END OF SECTION 329219.16

SECTION 331000
WATER UTILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Pipe and fittings for site water lines including domestic water lines and fire water lines.

B. Valves, Fire hydrants, and Domestic water hydrants.

1.2 RELATED SECTIONS

A. Section 312333 – TRENCHING AND BACKFILLING

1.3 UNIT PRICES

A. Pipe and Fittings: By the linear foot. Includes hand trimming excavation, pipe and fittings, bedding, concrete thrust restraints, mechanical thrust restraints, connection to building service piping, and to municipal utility water source.

B. Valves: By the unit. Includes valve, fittings and accessories.

C. Hydrant: By the unit. Includes hand trimming excavation, gravel sump, concrete thrust base, hydrant, valve, connection, and accessories.

1.4 REFERENCES

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2005) (ANSI B16.18).

B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2005).

C. ASTM B 88 - Standard Specification for Seamless Copper Water Tube; 2003.

D. ASTM D 1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2006.

E. ASTM D 2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2005.

F. ASTM D 2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2006.

G. ASTM D 2564-Solvent Cements for PolyVinyl Chloride (PVC) Plastic Pipe and Fittings.

H. ASTM D 2774 Underground Installation of Thermoplastic Pressure Piping.

I. ASTM D 2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings; 1996 (Reapproved 2002).

J. ASTM D 3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter; 2006.

K. ASTM D 3139 - Standard Specification for Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals; 1998 (Reapproved 2005).

L. ASTM F 402 Safe Handling of Solvent Cements and Primers Used for Joining Thermoplastic Pipe and Fittings.

M. AWS A5.8/A5.8M - Specification for Filler Metals for Brazing and Braze Welding; American Welding Society; 2004 and errata.

N. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water; American Water Works Association; 2003 (ANSI/AWWA C104/A21.4).

O. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; American Water Works Association; 2005 (ANSI/AWWA C105/A21.5).

P. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; American Water Works Association; 2007 (ANSI/AWWA C111/A21.11).

Q. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast, for Water; American Water Works Association; 2002 (ANSI/AWWA C151/A21.51).

R. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service; American Water Works Association; 2002.

S. AWWA C502 - Dry Barrel Fire Hydrants; American Water Works Association; 2005 (ANSI/AWWA C502/C502a).

T. AWWA C504 - Rubber Seated Butterfly Valves; American Water Works Association; 2006.

U. AWWA C508 - Swing-Check Valves for Waterworks Service, 2 In. (50 mm) Through 24 In. (600 mm) NPS; American Water Works Association; 2001 (ANSI/AWWA C508).

V. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service; American Water Works Association; 2001 (ANSI/AWWA C509).

W. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances; American Water Works Association; 2005 (ANSI/AWWA C600).

X. AWWA C606 - Grooved and Shouldered Joints; American Water Works Association; 2006.

Y. AWWA C800-Underground Service Line Valves and Fittings

Z. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm through 300 mm), for Water Distribution; American Water Works Association; 2007 (ANSI/AWWA C900/C900a).

AA. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service; American Water Works Association; 2002.

BB. AWWA M23-PVC Pipe Design abd Installation.

CC. UBPPA UNI-B-8 Direct Tapping of PolyVinyl Chloride (PVC) Pressure Water Pipe.

DD. UL 262-Gate Valves for Fire Protection Service.

EE. UL 312-Check Valves for Fire Protection Service.

FF. UL 262-Indicator Posts for Fire Protection Service.

GG. UL 246 - Hydrants for Fire-Protection Service; Underwriters Laboratories Inc.; 1993.
The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.5 STANDARD SPECIFICATIONS

A. All work under this specification section shall comply with NFPA 24, Latest Edition.

B. American National Standards Institute (ANSI), ANSI A10.6, 1983 Demolition Operations-Safety Requirements.

C. Standard Specifications for Public Works Construction (Latest Edition), including the Riverside County and City of Menifee specifications.

1.6 STANDARD DRAWINGS

A. City of Menifee Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

B. EVMWD Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

1.7 GEOTECHNICAL REPORT:

A. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

1. Geotechnical Report Publication Information:
Title: GEOTECHNICAL INVESTIGATION
Mt. San Jacinto College
5,000 Seat Stadium and Buildings at Menifee Valley Campus
2823 7 La Piedra Road
San Jacinto, Riverside County, California

Prepared for
Mt. San Jacinto Community College District

1499 North State Street
San Jacinto, California 92583Project No. 8767 A02

Prepared by
MTGL 14467 Meridian Parkway, Building 2A, Riverside, CA 92518
Tel: 951 .653.4999, Fax: 951.653.4666

1.8 SUBMITTALS

A. Product Data: Provide data on pipe materials, pipe fittings, hydrants, backflow preventers, valves, vaults or boxes and accessories.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.9 QUALITY ASSURANCE

A. Perform Work in accordance with utility company, and all governing codes and authorities having jurisdiction requirements.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.1 WATER PIPE

A. Manufacturers:

1. As specified on contract documents and drawings.
2. Substitutions: See Section 016000 - Product Requirements.

B. Copper Tubing: ASTM B 88, Type K, drawn temper.

1. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
2. Joints: Compression connection or AWS A5.8, BCuP silver braze.

C. PVC Pipe: ASTM D 1785, PVC Pipe 4 inches or smaller shall be Schedule 80 with SDR as necessary to provide 200 psi minimum pressure.

1. Fittings: ASTM D 2466, PVC. ASTM D 2467 for Sch 80 Fittings.
2. Joints: ASTM D 2855, solvent weld. ASTM D 2564 solvent weld for Sch 80.

D. PVC Pipe: AWWA C900 Class 200:

1. Fittings: AWWA C111, cast iron, AWWA C110 or C153. AWWA C104 lining.

2. Joints: ASTM D 3139 compression gasket ring.

E. Trace Wire Burial Tape: Magnetic detectable conductor, brightly colored plastic covering, imprinted with "Domestic Water Service " or "Fire Water Service" in large letters.

2.2 VALVES

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Gate Valves Up To 3 Inches:

1. Brass or Bronze body, non-rising stem, inside screw, single wedge or disc, compression ends, with control rod, post indicator, or valve key, and extension box.

2. Product: Kennedy, Mueller and per EMWD approved material list.

C. Gate Valves 3 Inches and Over:

1. AWWA C509, iron body, bronze trim, non-rising stem with square nut, single wedge, resilient seat, mechanical joint ends, control rod, post indicator, or valve key, and extension box.

2. Product: Kennedy, Mueller and per EMWD approved material list.

D. Ball Valves Up To 2 Inches:

1. Brass body, teflon coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, AWWA inlet end, compression outlet with electrical ground connector, with control rod, or valve key, and extension box.

2. Product: As specified on contract documents and drawings and per EMWD approved material list.

E. Swing Check Valves From 2 Inches to 24 Inches:

1. AWWA C508, iron body, bronze trim, 45 degree swing disc, renewable disc and seat, flanged ends.

2. Product: As specified on contract documents and drawings and per EMWD approved material list.

F. Butterfly Valves From 2 Inches to 24 Inches:

1. AWWA C504, iron body, bronze disc, resilient replaceable seat, water or lug ends, ten position lever handle.

2. Product: As specified on contract documents and drawings and per EMWD approved material list.

2.3 HYDRANTS

A. Hydrants: Type as required by EVMWD approved material list and per EVMWD jurisdiction.

B. Hydrant Extensions: Fabricate in multiples of 6 inches with rod and coupling to increase barrel length.

C. Finish: Primer and two coats of enamel in color chrome yellow and all governing codes and authorities having jurisdiction.

2.4 BEDDING AND COVER MATERIALS

A. Bedding: As specified in Section 312333.

B. Cover: As specified in Section 312333.

2.5 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type specified per EMWD Standard Plans.

B. Backflow Preventer as required by utility company or all governing codes and authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that building service connection and municipal utility water main size, location, and invert are as indicated.

3.2 PREPARATION

A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare pipe connections to equipment with flanges or unions.

3.3 TRENCHING

A. See Section 312333 for additional requirements.

B. Pothole existing underground utilities at connection and crossing points

C. Hand trim excavation for accurate placement of pipe to elevations indicated.

D. Form and place concrete for pipe thrust restraints at each change of pipe direction. Place concrete to permit full access to pipe and pipe accessories. Provide sq. ft., as specified on contract documents and drawings, thrust restraint bearing on subsoil.

E. Use mechanical restraint joints where space limitations do not allow thrust blocks. Comply with AWWA C110 and C111.

F. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.4 INSTALLATION - PIPE

A. Maintain separation of water main from sewer piping and other piping or conduit in accordance with all governing codes and authorities having jurisdiction.

B. Install ductile iron piping and fittings to AWWA C600.

C. Route pipe in straight line.

D. Install pipe to allow for expansion and contraction without stressing pipe or joints.

E. Slope water pipe and position drains at low points.

3.5 INSTALLATION - VALVES AND HYDRANTS

A. Set valves on solid bearing.

B. Center and plumb valve box over valve. Set box cover flush with finished grade.

C. Set hydrants plumb; locate nozzle(s) perpendicular to and facing roadway and to suit all governing codes and authorities having jurisdiction].

D. Set hydrants to grade, with nozzles per all governing codes and authorities having jurisdiction.

E. Locate control valve 4 inches away from hydrant connection.

F. Provide a drainage pit 36 inches square by 24 inches deep filled with 2 inches washed gravel. Encase elbow of hydrant in gravel to 6 inches above drain opening. Do not connect drain opening to sewer. Provide concrete thrust block at base of hydrant. Do not block drain hole.

END OF SECTION

SECTION 333000

Sanitary Sewerage Utilities

PART 1 - GENERAL

1.1 SUMMARY

The Section includes the requirements for construction of sanitary sewer system and appurtenances, modification and removal of portions of the existing onsite sewer system, as indicated on the drawings.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, 1983 Demolition Operations-Safety Requirements.
2. Standard Specifications for Public Works Construction (Latest Edition), including the Riverside County and City of Menifee specifications.

B. Standard Drawings

1. City of Menifee Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
2. EMWD Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

C. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

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Mt. San Jacinto Community College District
1499 North State Street
San Jacinto, California 92583Project No. 8767 A02

Prepared by
MTGL 14467 Meridian Parkway, Building 2A, Riverside, CA 92518
Tel: 951 .653.4999, Fax: 951.653.4666

D. UNI-BELL PLASTIC PIPE ASSOCIATION (UNI)
UNI B5 Installation of Polyvinyl Chloride (PVC) Sewer Pipe

UNI B6 Low-Pressure Air Testing of Installed Sewer Pipe

1.3 PROTECTION

A. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

B. Prior to commencing the work, the Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.

C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by MSJC offices of the division. The San Bernardino office is located at:

State of California
Department of Industrial Relations
Division of Occupational Safety and Health
464 West 4th Street, Suite 332
San Bernardino, CA 92401
Telephone: (909) 383-4321
Fax: (909) 383-6789

D. Dewatering: Provide for the disposal of surface and subsurface water which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City of Menifee and the California State Water Resource Board. Construction water shall not be allowed to discharge to the public storm drain system. California Storm Water Best Management Practices shall be complied with for all phases of the work.

E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore

surface construction prior to acceptance. Provide erosion control to prevent water-borne soil from leaving the site, by means of straw bale dikes or sand bags. The contractor shall be responsible to clean up any soil deposited in the public right-of-way or on adjacent property. The contractor shall be responsible to protect storm drain catch basins with sand bags and to prevent sediment from entering the storm drain system during construction.

1.4 SITE INSPECTIONS AND LOCATION OF EXISTING ON-SITE UTILITIES

A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.

B. Locate all overhead utilities and power lines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and power lines which may create a safety hazard.

1.5 SYSTEM DESCRIPTION

Sanitary Sewer Gravity Pipeline: The system consists of polyvinyl chloride (PVC) plastic pipe, cleanout, and connections to existing sewer stub-outs indicated on the drawings.

1.6 SUBMITTALS

A. Certificates of Compliance

1. Pipe and Fittings
2. Pipe Joint Materials
3. Sewer Cleanouts
4. Manhole Cover

Certificates shall attest that tests set forth in each applicable referenced publications have been performed, whether specified in that publication to be mandatory or otherwise. Production control tests shall have been performed at the intervals or frequency specified in the referenced publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade, and size of material as is being provided for the project.

B. Manufacturer’s Catalogue Cuts

1. Pipe and Fittings
2. Pipe Joint Materials
3. Sewer Cleanouts
4. Manhole Cover

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage

1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping and jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.

B. Handling: Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Carry do not drag, pipe to trench.

1.8 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

A. Section 312333, "Excavation, Back filling and Compaction for Utilities".

B. Division 1.

1.9 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and completed responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Contract Conditions.

PART 2 - PRODUCTS

2.1 PIPELINE MATERIALS

A. PVC Plastic Gravity Sewer Piping SDR-35.

1. PVC Plastic Gravity Pipe and Fittings: Conform to the provisions of Section 207-17 of the Standard Specifications.

2. PVC Plastic Gravity Joints and Jointing Material: Conform to the provisions of Section 207-17 of the Standard Specifications.

2.2 MANHOLES AND COVERS

A. Manhole Sections: Reinforced precast concrete in accordance with ASTM C 478 (ASTM C 478M), with a compressive strength of 4000 psi at 28 days, with resilient connectors complying with ASTM C 923 (ASTM C 923M).

B. Concrete: As specified in Section 32 16 00.

C. Clay Brick Units: Brick for manhole shall be dense, hard burned, shale or clay brick conforming to ASTM Designation C32, Grad MM, or C62, Grade NW, except that brick absorption shall be between five and twenty-five grams of water absorbed in one minute by dried brick, set flat face down, in 1/8-inch water.

D. Mortar: Mortar for manhole construction shall be one part cement and three parts clean sharp sand to which many be added lime in the amount of not over ten percent volume of cement. It shall be mixed dry and then wetted to proper consistency for use. No mortars that have stood for more than one hour shall be used

E. Reinforcement: Formed steel wire, galvanized finish, wire diameter as indicated on drawings.

F. Concrete Reinforcement: As specified in Section 033000.

2.3 MANHOLE COMPONENTS

A. Lid and Frame: Gray iron castings for manhole frames, covers, adjustment rings and other items shall conform to the ASTM Designation A 48, Class 30. Castings shall be true to pattern in form and dimension and free of pouring faults and other defects which would impair their strength, or otherwise make them fit unfit for service intended. The seating surfaces between frames and covers will be machined to fit true. No plugging or filling will be allowed. Lifting or "pick" holes shall be provided, but shall not penetrate the cover. Casting patterns shall conform to those shown or indicated on the Standard Drawings. All manhole frames and covers shall be traffic bearing to meet AASHTO H-20 loadings. Frames shall be suitable for the future addition of a cast iron ring for upward adjustment of top elevation. Bolt down gasketed water tight covers shall be installed as shown on the Drawings.

B. Manhole Steps: Formed approved rungs; 3/4 inch diameter. Formed integral with manhole sections.

2.4 CONFIGURATION

A. Shaft Construction: Concentric with concentric or eccentric cone top section; lipped male/female dry joints; sleeved to receive pipe sections.

B. Shape: Cylindrical.

C. Clear Inside Dimensions: 48 inch diameter.

D. Clear Inside Dimensions: As indicated.

E. Design Depth: As indicated.

F. Clear Lid Opening: 26 inches diameter.

G. Pipe and Conduit Entry: Provide openings as indicated.

H. Steps: As required by code.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

A. Install sanitary pipelines and appurtenances in conformance with the provisions of Section 306-1.2 of the Standard Specifications, and the following requirements:

1. Location: The work covered by this section shall terminate at a point approximately 5 feet from the building, or as indicated. Where the location of the sewer is not clearly defined by dimensions on the drawings, do not lay sewer line closer horizontally than 10 feet to a water main or service line. Where sanitary sewer lines pass below water lines,

lay pipe so that no joint in the sewer line will be closer than 3 feet, horizontal distance, to the water line.

2. Earthwork and Buried Warning Tape: Perform earthwork operations in accordance with Section 312333, "Trenching for Site Utilities", including installation of buried warning tape.

3. Pipe Laying and Jointing: Inspect each pipe and fitting before and after installation; replace those found defective and remove from site. Provide proper facilities for lowering sections of pipe into trenches. Lay non-pressure pipe with the bell or groove ends in the upgrade direction. Adjust spigots in bells and tongues in grooves to give a uniform space all around. Blocking or wedging between bells and spigots will not be permitted. Replace by one of the proper dimensions, pipe or fittings that do not allow sufficient space for installation of joint material. At the end of each workday, close open ends of pipe temporarily with wood blocks or bulkheads. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose.

4. Concrete encasement: Encase sewer lateral in locations indicated on the drawings, in accordance with Standard Drawing S-7.

B. Special Requirements

1. Cleanout: Construct cleanouts in accordance with the Manufacturer's recommendations and as modified on the drawings. Maximum spacing shall be 100 feet or as otherwise shown on the plans.

2. Removal and modification of existing on-site sewer mains. Remove portions of the existing on-site sewer mains, as indicated on the drawings. Provide caps at the point of removal.

3.2 MANHOLES

A. Manhole Foundation: Compact the soil beneath the manhole to 95% of maximum (AASHTO T-180) density. Additionally, provide 9" of gravel beneath precast manhole bases.

B. Manhole Base: Construct per Standard Detail Drawings with Type II Portland cement concrete, Class II or cast as an integral part of the precast section. If the base is cast, form a groove in the base with an accurate manhole ring, shape with a wood float and finish with a hard steel trowel prior to setting. The base shall be set a minimum of 24 hours before the manhole construction proceeds. Precast base shall have a minimum of three lifting hooks set in. The base shall extend 6" on all sides of the structure.

C. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.

D. Form and place manhole cylinder plumb and level, to correct dimensions and elevations. As work progresses, build in fabricated metal items.

E. Cut and fit for conduit and sleeves.

F. Where shown on the Drawings, the contractor shall place stub outs for future extensions. Both the manhole and exterior ends of all such stub-outs shall be closed with water tight plugs removable without damage to the pipe. One section of pipe 1-foot long shall be laid at each manhole stub-out.

G. Manhole Invert: Shape invert channels to a trowel finish conforming to the sizes and shapes of the lower 0.8 diameter of the inlets and outlets called for in the Drawings. Changes in direction of the sewer and entering branch or branches shall have a true curve, with a centerline radius of at least three times the pipe diameter or channel width. Straight-through channels may be formed with pre-cut half pipes. Invert channels shall also be formed for pie stub-outs.

H. The interior and exterior walls shall be coated with two coats of Bitumatic Black solution 300 M as manufactured by Koppers Company, Inc. or approved equal. Total thickness shall be 20 mils minimum.

I. Manhole Joint Sealer: Pre-formed plastic joint sealer per federal Specification SS-S-00210 (GSA - PSS), "Ram-Nek" as manufactured by K.T. Snyder Co., Inc. or approved equal, or Portland Cement Mortar, 1/2" minimum thickness.

J. Manhole Frames and Covers: Set manhole frames and covers to conform to the grades in the Drawings. Set all frames securely in a cement mortar bed and fillet. All covers shall be made flush with existing permanent surfaces except ground outside the limits of the traveled ways where they should be set approximately 0.2' above the existing ground unless otherwise noted in the Drawings.

3.3 FIELD QUALITY CONTROL

A. Field Tests and Inspections: The Contractor shall be able to produce evidence, when required, that each item of work has been constructed in accordance with the drawings and specifications.

B. Tests for Nonpressure Lines

1. Leakage Tests: Perform tests in accordance with Section 306-1.4 of the Standard Specifications, EMWD standard specifications or as directed by the MSJC representative.

END OF SECTION 333100

SECTION 33 4000

STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Reference Standards:

1. Standard Specifications for Public Works, current edition, including Regional and City of Lake Elsinore Supplemental Amendments.
2. City of Lake Elsinore Standard Specifications for Public Works Construction (Whitebook), current edition.

1.2 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure transition couplings.
3. Cleanouts.
4. Drains.
5. Encasement for piping.
6. Cleanouts.
7. Channel drainage systems.
8. Catch basins.
9. Stormwater inlets.
10. Pipe outlets.
11. Stormwater disposal systems.

B. Related Requirements:

1. Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling, and underground warning tapes.
2. REFERENCES
   The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

C. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, 1983 Demolition Operations-Safety Requirements.

2. Standard Specifications for Public Works Construction (Latest Edition), including the Riverside County and City of Lake Elsinore specifications.

D. Standard Drawings

1. City of Lake Elsinore Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

2. EMWD Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.

E. Geotechnical Report: A Geotechnical Report has been prepared for this project and is available for the Contractor's review. The Geotechnical Report is believed accurate, however, neither the information contained therein, nor conditions indicated to exist at the test hole locations or other site locations is guaranteed to prevail throughout the job site.

1. Geotechnical Report Publication Information:
Title: GEOTECHNICAL INVESTIGATION
Mt. San Jacinto College
5,000 Seat Stadium and Buildings at Menifee Valley Campus
2823 7 La Piedra Road
San Jacinto, Riverside County, California

Prepared for
Mt. San Jacinto Community College District
1499 North State Street
San Jacinto, California 92583Project No. 8767 A02

Prepared by
MTGL 14467 Meridian Parkway, Building 2A, Riverside, CA 92518
Tel: 951 .653.4999, Fax: 951.653.4666

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1. Drop inlets.

2. Cleanouts and drains.

3. Pipe and fittings.

B. Shop Drawings:

1. Cleanouts: Include plans, elevations, sections, details, frames, and covers.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.

B. Field quality-control reports.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic cleanouts, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle cleanouts according to manufacturer's written rigging instructions.

D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by MSJC or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify MSJC Construction Manager no fewer than three days in advance of proposed interruption of service.

2. Do not proceed with interruption of service without MSJC Construction Manager's written permission.

PART 2 - PRODUCTS

2.1 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 74, Service and Extra-Heavy classes.

B. Gaskets: ASTM C 564, rubber.

C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.2 PVC PIPE AND FITTINGS

A. PVC Gravity Sewer Piping SDR-35:

1. Pipe and Fittings: ASTM F 679, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F 477, elastomeric seals for gasketed joints.

B. PVC Pressure Piping:

1. Pipe: Pipe: ASTM D 1785, Schedule 80 PVC, with plain ends for solvent-cemented joints.

2. Fittings: ASTM D 2467, Schedule 80 PVC, socket type.

2.3 CONCRETE PIPE AND FITTINGS

A. Reinforced-Concrete Drain Pipe and Fittings: ASTM C 76.

1. Bell-and-spigot or tongue-and-groove ends and gasketed joints with ASTM C 443, rubber gaskets where indicated.

2.4 NONPRESSURE TRANSITION COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Concrete Pipes: ASTM C 443, rubber.
2. For Cast-Iron Soil Pipes: ASTM C 564, rubber.
3. For Fiberglass Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
4. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
5. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fernco Inc.
   b. Mission Rubber Company.
   c. NDS Inc.
   d. Or Equal.
2. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Ring-Type, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fernco Inc.
   b. Logan Clay Pipe.
   c. Mission Rubber Company.
   d. Or Equal.
2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.5 CLEANOUTS

A. Concrete Cleanouts:

1. Materials and dimensions according to City of Lake Elsinore standards. Cleanout types and additional dimensions as indicated on Drawings. Provide heavy duty frames and grates.

B. Plastic Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. NDS Inc.
   b. Sioux Chief Manufacturing Company, Inc.
   c. Zurn Industries, LLC.
   d. Or Equal.
2. Description: PVC body with PVC threaded plug. Include PVC drain pipe fitting and riser to cleanout of same material as drain piping.

2.6 DRAINS

A. Precast Concrete Area Drains, H-20 Loading, ADA complaint Grate and Frame:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Old castle.
      b. Jensen Precast
      c. Or approved Equal.
   2. Description: ASME A112.6.3 gray-iron round body with anchor flange and round secured grate. Include bottom outlet with inside calk or spigot connection, of sizes indicated.
   3. Top-Loading Classification(s): Medium and Heavy Duty.

B. Cast-Iron Trench Drains:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Smith, Jay R. Mfg. Co.
      b. Watts; a Watts Water Technologies company.
      c. Zurn Industries, LLC.
      d. Or Equal.
   2. Description: ASME A112.6.3, 6-inch-wide top surface, rectangular body with anchor flange or other anchoring device, and rectangular secured grate. Include units of total length indicated and quantity of bottom outlets with inside calk or spigot connections, of sizes indicated.
   3. Top-Loading Classification(s): Medium, Heavy, and Extra-Heavy Duty.

C. Steel Trench Drains:
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Rockford Sanitary Systems, Inc.
      b. Or Equal.
   2. Description: Factory fabricated from ASTM A 242/A 242M, welded steel plate, to form rectangular body with uniform bottom downward slope of 2 percent toward outlet, anchor

flange, and grate. Include units of total length indicated, bottom outlet of size indicated, outlet strainer, acid-resistant enamel coating on inside and outside surfaces, and grate with openings of total free area at least two times cross-sectional area of outlet.

3. Plate Thicknesses: 1/8 inch and 1/4 inch.
4. Overall Widths: 7-1/2 inches and 12-1/3 inches.
    a. Grate Openings: 3/8 inch circular or 3/8-by-3-inch slots.

2.7 POLYMER-CONCRETE, CHANNEL DRAINAGE SYSTEMS

A. General Requirements for Polymer-Concrete, Channel Drainage Systems: Modular system of precast, polymer-concrete channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling. Include quantity of units required to form total lengths indicated.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACO USA.
2. Innovative Plastic, Inc.
3. Polycast: Hubbell Power Systems, Inc.
4. Or Equal.

C. Drainage Specialties: Precast, polymer-concrete units.
1. Large Catch Basins:
    a. 24-by-12-inch polymer-concrete body, with outlets in quantities and sizes indicated.
    b. Gray-iron slotted grate.
    c. Frame: Include gray-iron or steel frame for grate.
2. Small Catch Basins:
    a. 19- to 24-inch by approximately 6-inch polymer-concrete body, with outlets in quantities and sizes indicated.
    b. Gray-iron slotted grate.
    c. Frame: Include gray-iron or steel frame for grate.
3. Oil Interceptors:
    a. Polymer-concrete body with interior baffle and four steel support channels and two 1/4-inch-thick, steel-plate covers.
    b. Steel-plate covers.
    c. Capacity: As indicated on drawings.
    d. Inlet and Outlet: As indicated on drawings.
4. Sediment Interceptors:
    a. 27-inch-square, polymer-concrete body, with outlets in quantities and sizes indicated.
    b. 24-inch-square, gray-iron frame and slotted grate.

D. Supports, Anchors, and Setting Devices: Manufacturer's standard unless otherwise indicated.

E. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

2.8 PLASTIC, CHANNEL DRAINAGE SYSTEMS

A. General Requirements for Plastic, Channel Drainage Systems:

1. Modular system of plastic channel sections, grates, and appurtenances.
2. Designed so grates fit into frames without rocking or rattling.
3. Number of units required to form total lengths indicated.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ACO USA.
2. NDS Inc.
3. Zurn Industries, LLC.
4. Or Equal.

C. Fiberglass Systems:

1. Channel Sections:
   a. Interlocking-joint, fiberglass modular units, with built-in invert slope of approximately 1 percent and with end caps.
   b. Rounded or inclined inside bottom surface, with outlets in quantities, sizes, and locations indicated.
   c. Width: 6 or 8 inches.
2. Factory- or field-attached frames that fit channel sections and grates.
   a. Material: Manufacturer's standard metal.
3. Grates with slots or perforations that fit frames.
   a. Material: Gray iron.
4. Covers: Solid gray iron if indicated.
5. Drainage Specialties:
   a. Large Catch Basins: 24-inch-square plastic body, with outlets in quantities and sizes indicated. Include gray-iron frame and slotted grate.
   b. Small Catch Basins: 12-by-24-inch plastic body, with outlets in quantities and sizes indicated. Include gray-iron frame and slotted grate.

D. Supports, Anchors, and Setting Devices: Manufacturer's standard unless otherwise indicated.

E. Channel-Section Joining and Fastening Materials: As recommended by system manufacturer.

2.9 CATCH BASINS

A. Standard Precast Concrete Catch Basins:

1. Materials and dimensions per City of Lake Elsinore standards.
2. Type of catch basin and additional dimensions as indicated on Drawings.

2.10 STORMWATER INLETS

A. Curb Inlets: Made with vertical curb opening, of materials and dimensions according to City of Lake Elsinore standards.

B. Gutter Inlets: Made with horizontal gutter opening, of materials and dimensions according to City of Lake Elsinore standards. Include heavy-duty frames and grates.

C. Combination Inlets: Made with vertical curb and horizontal gutter openings, of materials and dimensions according to City of Lake Elsinore standards. Include heavy-duty frames and grates.

D. Frames and Grates: Heavy duty, according to City of Lake Elsinore standards.

2.11 PIPE OUTLETS

A. Riprap Basins: Broken, irregularly sized and shaped, graded stone according to NSSGA's "Quarried Stone for Erosion and Sediment Control."

1. Average Size: As indicated on drawings.

B. Filter Stone: According to NSSGA's "Quarried Stone for Erosion and Sediment Control," No. FS-2, No. 4 screen opening, average-size graded stone.

2.12 STORMWATER DISPOSAL SYSTEMS

A. Chamber Systems:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Advanced Drainage Systems, Inc.
   b. Contech Drainage Systems
   c. Hancor Inc.
   d. Or approved Equal.
2. Storage and Leaching Chambers: Molded PE with perforated sides and open bottom. Include number of chambers, distribution piping, end plates, and other standard components as required for system total capacity.
3. Filtering Material: ASTM D 448, Size No. 24, 3/4- to 2-1/2-inch washed, crushed stone or gravel unless shown otherwise.
4. Filter Mat: Geotextile woven or spun filter fabric, in one or more layers, for minimum total unit weight of 4 oz./sq. yd..

B. Pipe Systems: Perforated manifold, header, and lateral piping complying with AASHTO M 252M for NPS 10 and smaller, AASHTO M 294M for NPS 12 to NPS 60. Include proprietary fittings, couplings, seals, and filter fabric.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Advanced Drainage Systems, Inc.
   b. Hancor Inc.
   c. Or approved Equal.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install cleanouts for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing drain is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

F. Install gravity-flow, nonpressure drainage piping according to the following:
   1. Install piping pitched down in direction of flow.
   2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
   3. Install piping with 36-inch minimum cover unless drawings indicate otherwise.
   4. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
   5. Install corrugated steel piping according to ASTM A 798/A 798M.
   6. Install PE corrugated drain piping according to the following:
      a. Encase in Type C rock envelope according to City of Lake Elsinore Standard Drawing SDS110. Surround crushed rock with filter fabric.
      b. Pipe with less than 2 feet of cover: Encase in concrete according to Regional Standard Drawing S-7.
      c. Backfill trench and compact.
   7. Install PVC drain piping according to ASTM D 2321 and ASTM F 1668.

8. Install concrete drain piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

G. Install corrosion-protection as indicated on drawings.

3.2 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure drainage piping according to the following:

1. Join hub-and-spigot, cast-iron soil piping with gasketed joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
3. Join corrugated steel drain piping according to ASTM A 798/A 798M.
4. Join corrugated PE piping according to ASTM D 3212 for push-on joints.
5. Join PVC profile gravity drain piping according to ASTM D 2321 for elastomeric-seal joints or ASTM F 794 for gasketed joints.
6. Join concrete drain piping according to ASTM C 14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
7. Join dissimilar pipe materials with nonpressure-type flexible couplings.

B. Join force-main pressure piping according to the following:

1. Join PVC pressure piping according to ASTM D 2855 for solvent-cemented joints.
2. Join dissimilar pipe materials with pressure-type couplings.

3.3 CLEANOUT INSTALLATION

A. Concrete Cleanouts: Construct concrete cleanouts according to City of Lake Elsinore standards. Set cleanout frames and covers flush with finished surface.

B. Plastic Cleanouts: Use cast-iron soil pipe fittings in drain pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in drain pipe.

1. Install cleanouts and riser extensions from drain pipes to cleanouts at grade.
2. Use commercially manufactured 45 degree wye and 45 degree bend fittings in storm drain pipes and risers for cleanouts.
3. Install piping so cleanouts open in direction of flow in storm drain pipe.
4. Unpaved Areas: Set cleanout tops 1 inch above surrounding earth grade.
5. Paved Areas (Walkways, Roadways, etc.): Set cleanout tops flush with pavement surface.

3.4 DRAIN INSTALLATION

A. Install type of drains in locations indicated.

1. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.

2. Use Medium-Duty, top-loading classification drains in paved foot-traffic areas.
3. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service and parking areas.
4. Use Extra-Heavy-Duty, top-loading classification drains in roads.

B. Embed drains in 4-inch minimum concrete around bottom and sides.

C. Fasten grates to drains if indicated.

D. Set drain frames and covers with tops flush with pavement surface.

E. Assemble trench sections with flanged joints.

F. Embed trench sections in 4-inch minimum concrete around bottom and sides.

3.5 CATCH BASIN INSTALLATION

A. Construct in accordance with City of Lake Elsinore standards.

B. Construct to sizes and shapes indicated on Drawings

C. Set frames and grates to elevations indicated.

3.6 STORMWATER INLET AND OUTLET INSTALLATION

A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.

B. Construct riprap of broken stone, as indicated.

C. Install outlets that spill onto grade, anchored with concrete, where indicated.

D. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.

E. Construct energy dissipaters at outlets, as indicated.

3.7 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.8 CHANNEL DRAINAGE SYSTEM INSTALLATION

A. Install with top surfaces of components, except piping, flush with finished surface.

B. Assemble channel sections to form slope down toward drain outlets. Use sealants, adhesives, fasteners, and other materials recommended by system manufacturer.

C. Embed channel sections and drainage specialties in 4-inch minimum concrete around bottom and sides.

D. Fasten grates to channel sections if indicated.

E. Assemble channel sections with flanged or interlocking joints.

F. Embed channel sections in 4-inch minimum concrete around bottom and sides.

3.9 STORMWATER DISPOSAL SYSTEM INSTALLATION

A. Chamber Systems: Excavate trenches of width and depth, and install system and backfill according to chamber manufacturer's written instructions. Include storage and leaching chambers, filtering material, and filter mat.

B. Piping Systems: Excavate trenches of width and depth, and install piping system, filter fabric, and backfill, according to piping manufacturer's written instructions.

3.10 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping in building's storm building drains.

B. Connect force-main piping to building's storm drainage force mains.

C. Make connections to existing piping and underground manholes or cleanouts.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes, cleanouts, and structures by cutting into existing unit and creating an opening large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, cleanout, or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.

b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping, manholes, cleanouts, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

D. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure-type flexible couplings where required to join gravity-flow, nonpressure drain piping unless otherwise indicated.

a. Shielded flexible couplings for same or minor difference OD pipes.

b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.

c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

2. Use pressure-type pipe couplings for force-main joints.

3.11 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with at least 8-inch-thick, brick masonry bulkheads.

2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Abandoned Manholes, Cleanouts, and Structures: Excavate around manholes, cleanouts, and structures as required and use one procedure below:

1. Remove manhole, cleanout, or structure and close open ends of remaining piping.

2. Remove top of manhole, cleanout, or structure down to at least 36 inches below final grade. Fill to within 12 inches of top with stone, rubble, gravel, or compacted dirt. Fill to top with concrete.

C. Backfill to grade.

3.12 IDENTIFICATION

A. Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use warning tape or detectable warning tape over ferrous piping.

2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.13 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.

2. Defects requiring correction include the following:

a. Alignment: Less than full diameter of inside of pipe is visible between structures.

b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.

c. Damage: Crushed, broken, cracked, or otherwise damaged piping.

d. Infiltration: Water leakage into piping.

e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
   a. Exception: Piping with soil-tight joints unless required by authorities having jurisdiction.
   b. Option: Test plastic piping according to ASTM F 1417.
   c. Option: Test concrete piping according to ASTM C 924.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.14 CLEANING

A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION 33 4000

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SECTION 33 4600
SUBDRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Related Requirements

1. Section 33 40 00 "Storm Utility Drainage Piping".

1.2 SUMMARY

A. Section Includes:

1. Perforated-wall pipe and fittings.
2. Drainage panels.
3. Geotextile filter fabrics.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Drainage conduits, including rated capacities.
2. Drainage panels, including rated capacities.
3. Geotextile filter fabrics.

1.4 COORDINATION

A. Coordinate foundation drainage system installation with excavating, trenching, and backfilling.

B. Coordinate drainage panel installation with waterproofing of walls below grade.

C. Coordinate piping termination with storm drainage system.

PART 2 - PRODUCTS

2.1 PERFORATED-WALL PIPES AND FITTINGS

A. General: Include pipes, fittings, couplings, and joint materials.

B. Perforated PVC Sewer Pipe and Fittings: ASTM D 2729, bell-and-spigot ends, for loose joints.

2.2 MOLDED-SHEET DRAINAGE PANELS

A. Description: Prefabricated composite drainage panels, made with drainage core and faced with filter fabric, for use as part of foundation drainage system.

1. Subject to compliance with requirements, provide products by the following:
    a. Carlisle Coatings & Waterproofing, Inc..
    b. Grace Construction Products; W.R. Grace & Co.
    c. Polyguard Products, Inc.
    d. Or Equal.
2. Drainage Core: Three-dimensional, non-biodegradable, molded-plastic-sheet material designed to effectively conduct water to foundation drainage system under maximum soil pressures.
    a. Flow Rate: 9 to 15 gpm/ft. at hydraulic gradient of 1.0 and 3600 psf normal pressure when tested according to ASTM D 4716.
    b. Minimum Compressive Strength: 18,000 lbf/sq.ft.
3. Filter Fabric: Nonwoven needle-punched geotextile, manufactured for subsurface drainage, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with the following properties determined according to AASHTO M 288:
    a. Survivability: Class 1
    b. Apparent Opening Size: No. 40 sieve, maximum.
    c. Permittivity: 0.5 per second, minimum.

2.3 SOIL MATERIALS

A. Soil materials are specified in Section 31 20 00 "Earth Moving."

2.4 WATERPROOFING FELTS

A. Material: Comply with ASTM D 226, Type I, asphalt-saturated organic felt.

2.5 GEOTEXTILE FILTER FABRICS

A. Description: Fabric of polypropylene (PP) or polyester fibers or combination of both, with flow rate range from 110 to 330 gpm/sq. ft. when tested according to ASTM D 4491.

B. Structure Type: Nonwoven, needle-punched continuous filament.

1. Survivability: AASHTO M 288 Class 2.
2. Styles: Flat and sock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

B. If subdrainage is required for landscaping, locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services.

C. Verify that drainage panels installed as part of foundation wall waterproofing is properly positioned to drain into subdrainage system.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 31 20 00 "Earth Moving."

3.3 FOUNDATION DRAINAGE INSTALLATION

A. Place impervious fill material on subgrade adjacent to bottom of footing after concrete footing forms have been removed. Place and compact impervious fill to dimensions indicated, but not less than 6 inches deep and 12 inches wide.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for foundation subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Install drainage panels on foundation walls as follows:

1. Coordinate placement with other drainage materials.
2. Comply with manufacturer's written instructions for securing drainage panels to substrate. Use adhesives and mechanical fasteners recommended by manufacturer. Lap edges of fabric and extend fabric around foundation drainage pipe according to

manufacturer's recommendations. Do not penetrate waterproofing. Protect installed panels during backfilling

3. Lay perforated drainage pipe at base of footing. Install as indicated in Part 3 "Piping Installation" Article.
4. Separate 4 inches of fabric at beginning of roll and cut away 4 inches of core. Wrap fabric around end of remaining core.
5. Attach panels to wall beginning at subdrainage pipe. Place and secure molded-sheet drainage panels, with geotextile facing away from wall.

J. Place backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Final backfill to finish elevations and slope away from building.

3.4 UNDERSLAB DRAINAGE INSTALLATION

A. Excavate for underslab drainage system after subgrade material has been compacted but before drainage course has been placed. Include horizontal distance of at least 6 inches between drainage pipe and trench walls. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage piping as indicated in Part 3 "Piping Installation" Article for underslab subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping with drainage course to elevation of bottom of slab, and compact and wrap top of drainage course with flat-style geotextile filter fabric.

G. Install horizontal drainage panels as follows:

1. Coordinate placement with other drainage materials.
2. Lay perforated drainage pipe at inside edge of footing.
3. Place drainage panel over drainage pipe with core side up. Peel back fabric and wrap fabric around pipe. Locate top of core at bottom elevation of floor slab.
4. Butt additional panels against other installed panels. If panels have plastic flanges, overlap installed panel with flange.

3.5 RETAINING-WALL DRAINAGE INSTALLATION

A. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

B. Place supporting layer of drainage course over compacted subgrade to compacted depth of not less than 4 inches.

C. Install drainage piping as indicated in Part 3 "Piping Installation" Article for retaining-wall subdrainage.

D. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

E. After satisfactory testing, cover drainage piping to width of at least 6 inches on side away from footing and above top of pipe to within 12 inches of finish grade.

F. Place drainage course in layers not exceeding 3 inches in loose depth; compact each layer placed and wrap top of drainage course with flat-style geotextile filter fabric.

G. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

H. Install drainage panels on wall as follows:

1. Coordinate placement with other drainage materials.
2. Comply with manufacturer's written instructions for securing drainage panels to substrate. Use adhesives and mechanical fasteners recommended by manufacturer. Lap edges of fabric and extend fabric around foundation drainage pipe according to manufacturer's recommendations. Do not penetrate waterproofing. Protect installed panels during backfilling.
3. Lay perforated drainage pipe at base of footing as described elsewhere in this Specification. Do not install aggregate.
4. If weep holes are indicated instead of drainage pipe, cut 1/2-inch-diameter holes on core side at weep-hole locations. Do not cut fabric.
5. Cut panel as necessary to keep top 12 inches below finish grade.
6. For inside corners, bend panel. For outside corners, cut core to provide 3 inches for overlap.

I. Fill to Grade: Place satisfactory soil fill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.6 LANDSCAPING DRAINAGE INSTALLATION

A. Provide trench width to allow installation of drainage conduit. Grade bottom of trench excavations to required slope, and compact to firm, solid bed for drainage system.

B. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

C. Place supporting layer of drainage course over compacted subgrade and geotextile filter fabric, to compacted depth of not less than 4 inches.

D. Install drainage conduits as indicated in Part 3 "Piping Installation" Article for landscaping subdrainage with horizontal distance of at least 6 inches between conduit and trench walls. Wrap drainage conduits without integral geotextile filter fabric with flat-style geotextile filter fabric before installation. Connect fabric sections with adhesive or tape.

E. Add drainage course to top of drainage conduits.

F. After satisfactory testing, cover drainage conduit to within 12 inches of finish grade.

G. Install drainage course and wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Fill to Grade: Place satisfactory soil fill material over drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Fill to finish grade.

3.7 PIPING INSTALLATION

A. Drawings indicate general location and arrangement of foundation drainage system piping.

B. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Foundation and Retaining Wall Subdrainage: Install piping pitched down, at a minimum of 1 percent unless otherwise indicated.
2. Underslab Subdrainage: Install piping level.
3. Plaza Deck Subdrainage: Install piping level.
4. Landscaping Subdrainage: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent unless otherwise indicated.
5. Lay perforated pipe with perforations down.
6. Excavate recesses in trench bottom for bell ends of pipe. Lay pipe with bells facing upslope and with spigot end entered fully into adjacent bell.

C. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

D. Extend piping and connect to storm drainage system or daylight as indicated.

3.8 PIPE JOINT CONSTRUCTION

A. Join perforated PVC sewer pipe and fittings according to ASTM D 3212 with loose bell-and-spigot, push-on joints.

B. Special Pipe Couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.9 CLEANOUT INSTALLATION

A. Comply with requirements for cleanouts specified in Section 33 41 00 "Storm Utility Drainage Piping."

B. Cleanouts for Subdrainage:

1. Install cleanouts from piping to grade. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.

2. In vehicular-traffic areas, unless indicated otherwise, use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 18 by 18 by 12 inches deep. Set top of cleanout flush with grade.

3. In nonvehicular-traffic areas, use NPS 4 PVC pipe and fittings for piping branch fittings and riser extensions to cleanout. Set cleanout frames and covers in a cast-in-place concrete anchor, 12 by 12 by 4 inches deep. Set top of cleanout 1 inch above grade.

4. Comply with requirements for concrete specified in Section 03 30 00 "Cast-in-Place Concrete."

C. Cleanouts for Underslab Subdrainage:

1. Install cleanouts and riser extensions from piping to top of slab. Locate cleanouts at beginning of piping run and at changes in direction. Install fittings so cleanouts open in direction of flow in piping.

2. Use NPS 4 cast-iron soil pipe and fittings for piping branch fittings and riser extensions to cleanout flush with top of slab.

3.10 CONNECTIONS

A. Comply with requirements for piping specified in Section 33 41 00 "Storm Utility Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Unless otherwise indicated, connect low elevations of subdrainage system to building's solid-wall-piping storm drainage system.

C. Where required, connect low elevations of subdrainage to stormwater sump pumps. Comply with requirements for sump pumps specified in Section 22 14 29 "Sump Pumps."

3.11 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling.

2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

B. Drain piping will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.12 CLEANING

A. Clear interior of installed piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

END OF SECTION 33 4600

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